

**SREENIVASA INSTITUTE of TECHNOLOGY and MANAGEMENT STUDIES
(AUTONOMOUS)**

22MBA235A : SECURITY ANALYSIS AND PORTFOLIO MANAGEMENT

Lecture Notes

I MBA / II - SEMESTER

REGULATION: R22



BY

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UNIT – 1 : INVESTMENT

Investment Environment in India

As of my last knowledge update in September 2021, I can provide an overview of the investment environment in India. Please keep in mind that economic and investment conditions can change over time, so it's essential to consult up-to-date sources and seek advice from financial professionals before making any investment decisions. Here are some key aspects of the investment environment in India:

1. **Economic Growth:** India has been one of the world's fastest-growing major economies in recent years, driven by factors such as a large and young population, a growing middle class, and economic reforms. While there can be short-term fluctuations, the long-term economic outlook for India has generally been positive.
2. **Government Initiatives:** The Indian government has implemented various economic reforms and initiatives to attract foreign investment and promote business growth. These include the "Make in India" campaign, the "Startup India" program, and efforts to improve the ease of doing business in the country.
3. **Foreign Direct Investment (FDI):** India has gradually liberalized its FDI policies, allowing foreign investors to participate in various sectors of the economy, including retail, manufacturing, and services. The government has also introduced measures to simplify FDI regulations and enhance transparency.
4. **Stock Markets:** India has a well-established stock market with two major exchanges, the National Stock Exchange (NSE) and the Bombay Stock Exchange (BSE). The stock markets offer opportunities for both domestic and foreign investors to invest in Indian companies. The market capitalization of Indian stock exchanges is substantial.
5. **Real Estate:** The Indian real estate market has seen growth and investment opportunities, particularly in major metropolitan areas. However, the sector can be subject to regulatory changes and cyclical fluctuations.
6. **Banking and Financial Services:** India has a robust banking and financial services sector, including public sector banks, private banks, and non-banking financial companies (NBFCs). These institutions provide various investment and savings products.
7. **Regulatory Environment:** India has regulatory bodies like the Securities and Exchange Board of India (SEBI) that oversee securities markets and protect the interests of investors. It's important for investors to be aware of and comply with the relevant regulations.
8. **Challenges:** Despite the opportunities, there are challenges in the Indian investment environment, including bureaucratic red tape, infrastructure deficits in some areas, and occasional political and regulatory uncertainties. Investors should be prepared for these challenges and conduct thorough due diligence.
9. **Taxation:** India has its own tax laws and regulations that apply to both residents and non-residents. Investors should be aware of the tax implications of their investments, including capital gains tax and withholding tax on interest and dividends.
10. **Currency Risk:** Foreign investors should be mindful of currency risk when investing in India, as the value of the Indian Rupee (INR) can fluctuate against other major currencies.

11. **Diversification:** As with any investment strategy, diversification is key to managing risk. Investors should consider a diversified portfolio that includes different asset classes and geographical regions.

The investment environment in India offers opportunities, but it also comes with its share of complexities and risks. It's advisable for individuals and organizations looking to invest in India to consult with financial advisors and legal experts who are familiar with the Indian market and regulatory landscape to make informed investment decisions. Additionally, staying informed about economic and political developments in India is essential for successful investing.

Capital Markets in India

As of my last knowledge update in September 2021, the capital markets in India encompass a wide range of financial instruments and institutions. India has a well-established capital market infrastructure that includes stock exchanges, regulatory bodies, and various financial instruments. Here is an overview of the capital markets in India:

1. **Stock Exchanges:** India has two primary stock exchanges:
 - **National Stock Exchange (NSE):** The NSE is one of the largest stock exchanges in India and is known for its electronic trading platform. It lists a wide range of stocks, equity derivatives, and debt instruments.
 - **Bombay Stock Exchange (BSE):** The BSE is one of the oldest stock exchanges in Asia. It lists a variety of equities, equity derivatives, and debt securities.
2. **Equity Markets:** India's equity markets allow companies to raise capital by issuing shares to the public. Investors can buy and sell these shares in the secondary market. The equity markets are regulated by the Securities and Exchange Board of India (SEBI).
3. **Derivatives Markets:** India has a well-developed derivatives market, including futures and options contracts on stocks and stock indices. These markets are popular for hedging and speculative purposes.
4. **Debt Markets:** The debt market in India includes government securities (G-Secs), corporate bonds, debentures, and other fixed-income instruments. The Reserve Bank of India (RBI) regulates the government securities market, while SEBI regulates corporate bonds.
5. **Commodity Exchanges:** India has several commodity exchanges where traders can buy and sell commodities such as gold, silver, agricultural products, and energy products. Multi Commodity Exchange (MCX) and National Commodity & Derivatives Exchange (NCDEX) are two prominent commodity exchanges.
6. **Regulatory Authority:** The Securities and Exchange Board of India (SEBI) is the regulatory authority that oversees and regulates the securities and capital markets in India. SEBI is responsible for ensuring fair practices, investor protection, and market integrity.
7. **Investor Protection:** India has various mechanisms in place to protect the rights and interests of investors. The Investor Education and Protection Fund (IEPF) and the Investor Grievance Redressal Mechanism are some of the initiatives aimed at investor protection.

8. **Depositories:** The National Securities Depository Limited (NSDL) and the Central Depository Services Limited (CDSL) are the two central depositories in India. They facilitate the electronic holding and transfer of securities.
9. **Foreign Institutional Investors (FIIs):** India allows foreign investors, including institutional investors, to invest in the Indian capital markets. However, they are subject to certain regulations and investment limits.
10. **Market Indices:** Key market indices in India include the Nifty 50 and the Sensex, which track the performance of major stocks listed on the NSE and BSE, respectively.
11. **Initial Public Offerings (IPOs):** Indian companies often raise capital through IPOs, where they offer shares to the public for the first time. IPOs are an essential component of the capital market.
12. **Market Surveillance:** Stock exchanges in India employ robust surveillance mechanisms to detect and prevent market manipulation and insider trading.
13. **Market Participants:** Besides individual and institutional investors, market participants include brokers, mutual funds, financial institutions, and market makers.

The Indian capital markets have witnessed significant growth and development over the years, attracting both domestic and foreign investors. However, like any financial market, they come with risks, and investors should conduct thorough research and due diligence before participating. Additionally, regulatory frameworks and market conditions may change over time, so it's essential to stay updated with the latest developments in the Indian capital markets.

The Bombay Stock Exchange

The Bombay Stock Exchange (BSE) is one of the most prominent and historically significant stock exchanges in India. Here are some key details about the Bombay Stock Exchange:

1. **Foundation and History:** The Bombay Stock Exchange was founded in 1875 as the Native Share and Stock Brokers' Association. It started as a group of stockbrokers who would gather under a banyan tree in Mumbai to conduct trading. Over time, it evolved into a formal stock exchange. In 1957, it was officially recognized as the "Bombay Stock Exchange."
2. **Location:** BSE is headquartered in Mumbai, Maharashtra, India. It is located in the heart of the country's financial district, making it a critical center for financial activities in India.
3. **Trading Platform:** BSE initially operated as an open outcry exchange, where traders conducted transactions through verbal communication. However, it transitioned to electronic trading with the introduction of the BOLT (BSE Online Trading) platform. BOLT is the exchange's electronic trading system that allows for faster and more efficient trading.
4. **Market Indices:** The BSE is known for its benchmark market index, the S&P BSE Sensex. The Sensex is composed of the 30 largest and most actively traded stocks on the BSE. It serves as an important indicator of the overall health and sentiment of the Indian stock market.

5. **Market Segments:** BSE hosts various market segments, including the equity market, equity derivatives market, currency derivatives market, and the debt segment. These segments cater to a wide range of financial instruments and trading activities.
6. **Listing:** BSE provides a platform for companies to list their shares, including large-cap, mid-cap, and small-cap companies. It also lists various debt instruments, mutual fund units, and exchange-traded funds (ETFs).
7. **Regulation:** The Securities and Exchange Board of India (SEBI) is the regulatory authority overseeing the BSE and all other stock exchanges in India. SEBI ensures compliance with securities laws and regulations.
8. **Trading Hours:** BSE's trading hours consist of various sessions, including the pre-open market, regular trading session, and post-closing session. The regular trading session usually runs from 9:15 AM to 3:30 PM, Indian Standard Time (IST).
9. **Market Data:** BSE provides real-time market data, including stock prices, indices, trading volumes, and other relevant financial information. This data is widely used by investors, traders, and financial professionals for analysis and decision-making.
10. **Historical Significance:** BSE has played a pivotal role in the development of India's capital markets and has been instrumental in the growth of the country's financial sector.
11. **Technology:** BSE has invested in advanced technology infrastructure to ensure efficient trading, clearing, and settlement processes. It offers a state-of-the-art trading platform for market participants.

The Bombay Stock Exchange continues to be a key player in India's financial landscape alongside the National Stock Exchange (NSE). It holds a significant place in the history and development of India's capital markets and is crucial for investors and traders participating in the Indian stock market.

National Stock Exchange

The National Stock Exchange (NSE) is one of the two major stock exchanges in India, with the other being the Bombay Stock Exchange (BSE). Here are some key details about the National Stock Exchange:

1. **Foundation and History:** The National Stock Exchange was founded in 1992 and officially commenced trading in 1994. It was established as a result of various financial reforms aimed at modernizing India's capital markets.
2. **Location:** NSE is headquartered in Mumbai, Maharashtra, India, which is the financial capital of the country.
3. **Trading Platform:** NSE is known for its fully electronic trading platform, which was a pioneering development in the Indian stock market. The electronic trading system is called NEAT (National Exchange for Automated Trading), and it allows for efficient and transparent trading of a wide range of financial instruments.
4. **Market Indices:** NSE hosts several key market indices, with the Nifty 50 being the most prominent. The Nifty 50, or simply Nifty, comprises the 50 largest and most actively traded stocks on the NSE. It is widely followed as an indicator of the Indian stock market's overall performance.

5. **Market Segments:** NSE operates various market segments, including the equity market, equity derivatives market, currency derivatives market, and debt market. These segments cater to a diverse range of financial instruments and trading activities.
6. **Listing:** Companies can list their shares on NSE, providing opportunities for large-cap, mid-cap, and small-cap companies to access capital markets and raise funds.
7. **Regulation:** Like all Indian stock exchanges, NSE is regulated by the Securities and Exchange Board of India (SEBI), which ensures compliance with securities laws and regulations.
8. **Trading Hours:** NSE's regular trading session typically runs from 9:15 AM to 3:30 PM, Indian Standard Time (IST). It may have additional sessions, such as the pre-market session and post-closing session.
9. **Market Data:** NSE provides real-time market data, including stock prices, indices, trading volumes, and other relevant financial information. This data is widely used by investors, traders, and financial professionals for analysis and decision-making.
10. **Technology:** NSE has invested heavily in cutting-edge technology infrastructure to ensure fast and reliable trading and settlement processes. It offers a sophisticated trading platform for market participants.
11. **Historical Significance:** NSE has played a pivotal role in modernizing India's capital markets and has contributed to the growth and development of the country's financial sector.
12. **Investor Services:** NSE offers various services to investors, including trading in mutual fund units, exchange-traded funds (ETFs), and other investment products.

The National Stock Exchange is a critical institution in India's financial landscape and is known for its advanced technology, transparency, and liquidity. Alongside the Bombay Stock Exchange (BSE), it serves as a key platform for trading and investment in the Indian stock market.

Multi Commodity Exchange (MCX)

Overview

The Multi Commodity Exchange of India Limited (MCX), India's first listed exchange, is a state-of-the-art, commodity derivatives exchange that facilitates online trading of commodity derivatives transactions, thereby providing a platform for price discovery and risk management. The Exchange, which started operations in November 2003, operates under the regulatory framework of Securities and Exchange Board of India (SEBI).

MCX offers trading in commodity derivative contracts across varied segments including bullion, industrial metals, energy and agricultural commodities, as also on indices constituted from these contracts. It is India's first Exchange to introduce commodity options, and futures contracts on bullion, base metals and energy indices. The Exchange focuses on providing commodity value chain participants with neutral, secure and transparent trade mechanisms, and formulates quality parameters and trade regulations, in conformity with the regulatory framework. The Exchange has an extensive national reach, with 556 registered members and 47,573 Authorized Persons with its presence in around 706 cities and towns across India as on 30 June 2023. MCX is India's leading commodity derivatives exchange with a market share of about 96.3 per cent in terms of

the value of commodity futures contracts traded in financial year 2023-24 (April 2023 – June 2023).

The Exchange's flagship index series, MCX iCOMDEX, is a series of real-time commodity futures price indices, which give information on market movements in key commodities/segments traded on MCX. The MCX iCOMDEX series consists of a Composite index, apart from three sectoral indices: the Base Metal index, the Bullion index and the Energy index, and also eight single-commodity indices: Gold, Silver, Aluminium, Copper, Lead, Zinc, Crude Oil and Natural Gas indices.

Multi Commodity Exchange Clearing Corporation Limited (MCXCCL), a wholly-owned subsidiary of MCX, is the first clearing corporation in the Indian commodity derivatives market. The clearing corporation provides collateral management and risk management services, along with clearing and settlement of trades executed on the Exchange. MCXCCL, having state of art risk management system, is the central counterparty for all trades executed on MCX's trading platform. It also provides Electronic Commodity Accounting and Receipts Tracking System through a web based portal 'Commodity Receipts Information Systems' (COMRIS). Further, it provides settlement guarantee to all trades executed on MCX via its Settlement Guarantee Fund (SGF).

With an aim to seamlessly integrate with the global commodities ecosystem, MCX has forged strategic alliances with leading international exchanges such as CME Group and London Metal Exchange (LME). The Exchange has signed Memoranda of Understanding (MoUs) with renowned global exchanges viz. Dalian Commodity Exchange (DCE), Taiwan Futures Exchange (TAIFEX), Zhengzhou Commodity Exchange (ZCE) and European Energy Exchange AG (EEX) to facilitate cooperation in areas of sharing knowledge and expertise, education & training, etc. MCX is currently undertaking a consultancy project to set up a commodity derivatives platform at Chittagong Stock Exchange, which will be the first such platform in Bangladesh. The Exchange has also tied-up with various trade bodies, industry associations and educational institutions across the country. These partnerships enable the Exchange to improve trade practices, increase awareness, and facilitate overall growth and development of the commodity market.

MCX's ability to use and apply technology efficiently is a key factor in the development of its business. The Exchange's technology framework is designed to provide high availability for all critical components, which guarantees continuous availability of trading facilities. The robust technology infrastructure of the Exchange, along with its with rapid customisation and deployment capabilities, enables it to operate efficiently with fast order routing, immediate trade execution, trade reporting, real-time risk management, market surveillance and market data dissemination.

MCX has been continuously raising the bar through effective research and product development, intelligent use of information and technology, innovation, thought leadership and ethical business conduct. MCX has been certified with ISO standards, ISO 9001:2015 Quality Management System, ISO 14001:2015 Environment Management System, ISO 22301:2019 Business Continuity Management System and ISO/IEC 27001:2013 Information Security Management System.

Key Milestones

The last two decades have seen extraordinary change in the way we live our lives, and in the role of technology in shaping our world. MCX has been part of this unfolding story from the start.

2022

- MCX and Chittagong Stock Exchange Limited (CSE), Bangladesh, signed a consultancy agreement to collaborate for establishment of the first commodity derivatives platform in Bangladesh on April 12, 2022
- MCX empanels domestic Lead producers as acceptable good delivery brands w.e.f. February 17, 2022

2021

- MCX and European Energy Exchange AG (EEX) entered into a MOU with the objective of knowledge sharing and exchanging of expertise on Electricity derivative products on July 5, 2021
- MCX empanelled two domestic refiners as per “MCX Good Delivery Norms for BIS-Standard Gold/Silver” for delivery in Gold Mini (100 grams) futures and option contracts w.e.f. March 6, 2021
- MCX, NSE, India INX, NSDL, CDSL signed MoU for setting up International Bullion Exchange at GIFT City on March 1, 2021

2020

- MCX launched the Rubber contract on 28th December, 2020
- MCX launched futures on the MCX iCOMDEX Base Metal Index (METLDEX™) on October 19, 2020, and became the first Indian exchange to have derivatives on an index of Base Metals
- MCX launched futures on the MCX iCOMDEX Bullion index (BULLDEX™), India’s first bullion index, on August 24, 2020
- Silver Mini (5 Kg) contract became deliverable with Silver (five nos. of one kilogram bars) as delivery lot from June 2020 contract
- Silver (1kg) Micro contract were made deliverable with one kilogram silver bar as delivery lot from February 2020 contract

2019

- Launched the MCX iCOMDEX™ commodity index series, comprising of a composite index, two sectoral indices and four single commodity indices in December.
- Introduced real time MCX iCOMDEX Excess Return index series including composite, sectoral (bullion & metal) and single commodity ER indices.
- Cotton: Record delivery of 3.94 lakh bales (1 bale=170 kg) in the season ending in Aug 2019, since inception from October 2011.
- Conversion of all MCX Base Metals futures contracts to delivery-based settlement mode from Both-options settlement mode from March 2019 and onwards.
- Successfully introduced 1 gram delivery based Gold Petal Contract.
- Signed MoU with Zhengzhou Commodity Exchange.
- Launch of Kapas Contract.

