Capital Market:

- It is that part of a financial system concerned with raising capital by dealing in shares, debentures, bonds and other long-term investments.
- It is a market in which money is provided for periods longer than a year.
- In capital market three broad categories of suppliers of long-term funds i.e.

a. Individuals

b. Commercial Banks

c. Non-banking Financial Corporations or Institutions (insurance companies, pension, provident funds, etc.

- This market practically exist in all those countries where some industrialization has taken place.

Market of Securities:

- It is a process of approaching a large number of investors to invest their savings or funds in different security instruments like shares of the company which are regularly traded and flowed in the market.
- It includes the new issue and distribution of securities related to new or existing companies.
- It also include in buying and selling of old securities in stock exchange market.
- There are number of agencies and institutions in the market which help a company to newly issue as well as purchase and sale of securities.
- It can be categorized in two categories:

1. Primary Market
2. Secondary Market

Primary Market/New Issue Market:

- Market where new securities i.e. shares and bonds first time issued.
- Both the new companies and the existing ones can issue securities in this market to raise capital.
- In this market transactions are made between an issuer and the investors.
- This market is directly regulated by SEBI.
- The process of selling new issues to investors is called underwriting.
- In the case of a new stock issue, this sale is called as an Initial Public Offer (IPO).

Functions of Primary Market:

1. Origination:

- It simply means origin of the new issue.
- It is the work which begins before an issue is actually floated in the market.
- The following things is being determined before origin of issue i.e.

a. Time of floating the new issue
b. Type of issue
c. Price

2. Underwriting:

- It is a kind of guarantee undertaken by an institution or firm of brokers ensuring the marketability of an issue.
- It is a method in which the guarantor promise to the issuing company that he/she would purchase certain specific shares if the public not invested in it.
- The following organisations who give guarantee are:

a. LIC
b. GIC
c. Development Banks (IDBI, ICICI, etc.)
d. Brokers, etc.

3. <u>Distribution:</u>

- It involves the function of sale of shares and debentures to the investors.
- It is performed by brokers and agents.
- Brokers can maintain regular list of clients and directly contact for purchase and sale of securities.

Methods of Floating New Issues

OR

Methods to Raise Equity Capital in the Primary Market

1. **Public Issue:**

- When a company raises funds by issuing its shares, debentures and bonds to the public, it is called as a public issue.

2. **Initial Public Offer (IPO):**

- When a company makes a public issue for the first time and get its shares listed on stock exchange, the public issue is called as initial public offer (IPO).

3. Follow-on Public Offer (FPO):

- When a listed company makes additional public issue on running projects to raise capital, it is called follow-on public offer (FPO).

4. Offer for Sale:

- Institutional investors like venture funds, private equity funds etc., invest in unlisted company when it is very small or at an early stage.

- When the company becomes large, these investors sell their shares to the public, through issue of offer document and the company’s shares are listed in stock exchange. This is called as offer for sale.

5. Private Placement:

- It is the sale of securities to a relatively small number of select investors for raising capital.
- Investors involved in private placements are usually large banks, mutual funds, insurance companies and pension funds.
- Private placement is the opposite of a public issue, in which securities are made available for sale on the open market.

6. Rights Issue:

- When a company raises funds from its existing shareholders by issuing them new shares/ debentures, it is called as **rights issue**.
- The offer document for a rights issue is called as the **Letter of Offer.**
- The issue is open for 30-60 days.

7. Bonus Issue:

- The company issues new shares to its existing shareholders.
- Shareholders need not pay any money to the company for receiving the new shares.

Stock Exchange

- A stock exchange is an exchange where stockbrokers and traders can buy and/or sell stocks (also called shares), bonds and other securities.
- It is a market place where listed securities buy and sell for investment or speculation.
- It is an organised and regulated market for various securities issued by corporate sector and other institutions.
- It is