2018

- Grant of recognition to Multi Commodity Exchange Clearing Corporation Limited (MCXCCL) a wholly owned subsidiary of MCX to act as a Clearing Corporation.
- Launched Options contract in Crude Oil, Silver, Copper & Zinc
- Launched first-ever Brass futures contract in the world

2017

- Launched first-ever Gold Options contract on futures in India

2015

- Sign MoU with CME Group

2013

- Changes in top management and Board

2012

- Became India's first listed exchange

2008

- Became a member of the International Organisation of Securities Commissions (IOSCO)

2006

- Product licensing agreement with NYMEX (CME Group)

2005

- Licensing agreement with LME

2003

- Commenced operations on November 10

2002

- Incorporated

New Issue Market in India

The New Issue Market, also known as the Primary Market or the Initial Public Offering (IPO) market, is a crucial component of India's financial system. It is where companies issue new securities to raise capital by selling them to investors for the first time. Here are some key aspects of the New Issue Market in India:

1. **Purpose:** The primary purpose of the New Issue Market is to provide companies with a means to raise capital for various purposes, including expansion, debt reduction, working capital requirements, and funding new projects. Companies opt for an IPO to access a broader investor base and the public equity market.
2. **Regulation:** The issuance of securities in the New Issue Market is strictly regulated by the Securities and Exchange Board of India (SEBI), the primary regulatory authority for securities markets in India. SEBI ensures that companies comply with disclosure requirements and adhere to fair practices.
3. **Types of Securities:** Companies can issue various types of securities in the primary market, including equity shares, preference shares, debentures, and bonds. The most common primary market activity is the issuance of equity shares through an IPO.
4. **Initial Public Offering (IPO):** An IPO is the process by which a private company goes public by offering its shares to the public for the first time. The IPO process involves preparing a prospectus that provides detailed information about the company, its financials, and its future plans. The prospectus is filed with SEBI for approval. Once approved, the company can offer its shares to investors through various channels, including stock exchanges.

5. **Book Building Process:** In many cases, IPOs in India use the book building process to determine the price at which shares will be offered to the public. Investors submit bids specifying the quantity of shares they wish to purchase and the price range they are willing to pay. The final issue price is determined based on these bids.
6. **Retail and Institutional Participation:** The New Issue Market caters to both retail investors and institutional investors. Retail investors can apply for shares in IPOs through the Application Supported by Blocked Amount (ASBA) process. Institutional investors include mutual funds, insurance companies, and foreign institutional investors (FIIs).
7. **Listing on Stock Exchanges:** After the IPO, the company's shares are listed on stock exchanges, such as the National Stock Exchange (NSE) and the Bombay Stock Exchange (BSE). These shares become tradable, and investors can buy and sell them on the secondary market.
8. **Use of Proceeds:** Companies must disclose how they intend to use the capital raised through the IPO in their prospectus. Common uses include business expansion, debt reduction, research and development, and working capital.
9. **Underwriting:** In many IPOs, underwriters play a significant role. Underwriters are financial institutions that guarantee the sale of the company's shares to investors. If the shares are not fully subscribed, underwriters purchase the remaining shares.
10. **Investor Protection:** SEBI's regulations aim to protect the interests of investors by ensuring that companies provide accurate and adequate information in their prospectuses. This helps investors make informed decisions.

The New Issue Market in India is a vital source of capital for companies seeking to grow and expand their operations. It also provides investment opportunities for retail and institutional investors. However, investing in IPOs carries risks, and investors should conduct thorough research and due diligence before participating in the primary market.

The Role of SEBI

The Securities and Exchange Board of India (SEBI) plays a pivotal role in regulating and overseeing the securities and financial markets in India. It was established in 1988 and became a statutory regulatory authority in 1992 through the SEBI Act. SEBI's primary objective is to protect the interests of investors, promote the development of the securities market, and regulate the securities industry. Here are the key roles and functions of SEBI:

1. **Regulatory Oversight:** SEBI is responsible for regulating various segments of the securities market, including stock exchanges, stockbrokers, merchant banks, mutual funds, and other intermediaries. It formulates regulations and guidelines to govern the conduct of these entities.
2. **Investor Protection:** One of SEBI's primary roles is to safeguard the interests of investors in the securities market. It ensures that investors receive accurate and adequate information about securities, companies, and market conditions. SEBI also takes measures to prevent fraudulent and unfair trade practices.
3. **Regulation of Securities Market:** SEBI regulates the issuance and trading of securities, including equities, bonds, debentures, and derivatives. It approves and oversees initial public offerings (IPOs) and rights issues, ensuring that companies comply with disclosure norms and transparency requirements.

4. **Promotion of Fair Practices:** SEBI promotes fair and transparent trading practices in the securities market. It prohibits insider trading, manipulative and fraudulent activities, and other market abuses. SEBI also sets guidelines for corporate governance and disclosure standards for listed companies.
5. **Market Development:** SEBI takes measures to promote the development and growth of the securities market. It encourages the introduction of new financial products and trading mechanisms, including derivatives and exchange-traded funds (ETFs). SEBI also facilitates the entry of foreign investors into the Indian market.
6. **Surveillance and Enforcement:** SEBI conducts surveillance and monitoring of market activities to detect market manipulation and securities fraud. It has the authority to investigate and take enforcement actions against violators of securities laws and regulations.
7. **Licensing and Registration:** SEBI regulates entities operating in the securities market by issuing licenses and registrations. This includes stockbrokers, sub-brokers, portfolio managers, mutual funds, and other market intermediaries.
8. **Regulation of Intermediaries:** SEBI sets guidelines and standards for the conduct of intermediaries in the securities market. It ensures that intermediaries adhere to ethical and professional standards in their dealings with clients and the market.
9. **Education and Investor Awareness:** SEBI conducts educational initiatives and investor awareness programs to educate investors about market risks and investment opportunities. It seeks to enhance financial literacy and promote informed decision-making.
10. **International Cooperation:** SEBI collaborates with international regulatory bodies and exchanges to promote cross-border regulatory cooperation and information exchange. This helps in aligning Indian securities regulations with global best practices.
11. **Policy Formulation:** SEBI formulates policies and regulations to adapt to changing market dynamics and to address emerging challenges in the securities market. It regularly reviews and updates its regulations to ensure their relevance and effectiveness.

SEBI's role is critical in maintaining the integrity and stability of India's securities markets, ensuring investor protection, and fostering investor confidence. It plays a significant part in shaping the regulatory framework that governs the functioning of the Indian financial system.

Participants in the Stock Markets

Stock markets are complex financial ecosystems with various participants who play different roles in buying, selling, and trading securities. Here are some of the key participants in stock markets:

1. **Investors:**
 - **Retail Investors:** These are individual investors who buy and sell stocks and other securities for personal investment purposes.
 - **Institutional Investors:** These are organizations that invest on behalf of others. They include mutual funds, pension funds, insurance companies, and endowments.

- **High-Frequency Traders (HFTs):** These are firms that use sophisticated algorithms and technology to execute large numbers of trades in fractions of a second.
2. **Stock Exchanges:**
 - **National Stock Exchange (NSE) and Bombay Stock Exchange (BSE)** in India: These are the primary stock exchanges where stocks and other financial instruments are bought and sold. They provide the trading platform and facilitate the matching of buyers and sellers.
 3. **Stockbrokers:**
 - **Full-Service Brokers:** These brokers provide a wide range of services, including investment advice, research, and portfolio management.
 - **Discount Brokers:** These brokers offer trading services at lower commissions and fees but typically do not provide investment advice.
 4. **Market Makers:**
 - These are entities that facilitate liquidity in the market by continuously buying and selling securities. They help maintain bid-ask spreads and ensure that there are buyers and sellers for most securities.
 5. **Clearing and Settlement Agencies:**
 - These agencies ensure that securities and funds are properly transferred between buyers and sellers. In India, the National Securities Clearing Corporation Ltd. (NSCCL) and the Central Depository Services Ltd. (CDSL) are examples of clearing and settlement agencies.
 6. **Regulatory Bodies:**
 - **Securities and Exchange Board of India (SEBI):** SEBI is the primary regulatory authority overseeing securities markets in India. It formulates regulations, conducts inspections, and enforces rules to protect investors and maintain market integrity.
 - **U.S. Securities and Exchange Commission (SEC):** The SEC is the regulatory body responsible for overseeing securities markets in the United States. It enforces securities laws and ensures market transparency.
 7. **Listed Companies:**
 - These are companies that have issued shares to the public and are listed on stock exchanges. They are required to disclose financial information and reports to shareholders and the public.
 8. **Research Analysts and Financial Media:**
 - Research analysts provide analysis and recommendations on stocks and other securities.
 - Financial media outlets, such as news organizations and financial websites, provide information and news about the stock market and individual companies.
 9. **Mutual Funds and Exchange-Traded Funds (ETFs):**
 - Mutual funds pool money from investors to invest in a diversified portfolio of stocks and bonds.
 - ETFs are investment funds that are traded on stock exchanges, offering investors exposure to a wide range of assets.

10. Investment Banks:

- Investment banks help companies raise capital through IPOs and other offerings. They also provide advisory services on mergers and acquisitions (M&A) and other financial transactions.

11. Retail Traders and Day Traders:

- These are individual traders who buy and sell stocks frequently, often making short-term trades to capitalize on price fluctuations.

12. Foreign Institutional Investors (FIIs):

- FIIs are foreign entities, such as hedge funds and mutual funds, that invest in the stock markets of other countries.

These are some of the primary participants in stock markets, and they collectively contribute to the functioning and dynamics of the market. Each participant plays a specific role in the buying, selling, and trading of securities, and they interact within the regulatory framework established by relevant authorities.

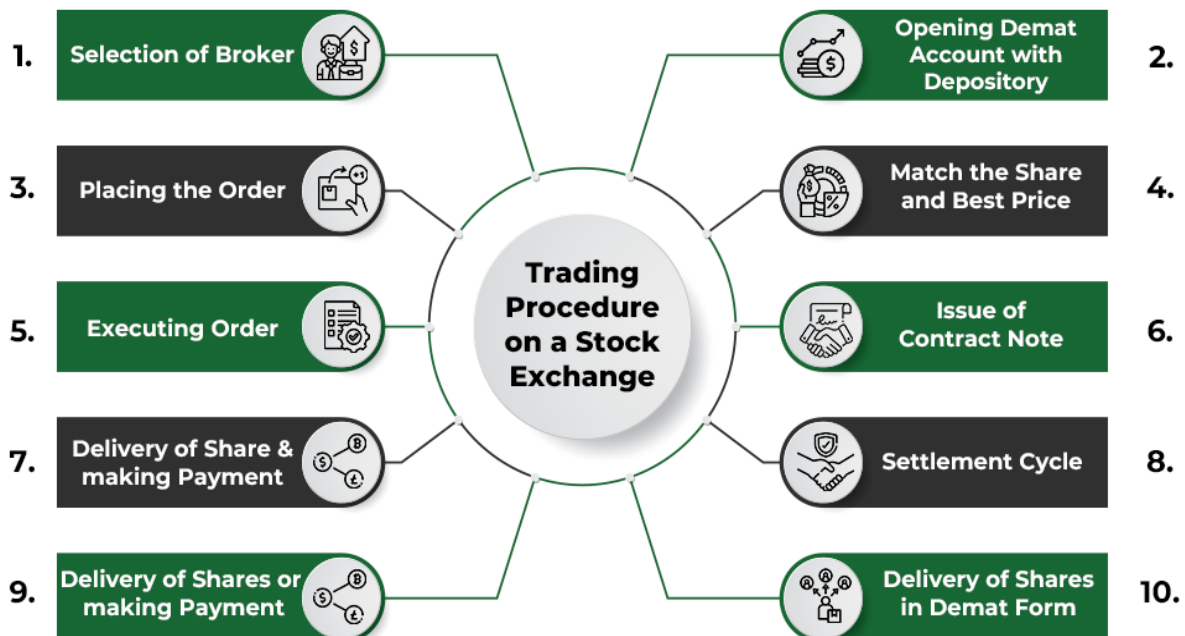
Trading Procedure on a Stock Exchange

A market that serves as a link between the savers and borrowers by transferring the capital or money from those who have a surplus amount of money to those who are in need of money or investment is known as **Financial Market**. Simply put, Financial Market is a market that creates and exchanges financial assets. In general, the investors are known as the surplus units and business enterprises are known as the deficit units. Hence, a financial market acts as a link between surplus units and deficit units, and brings the borrowers and lenders together.

Stock Exchange

The **Securities Contract and Regulation Act** defines a stock exchange as, “An organisation or body of individuals, whether incorporated or not established for the purpose of assisting, regulating, and controlling of business in buying, selling, and dealing in securities.”

Trading Procedure on a Stock Exchange



Before the companies start selling the securities through the stock exchange, they have to first get their securities listed on the stock exchange. The name of the company is included in listed securities only when the authorities of the stock exchange are satisfied with the financial soundness and various other aspects of the company.

Earlier, the buying and selling of securities were done on the trading floor of the stock exchange. However, in present times, it is done through computers and consists of the following steps:

1. Selection of Broker

One can buy and sell securities only through the brokers registered under SEBI and who are members of the stock exchange. A broker can be a partnership firm, an individual, or a corporate body. Hence, the first step of the trading procedure is the selection of a broker who will buy/sell securities on the behalf of a speculator or investor. Before placing an order to the registered broker, the investor has to provide some information, including PAN Number, Date of Birth and Address, Educational Qualification and Occupation, Residential Status (Indian/NRI), Bank Account Details, Depository A/c details, Name of any other brokers with whom they have registered, and Client code number in the client registration form. After getting information regarding all the said things, the broker opens a trading account in the name of the investor.

2. Opening Demat Account with Depository

An account that must be opened with the Depository Participant (including stock brokers or banks) by an Indian citizen for trading in the listed securities in electronic form is known as **Demat (Dematerialised) Account** or **Beneficial Owner (BO) Account**.

The second step of the trading procedure is the opening of a Demat Account. The Depository holds the securities in electronic form. A **Depository** is an organisation or institution, which holds securities like bonds, shares, debentures, etc. At present there are two Depositories; namely, **NSDL (National Securities Depository Ltd.)** and **CDSL (Central Depository Securities Ltd.)**. The Depository and the investor do not have direct contact with each other and interact with each other through Depository Participants only. The Depository Participant will have to maintain the securities account balances of the investor and intimate investor from time to time about the status of their holdings.

3. Placing the Order

The next step after the opening of a Demat Account is the placing of an order by the investor. The investor can place the order to the broker either personally or through email, phone, etc. The investor must make sure that the order placed clearly specifies the range or price at which the securities can be sold or bought. **For example**, an order placed by Kashish is, “Buy 200 equity shares of Nestle for no more than ₹200 per share.”

4. Match the Share and Best Price

The broker after receiving an order from the investor will have to then go online and connect to the main stock exchange to match the share and best price available.

5. Executing Order

When the shares can be bought or sold at the price mentioned by the investor, it will be communicated to the broker terminal, and then the order will be executed electronically. Once the order has been executed, the broker will issue a trade confirmation slip to the investors.

6. Issue of Contract Note

Once the trade has been executed within 24 hours, the broker will issue a contract note. A contract note consists of the details of the number of shares bought or sold, the date, time of the deal, price of securities, and brokerage charges. A contract note is an essential legal document. It helps in settling disputes claims between the investors and the brokers. A contract note also consists of a printed unique order code number assigned to each transaction by the Stock Exchange.

7. Delivery of Share and making Payment

In the next step, the investor has to deliver the shares sold or has to pay cash for the shares bought. The investor has to do so immediately after receiving the contract note or before the day when the broker shall make delivery of shares to the exchange or make payment. This is known as **Pay in Day**.

8. Settlement Cycle

The payment of securities in cash or delivery of securities is done on Pay in Day, which is before T+2 Day. It is because the settlement cycle is T+2 days on w.e.f April 2003 rolling settlement basis. **For example**, if the transaction took place on Tuesday, then the payment must be done before Thursday, i.e., T+2 days (Transaction plus two more days).

9. Delivery of Shares or Making Payment

On the T+2 Day, the Stock Exchange will then deliver the share or make payment to the other broker. This is known as **Pay out Day**. Once the shares have been delivered of payment has been made, the broker has to make payment to the investor within 24 hours of the pay out day, as he/she has already received payment from the exchange.

10. Delivery of Shares in Demat Form

The last step of the trading procedure is making delivery of shares in Demat form by the broker directly to the Demat Account of the investor. The investor is obligated to give details of his Demat Account and instruct his Depository Participant (DP) for taking delivery of securities directly in his beneficial owner account.

UNIT – II : FUNDAMENTAL ANALYSIS AND TECHNICAL ANALYSIS

Fundamental analysis is **the key to understanding the relative position of the company's stock to its fair value**. As mentioned above, it involves measuring and evaluating the key ratios of the company against its past performance as well as against its peers and industry average. This can be done through economic analysis, industry analysis and company analysis.

Economic Analysis for Stock Markets

Economic analysis is a fundamental component of stock market analysis. It involves assessing the overall economic conditions and their potential impact on stock prices. Investors and analysts use economic indicators and data to make informed decisions about buying, selling, or holding stocks. Here are some key aspects of economic analysis for stock markets:

1. **Gross Domestic Product (GDP):** GDP is a critical economic indicator that measures the overall health and growth of a country's economy. A growing GDP typically correlates with rising corporate profits and stock prices. Investors often look at GDP growth rates to gauge the general economic trend.
2. **Interest Rates:** Central banks set interest rates, and they have a significant influence on the stock market. Lower interest rates can stimulate economic growth and make stocks more attractive relative to bonds and other investments. Conversely, higher interest rates can have a dampening effect on stock prices.
3. **Inflation:** Inflation erodes the real returns on investments. Investors monitor inflation rates to assess whether their returns are outpacing the rising cost of living. High inflation can be detrimental to stocks, as it erodes purchasing power.
4. **Unemployment Rate:** A low unemployment rate is often associated with a healthy economy, as it indicates a strong labor market. When people are employed and earning income, they are more likely to invest in stocks. Conversely, high unemployment can lead to decreased consumer spending and lower stock prices.
5. **Consumer Confidence:** Consumer sentiment and confidence surveys can provide insights into consumer spending patterns. High consumer confidence often leads to increased spending and can benefit stocks, especially those of companies in consumer-driven industries.
6. **Corporate Earnings:** The performance of individual companies and their earnings reports is a fundamental driver of stock prices. Investors closely watch earnings reports and projections to assess the financial health and growth potential of a company.
7. **Trade and International Factors:** Global economic conditions, trade policies, and geopolitical events can impact stock markets, especially for multinational companies. Tariffs, trade disputes, and currency fluctuations can affect a company's bottom line.
8. **Government Policies and Fiscal Stimulus:** Government policies, such as tax cuts or stimulus packages, can have a significant impact on economic conditions and stock markets. Investors assess how these policies may influence corporate profits and consumer spending.
9. **Industry and Sector Analysis:** Economic conditions can affect different industries and sectors in varying ways. Investors often perform a detailed analysis of specific industries to identify trends and investment opportunities.

10. **Economic Cycles:** Economic cycles, such as expansions, contractions, recessions, and recoveries, have a direct impact on stock market performance. Understanding where the economy is in the cycle can help investors make strategic decisions.
11. **Leading Economic Indicators:** These are indicators that tend to change before the broader economy does. Examples include building permits, stock market performance, and the yield curve. Investors often use these indicators to predict future economic trends and stock market movements.
12. **Global Economic Events:** Events such as financial crises, pandemics, and natural disasters can have profound effects on the stock market. Investors need to assess the potential short-term and long-term impacts of such events.

It's important to note that economic analysis is just one component of stock market analysis. Technical analysis, which involves studying price charts and patterns, and fundamental analysis, which involves evaluating a company's financial statements, are also crucial tools for investors. Many investors use a combination of these approaches to make well-informed decisions in the stock market. Additionally, it's essential to diversify a portfolio to manage risk effectively, as stock markets can be influenced by a wide range of factors, including economic conditions.

Industry Analysis of Stock Markets

Industry analysis is a crucial aspect of stock market research and investing. It involves evaluating the performance, trends, and prospects of specific industries or sectors within the stock market. Investors and analysts use industry analysis to identify investment opportunities, assess risk, and make informed decisions about allocating their capital. Here are the key components of industry analysis in the context of stock markets:

1. **Market Classification:** Stock markets are divided into various sectors and industries, such as technology, healthcare, energy, consumer goods, and financial services. Investors typically classify companies into these sectors based on their primary business activities.
2. **Economic Conditions:** Consider the broader economic conditions and how they affect specific industries. For example, some industries, like consumer discretionary, may benefit from a strong economy, while others, like utilities, may be less sensitive to economic fluctuations.
3. **Market Trends:** Identify current and emerging trends within an industry. This includes technological advancements, changing consumer preferences, regulatory shifts, and global market dynamics. Understanding these trends can help predict which industries may experience growth or decline.
4. **Competitive Landscape:** Assess the competitive dynamics within an industry. Identify key players, market share distribution, and competitive advantages of companies. A concentrated industry with dominant players may have different investment considerations than a fragmented one.
5. **Barriers to Entry:** Evaluate the barriers that may limit new companies from entering the industry. High barriers, such as significant capital requirements, strong brand recognition, or government regulations, can protect existing companies from new competition.
6. **Regulatory Environment:** Understand the regulatory landscape specific to the industry. Changes in regulations can have a substantial impact on companies within an industry.

For example, pharmaceutical and healthcare companies are sensitive to changes in healthcare policies.

7. **Technological Disruption:** Assess how technology can disrupt or transform an industry. Industries that are slow to adopt or adapt to new technologies may face challenges, while those embracing innovation may thrive.
8. **Supply Chain and Raw Materials:** Consider the availability and cost of essential raw materials and supply chain factors. Industries reliant on scarce or expensive inputs may be more susceptible to supply disruptions and cost pressures.
9. **Consumer Behavior:** Analyze consumer behavior and preferences within the industry. Changing demographics and buying habits can significantly impact companies' revenue and growth prospects.
10. **Cyclical vs. Defensive:** Categorize industries as cyclical or defensive. Cyclical industries, like automotive or construction, tend to perform well during economic expansions, while defensive industries, like healthcare or utilities, are more resilient during economic downturns.
11. **Valuation Metrics:** Evaluate the valuation of companies within the industry. Compare metrics like price-to-earnings ratios (P/E), price-to-sales ratios (P/S), and price-to-book ratios (P/B) to assess whether stocks in the industry are overvalued or undervalued relative to historical averages.
12. **Earnings and Revenue Growth:** Analyze historical and projected earnings and revenue growth for companies in the industry. Look for patterns of consistent growth or any signs of stagnation or decline.
13. **Risk Assessment:** Identify industry-specific risks, such as commodity price volatility, geopolitical factors, or environmental concerns. Assess how these risks may impact the performance of companies in the industry.
14. **Long-Term Prospects:** Consider the long-term growth prospects of the industry. Industries with favorable long-term trends, such as renewable energy or e-commerce, may attract long-term investors.
15. **Diversification:** Diversify your portfolio across multiple industries to spread risk. Different industries may perform differently under various economic conditions, so a well-diversified portfolio can help manage risk.

Industry analysis is often used in conjunction with other forms of analysis, such as fundamental analysis (evaluating individual companies within an industry) and macroeconomic analysis (assessing broader economic conditions). By combining these approaches, investors can make more informed decisions about stock selection and portfolio allocation within the stock market.

Company Analysis for Stock Markets

Company analysis, also known as fundamental analysis, is a critical component of stock market research and investing. It involves evaluating individual companies to assess their financial health, performance, and growth prospects. Investors and analysts use company analysis to make informed decisions about buying, selling, or holding stocks. Here are the key aspects of company analysis in the context of stock markets:

1. **Financial Statements:** Start by examining a company's financial statements, including the income statement, balance sheet, and cash flow statement. These documents provide

insights into a company's revenue, expenses, assets, liabilities, and cash flows over a specific period.

2. **Revenue and Earnings:** Analyze a company's revenue and earnings trends. Look for consistent revenue growth and increasing profitability over time. Understand the sources of revenue and whether they are sustainable.
3. **Profit Margins:** Assess a company's profit margins, such as gross margin, operating margin, and net profit margin. Higher margins generally indicate a more profitable business.
4. **Earnings Per Share (EPS):** Examine a company's EPS and its historical growth. A rising EPS suggests that a company is generating more earnings for each share of stock.
5. **Dividend History:** If the company pays dividends, review its dividend history. Consistent or increasing dividend payments can be a sign of financial stability and shareholder-friendly management.
6. **Debt Levels:** Evaluate the company's debt levels and debt-to-equity ratio. High debt levels can be a risk if the company struggles to service its debt.
7. **Cash Flow:** Assess the company's cash flow from operations. A positive cash flow indicates that the company is generating cash to cover its operating expenses and invest in growth.
8. **Balance Sheet Strength:** Review the company's balance sheet to ensure it has a healthy financial position. Check for adequate liquidity (current assets vs. current liabilities) and a reasonable amount of debt relative to equity.
9. **Competitive Positioning:** Analyze the company's competitive positioning within its industry. Identify its market share, competitive advantages, and any threats from competitors.
10. **Management Quality:** Assess the quality of the company's management team. Look at their track record, experience, and strategic vision. Investigate whether management's interests align with shareholders'.
11. **Product and Service Portfolio:** Understand the company's product or service portfolio. Evaluate the demand for its offerings, product lifecycle, and potential for innovation.
12. **Market Trends:** Consider how industry and market trends may affect the company. Assess whether the company is well-positioned to capitalize on emerging opportunities or adapt to challenges.
13. **Regulatory Environment:** Evaluate how government regulations and policies may impact the company's operations and profitability.
14. **Customer Base:** Examine the diversity and loyalty of the company's customer base. Dependence on a small number of customers can pose a risk.
15. **Risk Assessment:** Identify and evaluate specific risks that the company may face, such as industry-specific risks, competitive threats, or geopolitical factors.
16. **Valuation Metrics:** Compare the company's valuation metrics, such as P/E ratio, P/S ratio, and P/B ratio, to industry peers and historical averages. Determine whether the stock is overvalued or undervalued.
17. **Earnings Guidance:** Review the company's earnings guidance and management's forecasts. Assess whether the company is meeting or exceeding its guidance.

18. **Sustainability and ESG Factors:** Consider environmental, social, and governance (ESG) factors that may impact the company's long-term sustainability and reputation.
19. **Corporate Governance:** Evaluate the company's corporate governance practices, including board independence and executive compensation.
20. **Recent News and Events:** Stay updated on recent news, events, and developments related to the company, as these can have a significant impact on its stock price.

Company analysis is an essential part of the stock selection process, especially for investors focused on long-term investing. Combining company analysis with broader economic analysis, industry analysis, and portfolio diversification can help investors make well-informed decisions in the stock market.

Technical Analysis for Stock Markets

Technical analysis is a method of evaluating stocks and other financial instruments by analyzing historical price and volume data to predict future price movements. It is based on the idea that historical price patterns and trends tend to repeat themselves, and by identifying these patterns, traders and investors can make informed decisions about buying, selling, or holding stocks. Here are some key concepts and tools commonly used in technical analysis for stock markets:

1. **Price Charts:** Price charts are the foundation of technical analysis. They provide a visual representation of a stock's historical price movements over a specific time frame. Common types of charts include line charts, bar charts, and candlestick charts.
2. **Support and Resistance Levels:** Support levels are price levels at which a stock tends to find buying interest and bounce higher, while resistance levels are price levels where selling interest typically emerges, preventing the stock from rising further. These levels help traders identify potential entry and exit points.
3. **Trend Analysis:** Identifying trends is a fundamental aspect of technical analysis. Trends can be upward (bullish), downward (bearish), or sideways (range-bound). Traders use trendlines and moving averages to identify and follow trends.
4. **Moving Averages:** Moving averages are used to smooth out price data and identify trends over a specific period. Common types of moving averages include the simple moving average (SMA) and the exponential moving average (EMA). Moving average crossovers are often used as buy or sell signals.
5. **Relative Strength Index (RSI):** The RSI is a momentum oscillator that measures the speed and change of price movements. It ranges from 0 to 100 and is used to identify overbought and oversold conditions. Values above 70 suggest overbought conditions, while values below 30 suggest oversold conditions.
6. **MACD (Moving Average Convergence Divergence):** The MACD is a trend-following momentum indicator that consists of two moving averages and a histogram. It helps traders identify changes in the strength, direction, and momentum of a stock's price movement.
7. **Volume Analysis:** Volume measures the number of shares or contracts traded in a stock over a given period. Traders use volume to confirm the validity of price movements. For example, rising prices on high volume may indicate strong buying interest.

8. **Chart Patterns:** Technical analysts look for chart patterns, such as head and shoulders, double tops and bottoms, flags, and triangles. These patterns can signal potential trend reversals or continuations.
9. **Fibonacci Retracement Levels:** Fibonacci retracement levels are horizontal lines drawn on a chart to identify potential support and resistance levels based on Fibonacci ratios. Traders use these levels to predict potential price reversals.
10. **Candlestick Patterns:** Candlestick charts display price movements using candlestick shapes. Traders use candlestick patterns, such as doji, hammer, and engulfing patterns, to make decisions about potential reversals or continuations.
11. **Bollinger Bands:** Bollinger Bands consist of a middle band (usually a moving average) and two outer bands that represent standard deviations from the middle band. Traders use Bollinger Bands to identify volatility and potential price breakouts.
12. **Stochastics:** Stochastics is an oscillator that compares a stock's closing price to its price range over a specific period. It helps identify overbought and oversold conditions and potential trend reversals.
13. **Elliott Wave Theory:** This theory proposes that stock price movements follow specific wave patterns, which can help predict future price movements. It's a complex theory that requires a deep understanding of wave patterns.
14. **Chart Analysis Software:** Traders often use specialized charting software and platforms to access and analyze historical price data, apply technical indicators, and draw charts.

It's important to note that technical analysis has its critics, who argue that it relies on historical data and patterns that may not always accurately predict future price movements. Successful technical analysis also requires discipline, risk management, and a deep understanding of the tools and concepts involved. Many investors use a combination of technical analysis and fundamental analysis to make well-informed decisions in the stock market.

Dow Theory in Stock Market

Dow Theory is a technical analysis approach to investing that was developed by Charles Dow, the founder of the Dow Jones and Company. It is based on the concept that the share market moves in trends that can be analyzed and predicted. Dow Jones theory provides a framework for understanding market behaviour and making informed investment decisions.

History and Origin

Charles Dow developed the Dow Theory in the late 1800s along with his business partner, Edward Jones. Together they founded the Dow Jones and Company, which published the Wall Street Journal and created the Dow Jones Industrial Average.

How does it work?

The Dow theory is based on six basic principles:

1. The Market is Comprised of Three Trends

- Primary trends within a bull or bear market that can last anywhere from a year or more.
- Secondary trends such as corrections that move against the primary trend, which can last from three weeks to three months.
- Minor trends that generally last for less than three weeks.

2. Primary Trends Have Three Phases



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- During a bull market: an accumulation phase, public participation phase, and excess phase.
- In a bear market: a distribution phase, public participation phase, and panic (or fear) phase.

3. The Averages Discount Everything

The efficient markets hypothesis (EMH), which claims that asset prices take into account all available information, underlies the Dow theory.

Factors such as earnings potential, competitive advantage, managerial skill, and other aspects that can affect stock prices are already priced into the market. Even future events are discounted in the form of risk, according to stricter interpretations of this idea.

4. The Averages Must Confirm Each Other

Dow stated that indices or market averages must confirm one another in order for a trend to be well established, meaning that signals that occur on one index, for example, should correspond or match the same signals on another index.

Traders should not assume that a new trend has started if one index, such as the Dow Jones Industrial Average (DJIA), is confirming a new primary uptrend, but another index, such as the Dow Jones Transportation Average (DJTA), remains in a primary downtrend.

This reasoning suggests that if producers' revenues are increasing, they must be manufacturing more and be shipping more of their products to consumers.

The performance of the businesses that transport manufacturers' output to markets, such as the railroads, might therefore be of interest to investors.

5. Volume Confirms the Trend

Dow believed that volume should increase during a primary trend and that low volume signalled weakness in a trend. For instance, during a bull market, volume should rise as price rises and decline during a secondary correction.

If volume, however, starts increasing during a correction, then it could be an early sign that market participants are turning bearish.

6. Trends Persist Until a Prominent Reversal Occurs

It is common to mistake primary trend reversals for secondary trends. Dow believed that during these reversals, the primary trend should be given the benefit of the doubt.

It can be challenging to determine whether a reversal heralds the start of a new trend or only a momentary change in the current trend. Regarding the precise timing of a trend shift, Dow theorists frequently differ. Although technical analysis tools try to make this clear, various investors may have different views and opinions.

Examples



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The first chart example above shows the three phases of a primary trend that the Dow Jones Industrial Average Index (DJIA) went through, prior to the previous US recession that lasted from 2007 to 2009.

The resulting market collapse happened quickly, after the short distribution phase, and as the next chart example below will illustrate, there were early warning signs that this market was not in a ‘healthy’ state (according to the Dow theory) prior to the collapse.



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The chart above shows the price action of the DJIA (weekly candlesticks) versus the DJTA (blue line). Note how these two indices almost mirrored each other perfectly leading up to the final highs before the market crash occurred.

This behaviour adhered to the part of the Dow theory that states that the averages should confirm each other.

However, while the DJIA continued to make higher highs (labelled HH), the DJTA started moving significantly lower (red arrow between two vertical black lines). Soon afterwards, the DJTA moved to new highs (green arrow), but the DJIA failed to follow suit and continued lower. For a period that spanned multiple months, these two averages became ‘disconnected’ from each other, which signalled an ‘unhealthy’ market environment before the severe decline started in earnest.



Image for illustration purposes only

Our final chart example shows the same behaviour discussed above but this time on two occasions that happened in 2019 and 2020. When the one index moves higher but the other fails to do the same, this is referred to as index divergence, which in many cases acts as an early warning that a reversal might be imminent.

Importance of Dow Theory

Charles Dow’s Theory is an important tool for technical analysis in the stock market. The theory has been around for over a century and continues to be relevant today. Here are a few reasons why the Dow Theory is important:

- **Understanding market trends:** The Dow’s Theory helps investors understand the direction of the overall market trend. By analyzing the primary, secondary, and minor trends, investors can make more informed investment decisions.
- **Identifying stock trends:** Dow Theory can help investors identify the trends of individual stocks. By understanding the stock’s trend, investors can make better decisions about when to buy or sell.
- **Technical analysis:** The Dow Theory is a key tool in technical analysis. It helps investors identify support and resistance levels, as well as important trend lines.

- **Risk management:** Dow's Theory can help investors manage risk. By understanding the trend of the market, investors can adjust their portfolios to protect against potential losses.
- **Long-term investing:** The Dow Theory is useful for long-term investors who are interested in investing in the stock market. By understanding the long-term trends, investors can make better decisions about which stocks to invest in.

Conclusion

Even though a lot has changed over the past century, many traders still regard the Dow theory with its six basic principles to be a reliable trading approach. The Dow theory provides the foundation for much of what we currently understand about technical analysis, which is why traders and investors alike should familiarise themselves with this fascinating theory.

The Dow theory, however, is not infallible, just like most theories and strategies in the world of trading. Dow's theory was intended to help investors identify facts and not to make forecasts or assumptions about market direction.

Hopefully, this article has given you a deeper understanding of the different phases that markets go through and will spur you on to study this fascinating theory further.

Key Principles of Dow Theory

A. The market discounts everything

The first principle of Charles Dow's Theory is that the market discounts everything. This means that all the information about a company or an industry is already reflected in the stock price. Investors can analyze past market data to try to predict future market trends. But ultimately, the market will always reflect all available information.

B. The market has three trends

The second principle of Dow's Theory is that the market has three trends. These are the primary trend, the secondary trend, and the minor trend. The primary trend is the long-term direction of the market and can last for several years. The secondary trend is a counter-trend movement that lasts several weeks or months, and the minor trend is the day-to-day fluctuations of the market.

C. Trend confirmation

The third principle of Dow's Theory is trend confirmation. This means that a trend is not considered to be valid until it is confirmed by both the Dow Jones Industrial Average and the Dow Jones Transportation Average. According to this theory, if both indexes are moving in the same direction, it confirms the trend. If they are moving in opposite directions, it indicates a potential reversal in the trend.

D. Volume confirmation

The fourth principle of Dow's Theory is volume confirmation. This means that a trend is more likely to be sustained if there is a high volume of trading activity in the direction of the trend. Low volume during a trend may indicate that the trend is weak and may not be sustained.

Pros of Dow Theory

Some advantages of Charles Dow's theory are as follows:

- **Long-term perspective:** Dow Theory is based on long-term market trends. It can provide investors with a big-picture view of market movements. It can also help investors avoid knee-jerk reactions to short-term market fluctuations and focus on long-term growth potential.

- **Easy to understand:** This theory is based on simple principles. The theory provides clear guidelines on how to identify market trends, and it can be a useful tool for investors looking to better understand market behaviour.
- **Follows market trends:** Dow Theory is based on the idea that the market is always right. And it helps investors follow the current trend. By identifying the trend, investors can make better decisions about when to buy and sell securities.

Cons of Dow Theory

Some cons of Dow's Theory are as follows:

1. Not always accurate

While the Dow Theory is a useful tool for analyzing market trends, it is not always accurate in predicting future market movements. There are various external factors, such as political and economic events, that can influence market behaviour and make it difficult to rely solely on the Dow Theory.

2. Ignores other important factors

The Dow Theory focuses primarily on market trends and does not take into account other important factors that can affect market behaviour, such as company fundamentals, macroeconomic indicators, and industry trends. Therefore, it may not provide a comprehensive picture of the market.

3. Limited to 30 stocks

The Dow Jones Industrial Average only includes 30 large-cap stocks, which may not be representative of the entire market. This limited sample size may not accurately reflect the performance of the broader market or certain sectors, which may limit the usefulness of the Dow Theory for some investors.

Dow Theory Trading Strategy

The Dow Theory trading strategy is based on the principles outlined in the Dow Theory. It emphasizes the importance of trend analysis in making investment decisions. Here are the key steps involved in using the Dow Theory for trading:

Step 1: Identify the primary trend

The first step in the Dow Theory trading strategy is to identify the primary trend of the market. This is done by analyzing the long-term price movements of the market, typically over a period of several months to years. If the market is moving consistently higher, it is said to be in an uptrend, while if it is consistently moving lower, it is in a downtrend.

Step 2: Confirm the trend

Once the primary trend has been identified, the next step is to confirm it. This involves looking for other indicators, such as trading volume, to confirm the direction of the trend. In general, if trading volume is increasing as the market moves in the direction of the trend, it is seen as confirmation of the trend.

Step 3: Identify secondary trends

Within the primary trend, there will be secondary trends that can provide opportunities for traders to enter or exit the market. Secondary trends are typically shorter-term movements within the primary trend, lasting several weeks to a few months.

Step 4: Look for trend reversals

One of the key principles of the Dow Jones Theory is that trends tend to continue until there is evidence of a reversal. Traders using this strategy will look for signs that the trend is weakening or reversing, such as a change in trading volume or a break in key support or resistance levels.

Step 5: Use technical analysis

Technical analysis plays a key role in the Dow Theory trading strategy. Traders will use charts and technical indicators to identify key support and resistance levels, trend lines, and other patterns that can provide insight into the direction of the market.

Step 6: Implement risk management

As with any trading strategy, risk management is critical when using the Dow Theory. Traders should set stop-loss orders to limit their losses in the event the market moves against them, and they should use position sizing and other risk management techniques to manage their exposure to the market.

Trend Analysis

Trend analysis is a crucial component of stock market analysis and is used by traders and investors to make informed decisions about buying, holding, or selling stocks. It involves studying historical price and volume data to identify and predict trends in stock prices. Here are the key steps and concepts involved in trend analysis for stock markets:

1. **Data Collection:** To perform trend analysis, you need historical price and volume data for the stock or market you're interested in. This data is typically available through financial news websites, brokerage platforms, or specialized financial data providers.
2. **Plotting Stock Prices:** The most common way to analyze trends is by plotting stock prices over time on a price chart. Each data point represents the closing price of the stock on a specific date. Common chart types include line charts, bar charts, and candlestick charts.
3. **Identify Trends:** Once you have the price chart, you can visually identify trends. There are three main types of trends:
 - **Uptrend:** Characterized by higher highs and higher lows. This indicates that the stock's price is generally rising over time.
 - **Downtrend:** Characterized by lower highs and lower lows. This indicates that the stock's price is generally falling over time.
 - **Sideways or Range-bound:** Occurs when the stock's price moves within a relatively narrow range with no clear upward or downward direction.
4. **Trendlines:** Trendlines are used to highlight and confirm trends. An uptrend can be drawn by connecting the lows, while a downtrend can be drawn by connecting the highs. Trendlines help traders identify potential entry and exit points.
5. **Moving Averages:** Moving averages are used to smooth out price data and identify the average price over a specific time period. Common moving averages include the simple moving average (SMA) and the exponential moving average (EMA). Traders often use moving averages to identify trends and potential reversals.

6. **Support and Resistance Levels:** These are price levels where a stock tends to find buying support (floor) or selling pressure (ceiling). Identifying these levels can help traders make decisions about entry and exit points.
7. **Volume Analysis:** Volume is an essential component of trend analysis. Increased trading volume often accompanies significant price movements, indicating the strength of a trend. Conversely, low volume during a price move may suggest a weak or unsustainable trend.
8. **Confirmation:** Dow Theory, as mentioned earlier, emphasizes the importance of confirmation between different market indices or related stocks. Confirming trends in multiple assets can increase the reliability of the analysis.
9. **Timeframes:** Traders often use different timeframes for trend analysis, such as short-term (intraday), intermediate-term (daily or weekly), and long-term (monthly). The choice of timeframe depends on the trading or investment horizon.
10. **Risk Management:** Regardless of your analysis, it's crucial to have a risk management strategy in place. This includes setting stop-loss orders, defining risk-reward ratios, and diversifying your portfolio to manage potential losses.

Trend analysis is a valuable tool for stock market participants, but it's important to remember that no analysis method is foolproof. Markets can be influenced by various factors, and trends can change quickly. Therefore, it's essential to combine trend analysis with other forms of analysis and stay informed about economic and market news.

Moving Averages for Technical Analysis

Moving averages are essential tools in technical analysis used to smooth out price data, identify trends, and generate trading signals. They are a fundamental component of many technical trading strategies. Here's an overview of moving averages in technical analysis:

Moving Average

A moving average is a statistical calculation used to analyze data points by creating a constantly updated average price. In the context of financial markets, moving averages are used to filter out noise in price data and highlight the underlying trend. They do this by calculating the average price of an asset over a specified time period.

There are two main types of moving averages:

1. **Simple Moving Average (SMA):** The SMA is the most basic type of moving average. It calculates the average price over a specific number of periods by summing up the closing prices of those periods and dividing by the number of periods. For example, a 10-day SMA calculates the average closing price over the last 10 days.
2. **Exponential Moving Average (EMA):** The EMA gives more weight to recent prices, making it more responsive to recent price changes compared to the SMA. It is calculated using a formula that assigns greater importance to the most recent data points. Traders often use EMAs for short-term analysis.

How Are Moving Averages Used in Technical Analysis?

Moving averages are used in various ways in technical analysis:

1. **Trend Identification:** Moving averages are used to identify trends. When the price is consistently above a moving average, it suggests an uptrend, and when the price is below,

it suggests a downtrend. The direction of the moving average (rising or falling) provides insight into the trend's strength.

2. **Support and Resistance:** Moving averages can act as dynamic support and resistance levels. In an uptrend, the moving average can provide support, while in a downtrend, it can act as resistance.
3. **Crossovers:** Moving average crossovers are commonly used signals. A bullish crossover occurs when a shorter-term moving average crosses above a longer-term moving average, suggesting a potential buy signal. Conversely, a bearish crossover occurs when a shorter-term moving average crosses below a longer-term moving average, signaling a potential sell or short signal.
4. **Moving Average Envelopes:** Traders use envelopes created by two moving averages, one above and one below the price, to identify overbought and oversold conditions. When prices move outside the envelope, it may signal an extreme condition.
5. **Moving Average Convergence Divergence (MACD):** The MACD indicator consists of two moving averages: the MACD line (a fast EMA) and the signal line (a slower EMA). Traders use the MACD to identify trend changes and generate buy or sell signals.
6. **Moving Average Ribbons:** A moving average ribbon consists of multiple moving averages of different timeframes plotted on the same chart. It provides a visual representation of trend strength and can help traders identify potential entry and exit points.
7. **Timeframe Selection:** Traders and investors can choose different timeframes for their moving averages, such as short-term (e.g., 10-day or 20-day), medium-term (e.g., 50-day), and long-term (e.g., 200-day). The choice of timeframe depends on the trader's or investor's objectives and trading style.

It's important to note that while moving averages can be valuable tools, they are not foolproof, and they do have limitations. They may generate false signals during ranging or choppy market conditions, and they can lag behind rapid price movements. Therefore, traders often use moving averages in combination with other technical indicators and analysis methods to make more informed trading decisions.

Patterns in Technical Analysis

Patterns in technical analysis are recurring formations or configurations that appear on price charts. Traders and analysts use these patterns to make predictions about future price movements and to identify potential trading opportunities. These patterns can provide insights into market sentiment, trend reversals, and continuation patterns. Here are some common patterns in technical analysis:

1. **Head and Shoulders:** The head and shoulders pattern is a reversal pattern that typically signals a change from an uptrend to a downtrend (or vice versa). It consists of three peaks: a higher peak (head) between two lower peaks (shoulders). The neckline is drawn connecting the lows of the pattern. A break below the neckline confirms the pattern.
 - o **Inverse Head and Shoulders:** This is the bullish counterpart of the head and shoulders pattern and signals a reversal from a downtrend to an uptrend. It consists of three troughs: a lower trough (head) between two higher troughs (shoulders). A break above the neckline confirms the pattern.

2. **Double Top and Double Bottom:** These are reversal patterns. A double top forms after an uptrend and indicates a potential trend reversal to the downside. It consists of two peaks at approximately the same price level. A double bottom forms after a downtrend and signals a potential trend reversal to the upside. It consists of two troughs at approximately the same price level.
3. **Triple Top and Triple Bottom:** Similar to double tops and double bottoms, these patterns consist of three peaks (triple top) or three troughs (triple bottom) at approximately the same price level. They are considered more significant than their double counterparts.
4. **Symmetrical Triangle:** A symmetrical triangle is a continuation pattern that forms when the price consolidates within converging trendlines. It represents a period of indecision in the market and typically precedes a breakout, either to the upside or downside.
5. **Ascending Triangle:** This is a bullish continuation pattern characterized by a horizontal resistance line and a rising support line. It suggests that buyers are becoming more aggressive, and a breakout above the resistance is anticipated.
6. **Descending Triangle:** This is a bearish continuation pattern characterized by a horizontal support line and a descending resistance line. It suggests that sellers are becoming more aggressive, and a breakout below the support is expected.
7. **Flag and Pennant:** These are short-term continuation patterns that resemble small flags or pennants on a price chart. Flags are rectangular, while pennants are small symmetrical triangles. They typically form after a strong price move and indicate a brief consolidation before the trend resumes.
8. **Cup and Handle:** This is a bullish continuation pattern. The cup forms a rounded bottom, followed by a smaller consolidation (the handle). A breakout from the handle signals a potential upward trend continuation.
9. **Wedge:** A wedge pattern forms when two trendlines converge, either upward (rising wedge) or downward (falling wedge). These patterns can signal both continuation and reversal, depending on the overall market context.
10. **Rectangle (Trading Range):** A rectangle or trading range pattern occurs when prices move within horizontal support and resistance levels. Traders often look for breakout signals to enter positions.
11. **Gaps:** Gaps occur when the price of an asset moves sharply higher or lower between two trading sessions, leaving a gap in the price chart. Types of gaps include common gaps, breakaway gaps, runaway (measuring) gaps, and exhaustion gaps, each with its own interpretation.

It's important to note that while these patterns can be valuable tools for technical analysis, they are not infallible, and their effectiveness can vary. Traders often use additional technical indicators and analysis methods to confirm signals and manage risk. Furthermore, patterns should be considered in the context of broader market conditions and fundamentals.

(https://www.slideshare.net/indraneel8/technical-analysis-chart-patterns-part-2?from_action=save)

(<https://www.slideserve.com/selah/technical-analysis-powerpoint-ppt-presentation>)

Relative Strength Index (RSI)

The Relative Strength Index (RSI) is a popular momentum oscillator and technical indicator used by traders and analysts to assess the strength and potential reversal points of a financial instrument, such as a stock, currency pair, or commodity. It was developed by J. Welles Wilder and introduced in his 1978 book "New Concepts in Technical Trading Systems." The RSI is based on the following key concepts:

1. **Overbought and Oversold Levels:** The RSI ranges from 0 to 100 and is typically displayed as a line on a chart. It helps traders identify overbought and oversold conditions. Generally, an RSI reading above 70 is considered overbought, suggesting that the asset may be due for a price correction or a reversal to the downside. Conversely, an RSI reading below 30 is considered oversold, indicating that the asset may be due for a price bounce or a reversal to the upside.
2. **Calculating RSI:** The RSI is calculated using the following formula:
$$RSI = 100 - [100 / (1 + RS)]$$
 - o RS (Relative Strength) is the average gain of up periods (typically closing price gains) divided by the average loss of down periods (typically closing price losses) over a specified time period. The most common time period used is 14 periods, but traders can adjust this period to suit their analysis.
3. **Divergence:** RSI divergence occurs when the RSI and the price of the asset move in opposite directions. For example, if the RSI is making higher highs while the price is making lower highs, it can be a signal that the current trend may be weakening and a reversal is possible.
4. **Centerline Crossover:** The RSI can also provide signals through its centerline (usually set at 50). When the RSI crosses above 50, it may indicate the start of an uptrend or bullish momentum. Conversely, when the RSI crosses below 50, it may suggest the start of a downtrend or bearish momentum.
5. **Bullish and Bearish Divergence:** RSI divergence can be categorized into two types:
 - o **Bullish Divergence:** Occurs when the RSI forms higher lows while the price forms lower lows. It can signal a potential bullish reversal.
 - o **Bearish Divergence:** Occurs when the RSI forms lower highs while the price forms higher highs. It can signal a potential bearish reversal.
6. **Use with Other Indicators:** RSI is often used in conjunction with other technical indicators and chart patterns to confirm signals and make trading decisions. Common companion indicators include moving averages, trendlines, and support/resistance levels.
7. **Timeframes:** RSI can be applied to various timeframes, from short-term intraday trading to longer-term investing. The choice of timeframe depends on the trader's objectives and trading strategy.

It's important to note that RSI, like any technical indicator, should not be used in isolation. Traders and analysts should consider multiple factors and use RSI as part of a broader analysis to make well-informed trading decisions. Additionally, overbought or oversold readings on the RSI do not necessarily guarantee an immediate price reversal, so it's important to use it in conjunction with other forms of analysis and risk management strategies.

Fundamental Vs. Technical Analysis

Basis for Comparison	Fundamental Analysis	Technical Analysis
Meaning	Fundamental Analysis is a practice of analyzing securities by determining the intrinsic value of the stock.	Technical analysis is a method of determining the future price of the stock using charts to identify the patterns and trends.
Relevant for	Long term investments	Short term investments
Function	Investing	Trading
Objective	To identify the intrinsic value of the stock.	To identify the right time to enter or exit the market.
Decision making	Decisions are based on the information available and statistic evaluated.	Decisions are based on market trends and prices of stock.
Focuses on	Both Past and Present data.	Past data only.
Form of data	Economic reports, news events and industry statistics.	Chart Analysis
Future prices	Predicted on the basis of past and present performance and profitability of the company.	Predicted on the basis of charts and indicators.
Type of trader	Long term position trader.	Swing trader and short term day trader.

UNIT – 3 : MEASUREMENT OF RETURN AND RISK

Revenue Return and Capital Appreciation

Revenue return and capital appreciation are two key components of investment returns, particularly in the context of financial investments such as stocks, bonds, real estate, and other assets. These terms help investors understand how they can potentially make money from their investments. Let's break down each concept:

1. Revenue Return:

- Revenue return refers to the income or cash flow generated by an investment over a specific period, typically expressed as a percentage of the initial investment amount.
- It represents the regular income that an investor receives from their investment, often in the form of interest, dividends, rental income, or any other periodic payment.
- Revenue return is considered a more predictable and stable source of income compared to capital appreciation.

Examples of revenue return:

- Dividend payments from stocks.
- Interest payments from bonds.
- Rental income from real estate properties.

2. Capital Appreciation:

- Capital appreciation, also known as capital gain, is the increase in the market value or price of an investment over time.
- It represents the potential profit made by an investor when the market value of their investment rises above the initial purchase price.
- Capital appreciation can result from factors such as increasing demand, improved financial performance of the asset, or market sentiment.

Examples of capital appreciation:

- Buying a stock at \$50 per share and selling it for \$70 per share, resulting in a \$20 per share capital gain.
- Purchasing real estate at \$200,000 and selling it for \$250,000, yielding a \$50,000 capital gain.

In many investment strategies, investors seek a balance between revenue return and capital appreciation, depending on their financial goals and risk tolerance. Some investments may focus more on generating steady income (revenue return), while others may prioritize long-term growth in value (capital appreciation).

It's important to note that the combination of revenue return and capital appreciation contributes to the overall return on an investment. Total return is often used as a comprehensive measure of an investment's performance, taking into account both income generated (revenue return) and changes in the investment's value (capital appreciation). Investors should consider their investment objectives and time horizon when deciding how to balance these two components in their portfolio.

Probability Distribution

A probability distribution is a mathematical function or description that provides the probabilities of all possible outcomes for a particular random variable in a given scenario. Probability distributions are fundamental concepts in statistics and probability theory and are used to model uncertainty and randomness in various fields, including finance, science, engineering, and more. There are two main types of probability distributions: discrete and continuous.

Holding Period

The holding period in stock markets refers to the length of time an investor holds a particular investment, such as a stock or a bond, before selling it. It is a crucial concept in investing and can have significant implications for an investor's returns, tax obligations, and overall investment strategy. Here are some key points to understand about holding periods in stock markets:

1. Short-Term Holding Period:

- A short-term holding period typically refers to holding an investment for a relatively brief period, typically less than one year.
- Short-term investors often focus on taking advantage of short-term price movements, news events, or market trends.
- In many countries, gains from investments held for a short-term period are subject to higher short-term capital gains tax rates compared to long-term holdings.

2. Long-Term Holding Period:

- A long-term holding period usually refers to holding an investment for an extended period, typically more than one year.
- Long-term investors often have a buy-and-hold strategy, aiming to benefit from the potential growth of their investments over a more extended period.
- Long-term capital gains tax rates are generally more favorable than short-term rates in many tax systems. This tax advantage can be an incentive for investors to hold investments for the long term.

3. Holding Period Returns:

- The return on an investment over its holding period includes any price appreciation or depreciation of the asset and any income generated during that time.
- For stocks, the holding period return includes both capital appreciation (changes in stock price) and dividend income.
- To calculate the holding period return, you would need to know the initial purchase price, the selling price, and any income received during the holding period.

4. Investment Goals and Strategies:

- An investor's choice of holding period often depends on their investment goals and risk tolerance. Some investors may be more comfortable with short-term trading strategies, while others prefer a long-term, buy-and-hold approach.
- Short-term traders often engage in technical analysis and may focus on market timing, while long-term investors often rely on fundamental analysis and a belief in the long-term potential of their investments.

5. Diversification and Portfolio Management:

- Portfolio managers and investors often consider holding periods when constructing and managing a diversified portfolio. A well-diversified portfolio may include a mix of short-term and long-term investments to balance risk and return.

It's important to note that the choice of holding period should align with an investor's financial goals, risk tolerance, and investment strategy. Additionally, tax considerations can play a significant role in determining the optimal holding period for an investment. Investors should consult with financial advisors or tax professionals to make informed decisions regarding their investment holding periods and tax implications.

Calculation of Holding Period

The calculation of the holding period for stocks is relatively straightforward. It involves determining the length of time you have held a particular stock from the date of purchase to the date of sale. Here are the steps to calculate the holding period for stocks:

1. **Determine the Purchase Date:**

- Find the date on which you initially purchased the stock. This is the starting point for calculating the holding period.

2. **Determine the Sale Date:**

- Find the date on which you sold the stock. This is the ending point for calculating the holding period.

3. **Calculate the Holding Period:**

- Once you have both the purchase date and the sale date, calculate the holding period by counting the number of days, months, or years between these two dates. The choice of units (days, months, or years) may depend on your specific needs or regulatory requirements.

- For example, if you purchased a stock on January 1, 2020, and sold it on August 15, 2022, the holding period would be calculated as follows:

Holding Period = Sale Date - Purchase Date
Holding Period = August 15, 2022 - January 1, 2020

4. **Express the Holding Period in the Desired Time Units:**

- Depending on your preference and the context, you can express the holding period in terms of days, months, or years. For regulatory or tax purposes, there may be specific requirements for how the holding period should be expressed.

For tax purposes, it's important to know the holding period of a stock because it can impact the tax treatment of any capital gains or losses. Many tax authorities distinguish between short-term and long-term capital gains, and the specific holding period requirements for each category can vary by jurisdiction. Typically, holding a stock for more than one year is considered a long-term holding, while holding it for one year or less is considered a short-term holding in many tax systems.

Keep accurate records of your stock transactions, including purchase and sale dates, as this information is essential for calculating holding periods, determining tax liabilities, and assessing investment performance. If you have a complex portfolio with multiple stock purchases and sales, it's advisable to maintain a record-keeping system to track your holdings and their associated holding periods accurately.

Calculation of Expected Return

The expected return for a stock is a measure of the anticipated gain or loss that an investor can reasonably expect to earn from holding that stock over a specific period. It is a key concept in investment analysis and is typically expressed as a percentage. The expected return takes into account the potential for both capital appreciation (increase in the stock's price) and income (e.g., dividends) over the investment horizon. Here's how you can calculate the expected return for a stock:

$$\text{Expected Return (\%)} = [(\text{Expected Ending Value} - \text{Initial Investment}) / \text{Initial Investment}] \times 100$$

Here's a step-by-step breakdown of the formula:

1. **Initial Investment:** Start by determining the initial amount of money you invested in the stock. This is the purchase price per share multiplied by the number of shares you purchased.
2. **Expected Ending Value:** Estimate the expected value of your investment at the end of the holding period. This includes both the potential increase in the stock's price (capital appreciation) and any expected income generated from the investment.
 - For Capital Appreciation: Estimate the expected future stock price. This can be based on various factors such as historical performance, fundamental analysis, technical analysis, or market conditions.
 - For Income (e.g., Dividends): Consider any expected dividend payments over the holding period.
3. **Calculate the Expected Return:** Subtract the initial investment from the expected ending value and then divide the result by the initial investment. Multiply the result by 100 to express it as a percentage.
 - The formula essentially calculates the percentage increase (or decrease) in the investment's value over the holding period.

For example, let's say you purchased 100 shares of a stock at \$50 per share, for a total initial investment of \$5,000. Over the next year, you expect the stock to appreciate to \$55 per share, and you anticipate receiving \$200 in dividend income. You can calculate the expected return as follows:

$$\text{Expected Return (\%)} = [(\$5,500 - \$5,000) + \$200] / \$5,000 \times 100$$

$$\text{Expected Return (\%)} = (\$500 + \$200) / \$5,000 \times 100$$

$$\text{Expected Return (\%)} = \$700 / \$5,000 \times 100$$

$$\text{Expected Return (\%)} = 14\%$$

In this example, the expected return for the stock investment is 14%. This means that, based on your estimates, you expect to earn a 14% return on your initial investment over the specified holding period. Keep in mind that this calculation is based on your assumptions and estimates, and actual returns may differ due to market fluctuations and unforeseen events. It's essential to conduct thorough research and analysis when making investment decisions.

Risk Classification (Types of Risk)

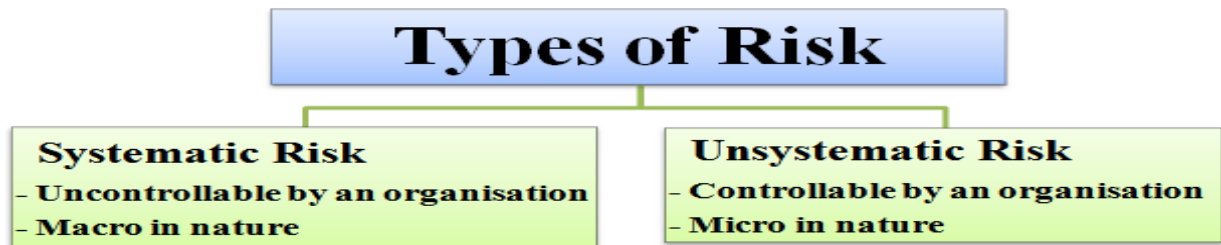
First let's revise the simple meaning of two words, viz., types and risk. In general and in context of this finance article,

Types mean different classes or various forms / kinds of something or someone.

Risk implies the extent to which any chosen action or an inaction that may lead to a loss or some unwanted outcome. The notion implies that a choice may have an influence on the outcome that exists or has existed.

However, in financial management, risk relates to any material loss attached to the project that may affect the productivity, tenure, legal issues, etc. of the project.

In finance, different types of risk can be classified under two main groups, viz.,



The meaning of systematic and unsystematic risk in finance:

Systematic risk is uncontrollable by an organization and macro in nature.

Unsystematic risk is controllable by an organization and micro in nature.

A. Systematic Risk

Systematic risk is due to the influence of external factors on an organization. Such factors are normally uncontrollable from an organization's point of view. It is a macro in nature as it affects a large number of organizations operating under a similar stream or same domain. It cannot be planned by the organization.

The types of systematic risk are depicted and listed below.

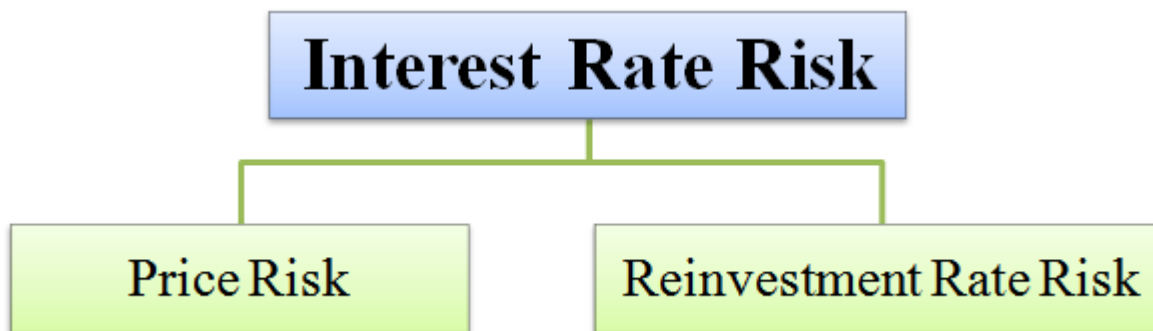


* Note: In context of types of risk in finance, purchasing power risk and inflationary risk are same.

1. Interest rate risk

Interest-rate risk arises due to variability in the interest rates from time to time. It particularly affects debt securities as they carry the fixed rate of interest.

The types of interest-rate risk are depicted and listed below.



The meaning of price and reinvestment rate risk is as follows:

Price risk arises due to the possibility that the price of the shares, commodity, investment, etc. may decline or fall in the future.

Reinvestment rate risk results from fact that the interest or dividend earned from an investment can't be reinvested with the same rate of return as it was acquiring earlier.

2. Market risk

Market risk is associated with consistent fluctuations seen in the trading price of any particular shares or securities. That is, it arises due to rise or fall in the trading price of listed shares or securities in the stock market.

The types of market risk are depicted and listed below.



The meaning of different types of market risk is as follows:

Absolute risk is without any content. For e.g., if a coin is tossed, there is fifty percentage chance of getting a head and vice-versa.

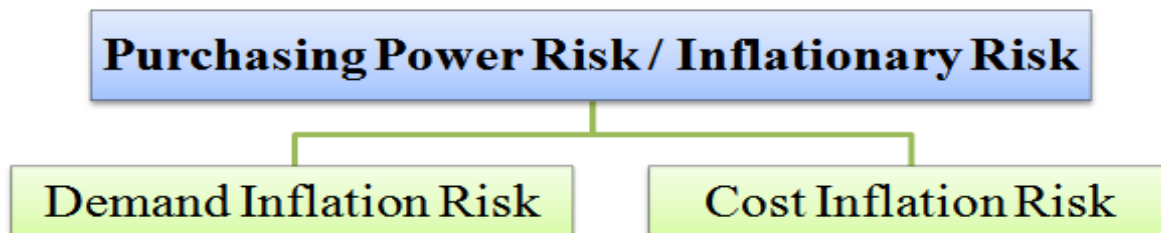
Relative risk is the assessment or evaluation of risk at different levels of business functions. For e.g. a relative-risk from a foreign exchange fluctuation may be higher if the maximum sales accounted by an organization are of export sales.

1. Directional risks are those risks where the loss arises from an exposure to the particular assets of a market. For e.g. an investor holding some shares experience a loss when the market price of those shares falls down.
2. Non-Directional risk arises where the method of trading is not consistently followed by the trader. For e.g. the dealer will buy and sell the share simultaneously to mitigate the risk
3. Basis risk is due to the possibility of loss arising from imperfectly matched risks. For e.g. the risks which are in offsetting positions in two related but non-identical markets.
4. Volatility risk is of a change in the price of securities as a result of changes in the volatility of a risk-factor. For e.g. it applies to the portfolios of derivative instruments, where the volatility of its underlying is a major influence of prices.

3. Purchasing power or inflationary risk

Purchasing power risk is also known as inflation risk. It is so, since it emanates (originates) from the fact that it affects a purchasing power adversely. It is not desirable to invest in securities during an inflationary period.

The types of power or inflationary risk are depicted and listed below.



The meaning of demand and cost inflation risk is as follows:

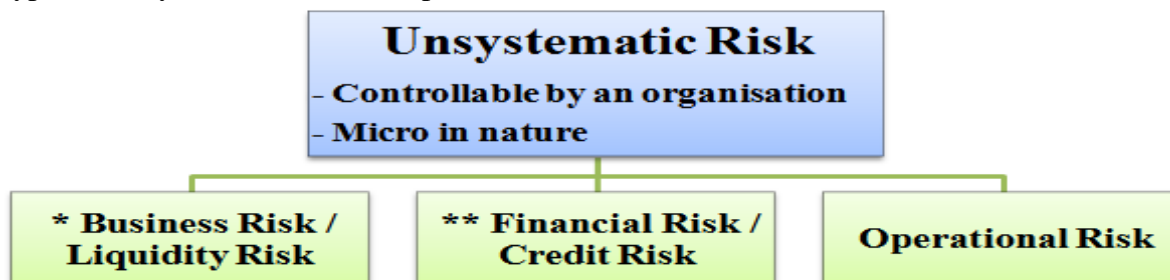
Demand inflation risk arises due to increase in price, which result from an excess of demand over supply. It occurs when supply fails to cope with the demand and hence cannot expand anymore. In other words, demand inflation occurs when production factors are under maximum utilization.

Cost inflation risk arises due to sustained increase in the prices of goods and services. It is actually caused by higher production cost. A high cost of production inflates the final price of finished goods consumed by people.

A. Unsystematic Risk

Unsystematic risk is due to the influence of internal factors prevailing within an organization. Such factors are normally controllable from an organization's point of view.

It is a micro in nature as it affects only a particular organization. It can be planned, so that necessary actions can be taken by the organization to mitigate (reduce the effect of) the risk. The types of unsystematic risk are depicted and listed below.



* Note: In context of types of risk in finance, business risk and liquidity risk are same.

** Note: In context of types of risk in finance, financial risk and credit risk are same.

1. Business or liquidity risk

Business risk is also known as liquidity risk. It is so, since it emanates (originates) from the sale and purchase of securities affected by business cycles, technological changes, etc.

The types of business or liquidity risk are depicted and listed below.



The meaning of asset and funding liquidity risk is as follows:

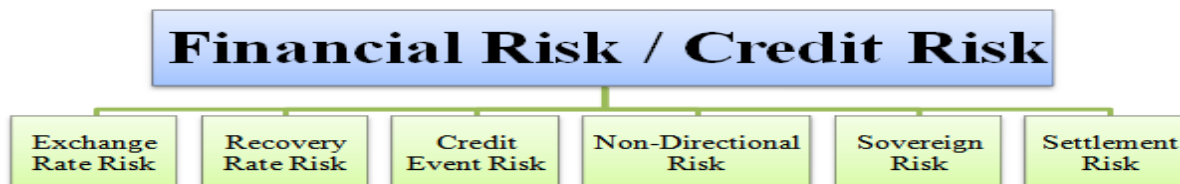
1. Asset liquidity risk is due to losses arising from an inability to sell or pledge assets at, or near, their carrying value when needed. For e.g. assets sold at a lesser value than their book value.
2. Funding liquidity risk exists for not having an access to the sufficient-funds to make a payment on time. For e.g. when commitments made to customers are not fulfilled as discussed in the SLA (service level agreements).

2. Financial or credit risk

Financial risk is also known as credit risk. It arises due to change in the capital structure of the organization. The capital structure mainly comprises of three ways by which funds are sourced for the projects. These are as follows:

1. Owned funds. For e.g. share capital.
2. Borrowed funds. For e.g. loan funds.
3. Retained earnings. For e.g. reserve and surplus.

The types of financial or credit risk are depicted and listed below.



The meaning of types of financial or credit risk is as follows:

1. Exchange rate risk is also called as exposure rate risk. It is a form of financial risk that arises from a potential change seen in the exchange rate of one country's currency in relation to another country's currency and vice-versa. For e.g. investors or businesses face it either when they have assets or operations across national borders, or if they have loans or borrowings in a foreign currency.

2. Recovery rate risk is an often neglected aspect of a credit-risk analysis. The recovery rate is normally needed to be evaluated. For e.g. the expected recovery rate of the funds tendered (given) as a loan to the customers by banks, non-banking financial companies (NBFC), etc.
3. Sovereign risk is associated with the government. Here, a government is unable to meet its loan obligations, renege (to break a promise) on loans it guarantees, etc.
4. Settlement risk exists when counterparty does not deliver a security or its value in cash as per the agreement of trade or business.

3. Operational risk

Operational risks are the business process risks failing due to human errors. This risk will change from industry to industry. It occurs due to breakdowns in the internal procedures, people, policies and systems.

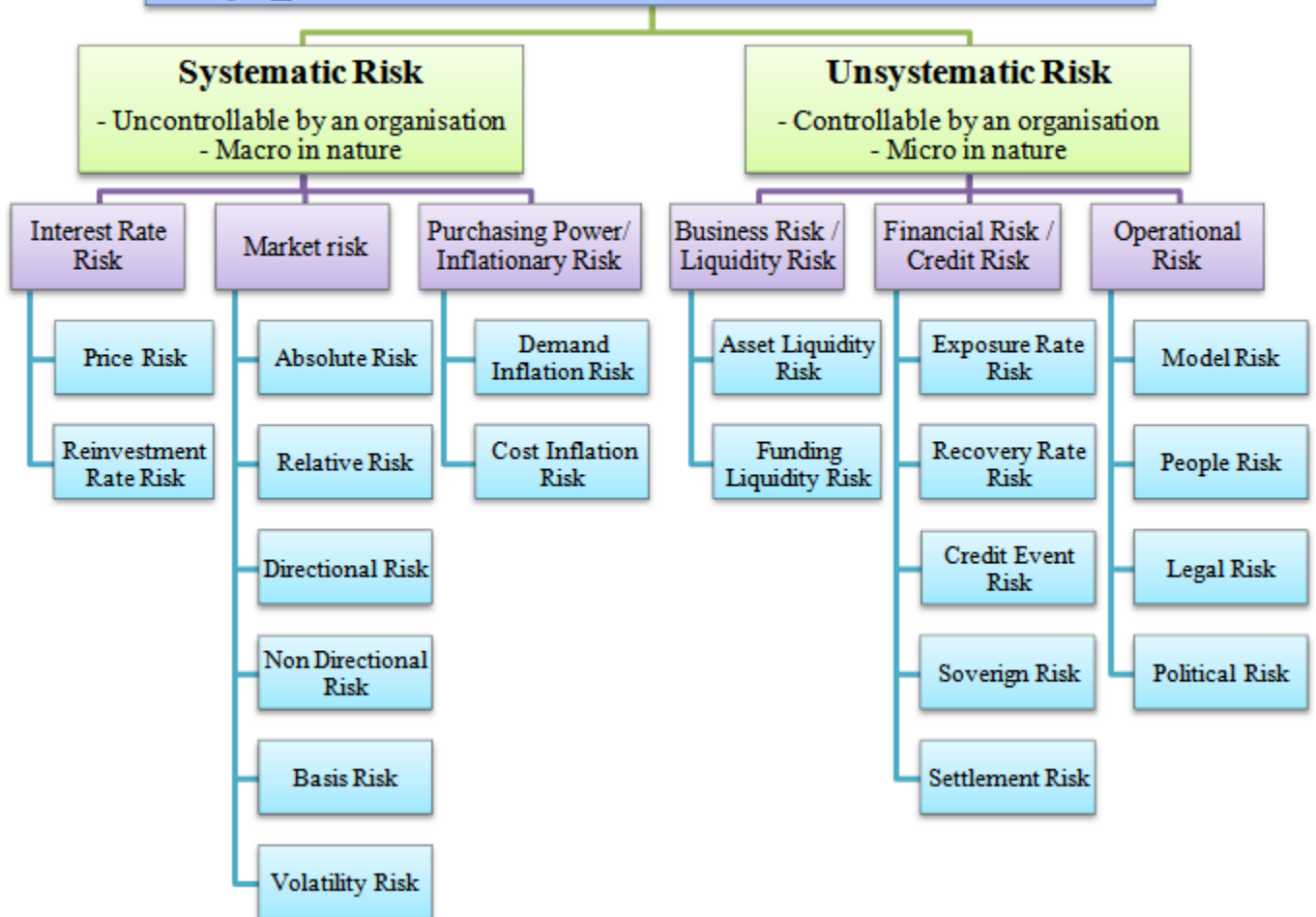
The types of operational risk are depicted and listed below.



The meaning of types of operational risk is as follows:

1. Model risk is involved in using various models to value financial securities. It is due to probability of loss resulting from the weaknesses in the financial-model used in assessing and managing a risk.
2. People risk arises when people do not follow the organization's procedures, practices and/or rules. That is, they deviate from their expected behavior.
3. Legal risk arises when parties are not lawfully competent to enter an agreement among themselves. Furthermore, this relates to the regulatory-risk, where a transaction could conflict with a government policy or particular legislation (law) might be amended in the future with retrospective effect.
4. Political risk occurs due to changes in government policies. Such changes may have an unfavorable impact on an investor. It is especially prevalent in the third-world countries.

Types of Risk in Finance



MEASURING EXPECTED RETURN AND RISK

Consider the stock of Bharat Foods and the stock of Oriental Shipping. Based on the status of the economy, Bharat Foods stock could produce a return of 16%, 11%, or 06%, with certain probability associated with each. Based on the status of the economy, the second stock, Oriental Shipping stock, which is more volatile, might achieve a return of 40%, 10%, or -20% with the same odds. The following Exhibit shows the probability distributions of the returns for these two stocks:

State of Economy	Probability of Occurrence	Rate of Return (%)	
		Bharat Foods	Oriental Shipping
Boom	0.30	16	40
Normal	0.50	11	10
Recession	0.20	06	-20

You can compute two crucial parameters, the expected rate of return and the standard deviation of the rate of return, using the probability distribution of the rate of return.

i) *Expected Rate of Return:*

The expected rate of return is the weighted average of all possible returns multiplied by their respective probabilities. In symbols:

$$E(R) = \sum_{i=1}^n R_i P_i$$

Where;

E (R) = expected return from the stock

R_i = return from stock under state i

P_i = probability that the state i occurs

n = number of possible states of the world

From the above equation, E(R) is the weighted average of possible outcomes – each outcome is weighted by the probability associated with it. The expected rate of return on Bharat Foods stock is:

$$E(R_B) = (0.30) (.16\%) + (0.50) (.11\%) + (0.20) (6\%) = 11.5\%$$

$$E(R_B) = .048 + .055 + .012 = 0.115 = 11.5\%$$

Similarly, the expected rate of return on Oriental Shipping stock is: $E(R_O) = (0.30) (40\%) +$

$$(0.50) (10\%) + (0.20) (-20\%) = 13.0\%$$

$$= .12 + .05 + (-.04) = .13 = 13\%$$

ii) **Standard Deviation of Return:**

The dispersion of a variable is referred to as risk. The variance or standard deviation are usually used to calculate it. The sum of the squares of the deviations of actual returns from the expected return, weighted by the related probabilities, is the variance of a probability distribution. In terms of symbols,

$$\sigma^2 = \sum P_i \times [R_i - E(R)]^2$$

Where,

$$\sigma^2 = \text{Variance}$$

R_i = return for the i th possible outcome

P_i = Probability associated with the i th possible outcome
 $E(R)$ = Expected return

Since variance is expressed as squared returns it is somewhat difficult to grasp. So, its square root, the standard deviation, is employed as an equivalent measure.

$$\sigma = \sqrt{\sigma^2}$$

Solution:

Taking expected return as 11.5%, we calculate:

Bharat Foods Stock						
State of the Economy	P_i	R_i	$R_i - E(R)$	$[(R_i - E(R))]^2$	$P_i [(R_i - E(R))]^2$	$R_i P_i$
Boom	0.30	16	4.5	20.25	6.075	4.8
Normal	0.50	11	-0.5	0.25	0.125	5.5
Recession	0.20	6	-5.5	30.25	6.050	1.2
					$\Sigma = 12.25$	$\Sigma = 11.5$

$$E(R) = \sum_{i=1}^n R_i P_i = 11.5$$

$$\sigma^2 = \sum P_i (R_i - E(R))^2 = 12.25$$

$$\sigma = (\sum P_i (R_i - E(R))^2)^{1/2} = 3.5\%$$

Taking expected return as 13%, we calculate:

Oriental Shipping Stock						
State of the Economy	P _i	R _i	R _i - E(R)	[(R _i - E(R)) ²]	P _i [(R _i - E(R)) ²]	R _i P _i
Boom	0.30	40	27.0	729.0	218.7	12
Normal	0.50	10	-3.0	9	4.5	5
Recession	0.20	-20	-33.0	1089.0	217.8	-4
					Σ=441	Σ=13

$$E(R) = \sum_{i=1}^n R_i P_i = 13.0$$

$$\sigma^2 = \sum P_i (R_i - E(R))^2 = 441.0$$

$$\sigma = (\sum P_i (R_i - E(R))^2)^{1/2} = 21.0\%$$

UNIT – 4 : VALUATION OF SECURITIES

BOND BASICS:

- A contract that requires the borrower to pay an interest income to the lender.
- Resembles a promissory note issued by Govt. or a corporation.
- Has a par value/face value – stated on the bond paper
- Interest rate is also known as coupon rate - paid quarterly, bi-annually or annually.

BOND RISK:

Due to fixed interest, an investor generally takes bonds as riskless. However this notion is wrong since bonds do involve some risk.

1. Interest rate risk: Risk in relation to the market interest rates (MIR). For instance the bond value declines if market interest rate moves up.

A 14% bond is valued high if MIR drop to 13%. Accordingly, the same bond is undervalued if MIR moves up to 15%.

2. Default Risk: Failure on part of the issuer to pay agreed value in full or on time and/or both.

3. Marketability Risk: Variations in return caused by difficulties in selling the bonds. An investor may find it difficult to sell a particular bond he holds due to various company specific reasons like image and listing problems.

- A bond may become illiquid owing to the downgrading of a bond by some rating agency.
- This risk is different from market risk, insofar as this risk is specific to a company.
- Investor is forced to sell this bond at huge discounts.

4. Callability Risk: The uncertainty caused in the investor's return due to issuer's ability to call back the bonds anytime.

Given to the uncertainty regarding the maturity period, the investor is not sure about the amount of interest he would earn - so he is likely to ask for higher yield. Such bonds are high interest bonds.

VALUATION OF BONDS

Bonds are generally valued on the basis of returns (interest) an investor gets from them and the maturity value/redemption value.

Perpetual Bonds: These bonds have no maturity value and are valued on the basis of interest rates.

$$V = \sum I/(1+Kd)^t \dots\dots$$

Where "t" varies from 1 to infinity.

I is the interest rate

Kd is the Discount rate/required rate of return

Since "t" could vary to infinity, we also express this formula as:

$$V = I/Kd$$

Example: Investor buys a bond that pays the interest of Rs. 120 per year forever and his ROR on this bond is 15%. Calculate the PV.

$$\text{Soln. } V = 120/0.15$$

$$V = 800$$

So if the current market price is < 800, it's worth buying.

Bonds with Maturity:

They pay terminal/maturity value in addition to the interest rate.

$$V = I/(1+Kd)^t + MV/(1+Kd)^n$$

$$V = I \times 1/(1+Kd)^t + MV \times 1/(1+Kd)^n \dots\dots\dots \text{Where MV is the Maturity Value}$$

Example: Suppose interest of 120 is payable for 10 years, ROR is 15% and at maturity Rs. 1000 is payable. Calculate the present value.

$$\text{Soln. } V = 120 (5.019) + 1000 (0.247) \dots$$

Using PVIFA (Present Value Interest Factor of Annuity) values and PVIF (Present Value Interest Factor) values table.

PVIFA is the present value of series of future annuities (in our case 10 years)

PVIF is the present value of Future Sum (1000 in this case)

$$V = 849.28$$

Zero Coupon Bonds:

These bonds do not make periodic interest payments, so the interest part in the formula is removed and the bonds are valued as:

$$V = MV/(1+Kd)^n$$

BOND RETURN – HOLDING PERIOD RETURN

Return that an investor gets while holding a bond for some (holding) time.

$$\text{HPR} = \text{Price gain or loss during the holding period} + \text{Coupon Interest rate}$$

Price at the beginning

Example: An investor purchases a bond at Rs. 900 with Rs. 100 as coupon payment (Interest) and sells it at Rs. 1000. What would be the holding period return for this bond?

$$\text{Soln: Price gain (100) + Coupon rate (100)}$$

$$\text{Beginning Price (900)}$$

$$= 200/900$$

$$= 0.2222 \text{ or } 22.22\%$$

Now if the same bond is sold for R. 750, there is the loss of R. 150 and the HPR would be:

$$(-150 + 100) / 900$$

$$= -50/900$$

$$= - 0.0555 \text{ or } - 5.5\%$$

The HPR would always be negative when fall in bond price is more than the coupon payment.

YEILD TO MATURITY

The rate of return an investor can expect to earn if the bond is held till maturity. YTM is calculated on the basis of certain assumptions:

- There should not be any default on part of the issuers, i.e. the coupon, principle should be paid in full and on time.
- Bond to be held till maturity.
- All coupon payments to be reinvested immediately at the same interest rate as YTM.

Example: A four year bond with a 7% coupon rate and maturity value of Rs.1000 is currently selling at Rs.

905. What is the YTM?

Soln. $YTM (Y) = C + [P \text{ or } D / \text{Years to maturity}]$

$$(Po + F)/2$$

Where ,

C is coupon Interest

P or D is premium or discount

Po is the present value

F is the face value.

$$YTM = 70 + (95/4)$$

$$(905 + 1000)/2$$

$$= 93.75/952.5 = 0.098 \text{ or } YTM = 9.8\%$$

SIGNIFICANCE OF YTM

YTM could be used to calculate the present value of the bond returns.

Example: A Rs. 100 par value bond with the coupon rate of 11 % matures after 5 years. The expected YTM is 15%. If the present market price is Rs 82, can the Investor buy it?

Soln.

$PV = \text{Coupon} + \text{Maturity price (Pm)}$

$(1+Y)^t (1+Y)^n \dots\dots\dots$ where Y is Yield to maturity.

$$= 11 \times 3.3522 + 100 \times 0.4972 \dots\dots\dots \text{ using corresponding PVIFA \& PVIF values from the table.}$$

$$= 36.87 + 49.72$$

$$= 86.59$$

The present value of the bond Rs. 86.59 is more than the present market price of Rs. 82. The bond is underpriced and investor can buy it.

Bond Valuation

Bond valuation is the process of determining the fair or intrinsic value of a bond, which is a fixed-income security that represents a loan made by an investor to a borrower, typically a corporation or a government entity. Bond valuation is important for investors, as it helps them assess whether a bond is overvalued, undervalued, or fairly priced in the market. There are several methods for valuing bonds, but one of the most commonly used approaches is the present value method. Here's how bond valuation works using this method:

1. Gather Information:

- Before you can value a bond, you need to gather the following information:
 - Face value (par value) of the bond: The amount the bond will be worth at maturity.
 - Coupon rate: The annual interest rate paid by the bond as a percentage of its face value.
 - Maturity date: The date on which the bond will mature and the face value will be paid.
 - Market interest rate (yield to maturity): The prevailing interest rate in the market for bonds with similar risk profiles and maturities.

2. Calculate Future Cash Flows:

- Determine the future cash flows you can expect to receive from the bond. These include:
 - Periodic coupon payments: Calculated as $(\text{Coupon Rate} * \text{Face Value}) / \text{Number of Coupon Payments per Year}$.
 - Face value payment at maturity.

3. Determine the Discount Rate:

- Use the market interest rate (yield to maturity) as the discount rate. This rate reflects the required rate of return for investors in bonds with similar risk profiles and maturities.

4. Calculate the Present Value:

- Discount each of the future cash flows back to their present value using the discount rate. This can be done using the following formula:
 - $\text{Present Value (PV)} = \text{Future Cash Flow} / (1 + \text{Yield to Maturity})^n$
- Calculate the present value for each cash flow, including the coupon payments and the face value payment at maturity.

5. Sum the Present Values:

- Add up the present values of all the future cash flows to find the total present value of the bond.

6. Bond Valuation:

- The total present value calculated in step 5 represents the fair or intrinsic value of the bond. It is the amount an investor should be willing to pay for the bond in the current market.

7. Compare to Market Price:

- Compare the calculated intrinsic value to the current market price of the bond. If the intrinsic value is higher than the market price, the bond may be undervalued and potentially a good investment. If the intrinsic value is lower than the market price, the bond may be overvalued.

It's important to note that bond valuation is a simplified approach, and real-world bond valuation can be more complex, especially for bonds with unique features, such as callable or convertible bonds. Additionally, bond prices can be influenced by market supply and demand dynamics, economic conditions, and credit risk, among other factors. Investors should consider various aspects when making bond investment decisions.

Preference Share Valuation

Preference share valuation involves determining the fair market value of preference shares, which are a type of equity security issued by a company. Preference shares have characteristics of both equity and debt, as they receive preferential treatment with respect to dividends and capital repayment compared to common shareholders but do not typically carry voting rights. Here's how you can approach the valuation of preference shares:

1. Understand the Terms of the Preference Shares:

- Before you can value preference shares, you need to thoroughly understand the terms and conditions associated with them. This includes details such as:
 - Dividend rate: The fixed rate at which dividends are paid to preference shareholders.
 - Dividend payment frequency: Whether dividends are paid annually, semi-annually, or at another interval.
 - Par value: The nominal value at which the preference shares were issued.
 - Redemption terms: The terms under which the preference shares can be redeemed by the issuer, if applicable.

2. Determine the Dividend Payments:

- Calculate the annual dividend payments based on the dividend rate and the par value of the preference shares.
 - $\text{Annual Dividend} = \text{Dividend Rate} \times \text{Par Value}$

3. Assess the Risk-Free Rate:

- Determine the risk-free interest rate, typically based on government bond yields with a similar maturity to the preference shares. This rate serves as a benchmark for discounting future cash flows.

4. Calculate the Present Value of Dividends:

- Use the risk-free rate to discount the expected future dividend payments back to their present value. The formula for calculating the present value of a series of future cash flows (D) is:

- Present Value (PV) = $\sum (D / (1 + r)^t)$, where "r" is the discount rate, and "t" is the time period.

5. Add the Present Value of Redemption Value (if applicable):

- If the preference shares have a fixed redemption date and price, add the present value of the redemption value to the present value of dividends.
 - Present Value of Redemption = $(\text{Redemption Value} / (1 + r)^n)$, where "n" is the number of years to redemption.

6. Determine the Total Value:

- Add the present value of dividends to the present value of redemption value (if applicable) to calculate the total value of the preference shares.
 - Total Value = Present Value of Dividends + Present Value of Redemption (if applicable)

7. Consider Market Conditions and Risk:

- The calculated value represents an estimate based on certain assumptions. Adjustments may be needed to account for market conditions, credit risk, or other factors that could affect the value of the preference shares.

It's important to note that preference share valuation is highly dependent on the specific terms and conditions of the shares and the prevailing market conditions. Additionally, the valuation may vary depending on whether the preference shares are cumulative (accumulate unpaid dividends) or non-cumulative (do not accumulate unpaid dividends) and whether they are participating or non-participating in excess profits. Consulting with financial professionals and considering all relevant factors is advisable when valuing preference shares for investment or transaction purposes.

Common Stock Valuation

Common stock valuation is the process of determining the fair market value of shares of common stock in a company. Common stock represents ownership in a corporation and typically carries voting rights, as well as the potential for dividends and capital appreciation. There are several methods and approaches to valuing common stock, and the choice of method often depends on the specific circumstances and available information. Here are some common methods for valuing common stock:

1. Market Capitalization Method:

- The market capitalization method is one of the simplest ways to value common stock. It involves multiplying the current market price of one share of stock by the total number of outstanding shares.
 - Market Capitalization = Current Stock Price × Number of Outstanding Shares

2. Price-to-Earnings (P/E) Ratio Method:

- The P/E ratio method compares the company's current stock price to its earnings per share (EPS) over a specified period (usually the past 12 months). It provides a relative valuation measure.
 - P/E Ratio = Current Stock Price / Earnings per Share (EPS)

3. Dividend Discount Model (DDM):

- DDM is used to value stocks that pay dividends. It involves estimating the present value of all expected future dividend payments to shareholders. There are variations of DDM, including the Gordon Growth Model (or Gordon-Shapiro Model) for perpetuity or multi-stage growth models.
 - $DDM \text{ Value} = \sum (\text{Dividend} / (1 + r)^t)$, where "r" is the required rate of return and "t" is the time period.

4. Discounted Cash Flow (DCF) Model:

- Similar to DDM, the DCF model calculates the present value of expected future cash flows generated by the company, including dividends and potential capital gains. It is a more comprehensive valuation method that considers the company's entire cash flow stream.
 - $DCF \text{ Value} = \sum (\text{Cash Flow} / (1 + r)^t)$, where "r" is the discount rate and "t" is the time period.

5. Comparable Company Analysis (CCA):

- CCA involves comparing the valuation metrics of the target company (the company whose stock you want to value) to those of similar publicly traded companies (comparables) in the same industry. Common valuation metrics include P/E ratios, Price-to-Book ratios, and Price-to-Sales ratios.

6. Asset-Based Valuation:

- Asset-based valuation focuses on the company's balance sheet assets and liabilities. The value of common stock is determined by subtracting the total liabilities from the total assets and dividing the result by the number of outstanding shares.
 - $\text{Asset-Based Valuation} = (\text{Total Assets} - \text{Total Liabilities}) / \text{Number of Outstanding Shares}$

7. Earnings Growth Model:

- This model estimates the value of common stock based on the company's expected future earnings growth rate. It is often used for companies with high growth potential.
 - $\text{Value} = (\text{Next Year's Earnings} \times (1 + \text{Growth Rate})) / (\text{Required Rate of Return} - \text{Growth Rate})$

It's important to note that stock valuation is both an art and a science, and there is no one-size-fits-all approach. Valuation methods may yield different results, and a combination of methods or sensitivity analysis may be used to arrive at a more comprehensive valuation range. Additionally, the choice of valuation method may depend on the availability of data and the specific characteristics of the company being analyzed. Consulting with financial experts and conducting thorough research is essential for making informed investment decisions.

UNIT – 5: PORTFOLIO MANAGEMENT

INTRODUCTION

“Never put all your eggs in one basket” is what is meant by diversification. Instead of investing all funds in one asset, the funds be invested in a group of assets.

Diversification helps in reducing the risk of investing. Total risk of one investment is the sum of the impact of all the factors that might affect the return from that investment. However, investors need not suffer risk inherent with individual investments as it could be reduced by holding a diversity of investments.

For example, return from a single investment in a cold drink company is subject to weather conditions. This investment is a risky investment. However, if a second investment can be made in an umbrella company, which is also subject to weather changes, but in an opposite way, the return from the portfolio of two investments will have a reduced risk-level. This process is known as **diversification**.

Portfolio is the combination of securities or diversified investment in securities.

Diversification may be Random or Efficient diversification.

In **Random diversification**, an investor may randomly select the portfolio without analyzing the risk and return of the securities.

In **Efficient diversification**, an investor may construct a portfolio by carefully studying and analyzing the risk and return of individual securities and also of its portfolio.

APPROACHES IN PORTFOLIO CONSTRUCTION:

- ❖ Traditional Approach
- ❖ Modern Approach

1. STEPS IN TRADITIONAL APPROACH:

- **Analysis of constraints:** Analysing the constraints like, income needs, liquidity, time horizon, safety, tax consideration and risk temperament of an investor.
- **Determination of objectives:** The objective of the portfolio range from income to capital appreciation. Investor has to decide upon the return which he gets from the portfolio like, current income, growth in income, capital appreciation and so on.
- **Selection of Portfolio:** a) Selecting the type of securities for investment i.e. Shares and Bonds or Bonds or Shares, b) Calculating the risk and return of the securities and c) Diversifying the investment by selecting the securities combination and its proportion of investment in that securities.

2. MODERN APPROACH:

The traditional approach is a comprehensive job for the individual. In modern approach, gives more attention on selecting the portfolio i.e. Markowitz Model as well as CAPM. (These are discussed in Unit IV).

PORTFOLIO MANAGEMENT:

Portfolio management may be defined as the process of construction, maintenance, revision and evaluation of a portfolio.

The objective of portfolio management is to build a portfolio which gives a return commensurate with the risk preference of the investor.

Portfolio management specifically deals with security analysis, analysis and selection of portfolio, revision of portfolio and evaluation of portfolio.

POINTS TO BE CONSIDERED:

- Deciding the number and type of security in the portfolio.
- Deciding on the proportionate amount of investment in each security.
- Develop the various combinations of portfolio based on risk and return of portfolio.
- Select one combination using Markowitz Model or Capital Asset Pricing Model (CAPM).
- Evaluate the performance of the portfolio using Treynor's, Sharpe's or Jensen's Model.
- Periodical revision of the portfolio in order to maximize the portfolio returns.

(**Note:** For calculation of portfolio return and risk refer class notes)

PORTFOLIO SELECTION INTRODUCTION

Risk and return are two basic factors for construction of a portfolio. While constructing a portfolio, an investor wants to maximize the return and to minimize the risk. The risk can be reduced by diversification. A portfolio which has highest return and lowest risk is termed as an **optimal portfolio**. The process of finding an optimal portfolio is known as the **portfolio selection**.

If the investments can be made with certainty of returns, then the returns from different investments would be the only consideration for making portfolio. However, in case of uncertainty, decision regarding investments cannot be made only on the basis of returns. Risk (uncertainty) should also be considered. The following are the theoretical relationship between the risk and return and can be used to construct a portfolio.

- MARKOWITZ MODEL or PORTFOLIO THEORY
- CAPITAL ASSET PRICING MODEL

MARKOWITZ MODEL or PORTFOLIO THEORY

In order to select the best portfolio, an investor can use the Markowitz Portfolio Model.

The development of Portfolio theory is given by **Harry Markowitz (HM)** in 1952 in Journal of Finance. He has provided a conceptual framework and analytical tool for selection of an optimal portfolio. As the HM Model is based on the expected returns (mean) and standard deviation (variance) of different portfolios, this model is also called as Mean-Variance Model.

ASSUMPTIONS:

1. The investor should invest only in risky securities; this means no investment should be made in risk-free securities.

- The investor should use his own funds. Borrowed funds are not allowed for investments.
- The decision of the investor regarding selection of the portfolio is made on the basis of expected returns and risk of the portfolio:

Return:

$$R_p = \sum_{i=1}^n R_i W_{ii}$$

Risk:

$$SD_p = \sqrt{(\text{Prop } x)^2 (SD)^2 + (\text{Prop } y)^2 (SD)^2 + 2 (\text{Prop } x)(\text{Prop } y)(\text{Covariance}_{xy})}$$

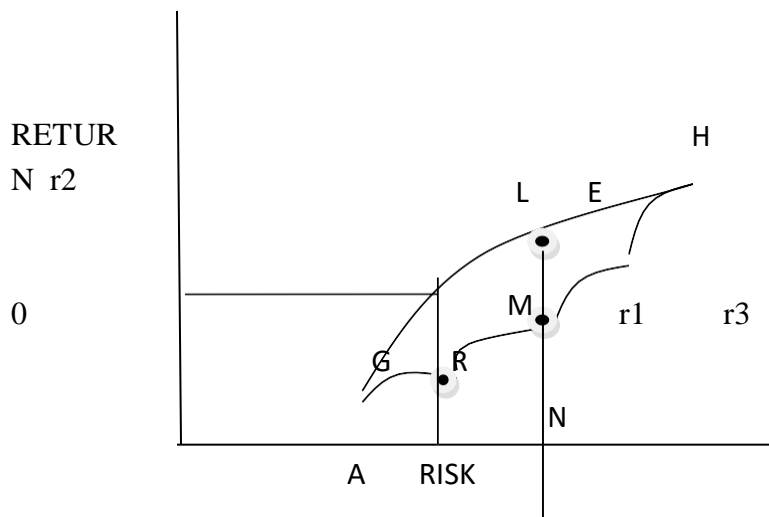
- For a given level of risk, an investor prefers maximum return than lower return and likewise, for a given level of return, the investor prefers lower risk than higher risk.

Harry Markowitz Model is presented in 3 steps:

I. Setting the Risk-Return opportunity set:

The process of selection of optimum portfolio starts with the identification or construction of the opportunity set of various portfolios in terms of risk and return of each portfolio. For example, 'x' number of securities are available in which an investor can invest his funds and infinite number of combinations of all or a few of these securities are possible. Each such combination has an expected average rate of return and risk. All these portfolios with a relative set of risk and return, when plotted on graph, may look like as below:

RISK-RETURN OF NUMBER OF POSSIBLE PORTFOLIOS



The Shaded area AEHA includes all possible combinations of risk and return of portfolios and a particular combination can be identified with a set of risk and return e.g., combination R represents a risk level of r1, and the return level of r2.

Now the investor has to identify the best portfolio for which he has to identify the efficient set.

II. Determining the Efficient Set:

Efficient Portfolio is one which provides the maximum expected return for any particular degree of risk. Thus, setting the Efficient Set will be subject to two prepositions:

- a) Out of the portfolios with the equal expected return, an investor would prefer that which has lowest risk; and
- b) Out of the portfolios that have same degree of risk, and investor would prefer that which has highest expected return.

As the investors are rational and risk averse, they would prefer more return and lesser risk. In the above diagram, the portfolios which lie along the boundary AGEH are efficient portfolios and it is also called as **Efficient Frontier**.

For e.g., given level of risk r_3 , there are three portfolios L, M and N. But the portfolio L is an efficient portfolio because for a given level of risk r_3 , it has the highest return and it lies on the boundary AGEH.

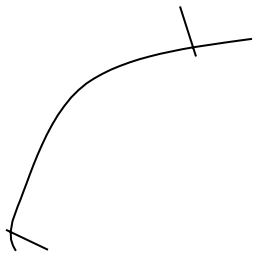
Out of these three portfolios, L, M and N, the portfolio L is called the **dominating** portfolio because it is having maximum expected return. Dominance is a situation in which investors prefers a portfolio for investment that dominates all others. Portfolios lying on the efficient frontier are all dominating portfolios.

III. Selecting the Optimal portfolio:

In order to select the best portfolio or the optimal portfolio, the risk-return preferences of the investor are to be analysed.

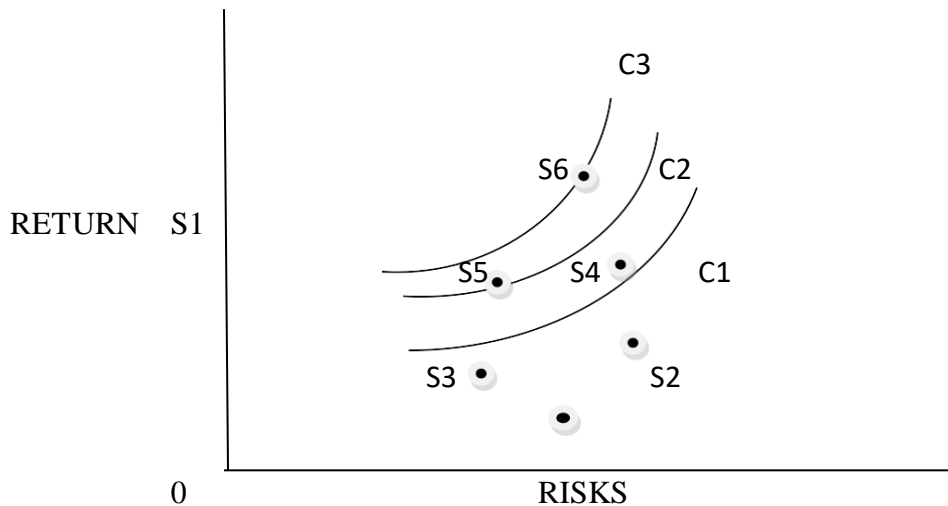
A highly risk averse investor will hold a portfolio on the lower left-hand segment of the efficient frontier. However, risk taker investor will hold a portfolio on the upper position on the right-hand side.

Risk taker



Risk averse

HM Model does not specify one optimum portfolio. To select the expected risk-return combination that will satisfy investor's preferences, indifference curves or utility curves are used. All the investors' satisfaction level is not same. An investor is indifferent to various combinations of risk and return and hence, the name indifference curve. The following figure shows the risk-return indifference curves or for the investors.



Risk- Return Indifference Curves

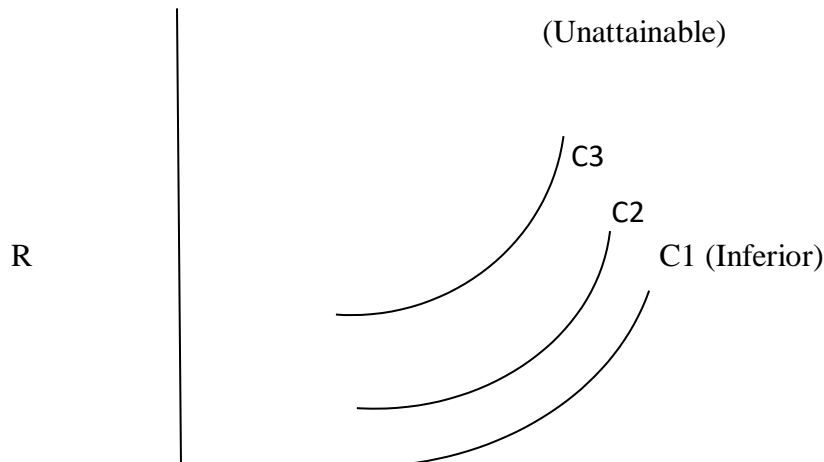
All points lying on a particular indifference curve represent different combinations of risk and return which provide same level of utility or satisfaction to the investors. The indifference curves show the investor’s risk-return trade-off. The steeper the slope, the more risk averse the investor is.

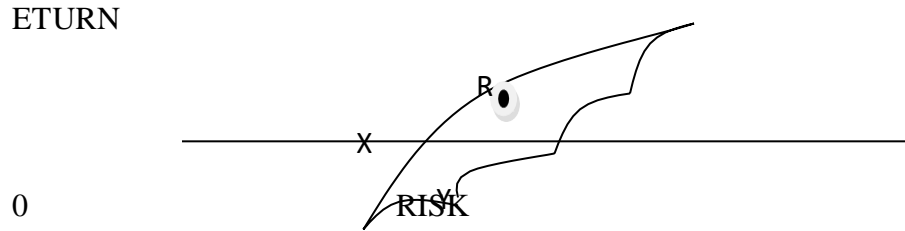
An investor may have, at present, a satisfaction level represented by the indifference curve C1, but if the satisfaction level increases, then the investor will move to indifference curve C2 or C3. Thus, an investor at any particular point of time, will be indifferent between combinations S1 and S2 or S3 and S4 or S5 and S6.

The indifference curves never intersect each other and the shape of the curves may vary depending on the risk preferences of the investors.

Once the shape of investor’s indifference curve is determined, an investor should match his risk-return preference (indifference curve) with the best portfolios available (efficient frontier). Given the efficient frontier and risk-return indifference curves, the investor’s optimal portfolio is found at the tangency point of efficient frontier with the indifference curve. This tangency point marks the highest level of satisfaction, the investor can attain is shown below:

EFFICIENT FRONTIER AND OPTIMAL PORTFOLIO





R is the tangency point and also the **efficient portfolio**. At this portfolio, the investor will be able to get best possible level of satisfaction and also the best combination of risk and return. Combinations 'X' and 'Y' are not optimal because they lie outside and inside the region.

Limitations of Harry Markowitz Model:

1. Risky securities alone taken for investment.
2. It requires large amount of input data. An investor must obtain estimates of return, variance of return and covariance of returns for each pair of securities included in the portfolio. For ex. If there are 'N' number of securities in the portfolio, then 'N' estimates of return, variances and $(N^2-N)/2$ estimates of covariances are required. For ex. For 4 securities $4^2-4/2$ i.e. 6 covariances are estimated and for 10 securities $10^2-10/2$ i.e. 45 covariances are estimated.
3. HM Model complex and 'N' number of computations are required.

CAPITAL ASSET PRICING MODEL (CAPM)

CAPM is an extended version of Markowitz Model. In the HM Model we assume that the investor invests in risk-free securities and investors not use borrowed funds. The CAPM overlook these 2 assumptions. That means CAPM studies the nature of risk and return of a portfolio when an investor uses borrowed funds and also invests in risk-free securities.

The total CAPM Model explained under two broad segments:

- I. Capital Market Line (CML)
- II. Security Market Line (SML)

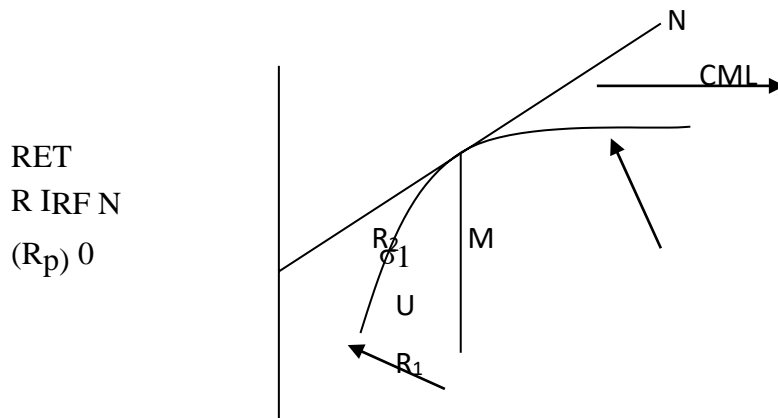
Assumptions:

1. The investors are basically risk averse and diversification is needed to reduce the risk.
2. All investors want to maximize the return and choose a portfolio solely on the basis of risk and return assessment.
3. All investors can borrow or lend an unlimited amount of funds at risk-free rate of interest (risk-free lending and risk-free borrowing).
4. All investors have same estimates of risk and return of all securities.
5. All securities are perfectly divisible and liquid and there is no transaction cost or tax.
6. There is a perfect competition in the market.
7. All investor are efficiently diversified and have eliminated the unsystematic risk. Thus, only the systematic risk is relevant in determining the estimated return.

I. Capital Market Line (CML):

The introduction of risk-free investment and borrowing creates a new set of expected risk-return possibilities which did not exist earlier. This new trade-off is represented by the straight line

IRFN in the following diagram. This line IRFN is called the CML.

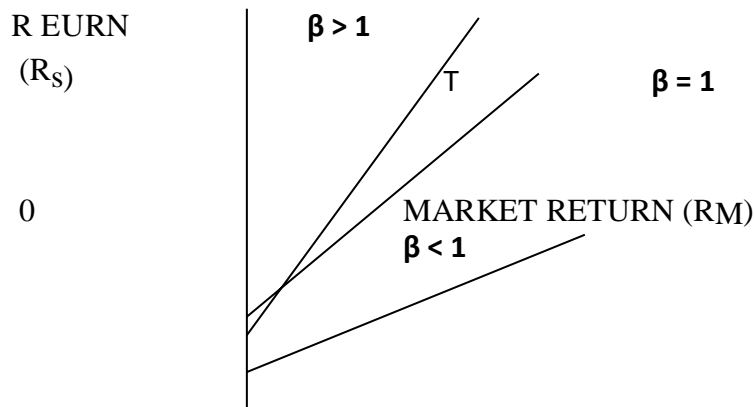


- On the other hand, if the total investment is made in risky securities, the portfolio return is equal to the risky rate of return.
- This line is tangent to the efficient frontier at portfolio M and has a vertical intercept IRF. If the investor has risky portfolio, then the investor will hold portfolio M as optimal risky portfolio.
- The part of CML from IRF to M is Lending portfolio (**Defensive**) i.e. the investor invests own fund for investment and beyond M is known as borrowing portfolio (**Aggressive**) i.e. the investor uses borrowed fund also for investment.
- For a given risk of σ_1 , when an investor sticks to efficient frontier, then his return would be R_1 , whereas he introduces risk-free lending, then his return is R_2 more than the return he gets from efficient frontier portfolio.
- Hence, The CML shows that by borrowing or lending at risk-free rate IRF, an investor can create different portfolios along the CML in such a way that for a given level of risk, the particular combination offers a return higher than the return available on the efficient frontier.

II. *Security Market Line (SML):*

SML is an extension of CML. In CML Standard Deviation σ includes the Systematic and Unsystematic Risk. But Unsystematic Risks are diversifiable and can be eliminated by efficient diversification. Systematic risks are non-diversifiable and can be measured by β , the beta factor.

Interpretation of β value:



1. β value less than 0 (Negative β):

It indicates a negative (inverse) relationship between stock return and market return. Negative β means that if market goes up, the prices of that security are likely to go down. It is possible but quite unlikely.

2. β value zero:

It means that there is no systematic risk and the share prices have no relationship with the market. It is very unlikely. Total investment is made in risk-free securities.

3. β value between 0 and 1:

The investment is made out of own funds (i.e. **defensive portfolio**). Particular stock has less volatility than the market. In case of rise or fall, share price will show lesser fluctuations than market.

4. β value 1:

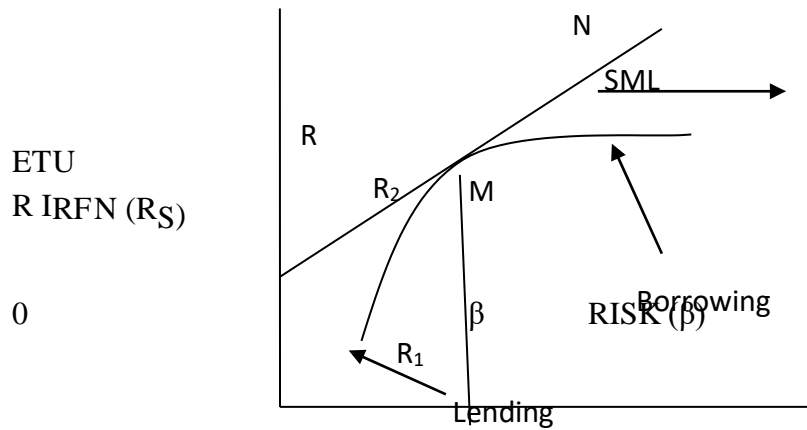
It means that volatility in share price and market is equal. Total investment is made in risky securities.

5. β value more than 1:

It means that the stock has a higher volatility than the market. Fluctuation in share price will be more than the fluctuation in the market index. Investment is made out of borrowed funds (i.e. **aggressive portfolio**) also.

The line which shows the values of risk and return combinations of the defensive and aggressive portfolio is called Security Market Line which is depicted below:

$$RS = IRF + (RM - IRF) \beta$$



The portfolio that contains all the securities in the economy is called the market portfolio. The CAPM model depicts that the expected rate of return of a security consists of two parts i.e. 1) the risk-free interest rate IRF and 2) the **risk premium (RM– IRF) β**. The risk premium is equal to the difference between the expected market return and the risk-free interest rate multiplied by the beta factor, β . The higher the beta factor, the greater is the expected rate of return R_S and vice-versa.

(Calculations refer class notes) Limitations of CAPM:

1. Beta calculation difficult (tedious).
2. Assumptions are hypothetical and are impractical.
3. Required rate of return is only a rough approximation.

PORTFOLIO EVALUATION

Portfolio evaluation is the process of measuring and comparing the returns (actually) earned on a portfolio with returns (estimates) for a benchmarks.

Evaluation factors:

1. Risk-return Trade-off:

The performance evaluation should be based on risk and return not on either of them. Risk without return and return without risk level are impossible to be interpreted. Investors are risk-averse. But it does not mean that they are not ready to assume risk. They are ready to take risk provided the return is commensurate. So, in the portfolio performance evaluation, risk-return trade-off be taken care of.

2. Appropriate Market Index:

The performance of one portfolio is benchmarked either against some other portfolio (for comparative position) or against some market index.

3. Common Investment Time Horizon:

Investment period horizon of the portfolio being evaluated and the time horizon of the benchmark must be same. Suppose, a mutual fund scheme announces that it has earned the highest return, it must be verified before accepting whether the highest return has been earned during current year or during last 3 years or 5 years, etc.

4. Objectives or Constraints of Portfolio:

The objectives for which the portfolio has been created has to be evaluated.

Measures of Portfolio Performance:

There are several measures for evaluation of portfolio performance. They are

i. Return per unit of risk:

The return earned over and above the risk-free return is the risk-premium and is earned for bearing risk. The risk-premium may be divided by risk factor to find out the reward per unit of risk undertaken. This is also known as **reward to risk ratio**. There are two methods of measuring reward to risk ratio:

a) Sharpe Ratio (Reward to Variability Ratio) :

The Sharpe Index measures the risk premium of the portfolio relative to the total amount of risk in the portfolio. The larger the index value, the better the portfolio has performed.

$$\text{Sharpe Ratio} = \frac{\text{RP} - \text{IRF}}{\sigma_P}$$

b) Treynor Ratio (Reward to Volatility Ratio):

The Treynor Index measures the risk premium of the portfolio related to the amount of systematic risk present in the portfolio.

$$\text{Treynor Ratio} = \frac{\text{RP} - \text{IRF}}{\beta_P}$$

II.

Differential Return:

c)

Jensen Ratio:

Michel Jensen has developed another method for evaluation of performance of a portfolio. This measure is based on differential returns. The Jensen's Ratio is based on the difference between the actual return of a portfolio and required return of a portfolio in view of the risk of the portfolio.

$$\alpha \text{ Jensen's Index} = \text{-----}$$

β

$$\alpha P = RP - RS$$

$$RP = \text{Actual Return on portfolio} \quad RS = \text{Expected Return on portfolio}$$

$$RS = IRF + (RM - IRF) \beta$$

(Note: Calc. refer class work)

Capital Asset Pricing Model (CAPM)

The Capital Asset Pricing Model (CAPM) is a widely used financial model that helps investors and financial analysts determine the expected return on an investment, particularly in the context of evaluating the risk and return of individual assets or securities. The CAPM provides a framework for understanding how an asset's expected return is related to its risk and the broader market's risk. Developed by William Sharpe, John Lintner, and Jan Mossin in the 1960s, the CAPM is a foundational concept in modern finance.

The core idea of the CAPM is that an asset's expected return should be influenced by two main factors:

1. **Risk-Free Rate (Rf):**

- o The risk-free rate represents the theoretical return an investor can earn without taking on any risk. Typically, it is based on the yield of a government bond with a maturity matching the investment horizon. The risk-free rate serves as a baseline return that investors expect to earn in compensation for the time value of money and the absence of risk.

2. **Market Risk Premium (Rm - Rf):**

- o The market risk premium reflects the additional return investors expect to earn for taking on the systematic risk associated with investing in the overall market. It represents the excess return above the risk-free rate that investors demand for bearing the market's risk. Mathematically, it is calculated as the difference between the expected return on the market (Rm) and the risk-free rate (Rf).

The CAPM formula for calculating the expected return (R_e) of an individual asset is as follows:

$$R_e = R_f + \beta * (R_m - R_f)$$

- R_e : Expected return of the asset.
- R_f : Risk-free rate.
- β (Beta): A measure of the asset's systematic risk or its sensitivity to market movements. It quantifies how the asset's returns tend to move in relation to the overall market.
- R_m : Expected return of the market (usually represented by a market index like the S&P 500).

Key points to note about the CAPM:

- The CAPM assumes that investors are rational and risk-averse, meaning they require higher expected returns for taking on more risk.
- Beta measures the asset's relative risk. A beta of 1 indicates the asset's returns move in line with the market, while a beta greater than 1 implies higher volatility, and a beta less than 1 suggests lower volatility.
- The CAPM focuses on systematic risk (market risk) and does not account for unsystematic risk (specific to individual assets), which can be diversified away in a well-constructed portfolio.
- It provides a tool for estimating the appropriate expected return for an asset or for assessing whether an asset is overvalued or undervalued relative to its risk.

While the CAPM is a useful tool for estimating expected returns and assessing the risk-return trade-off, it has limitations and assumptions, such as the efficiency of capital markets and the static nature of beta. Some critics argue that the model's simplicity does not fully capture the complexities of real-world financial markets. Nonetheless, it remains an essential concept in finance and portfolio management
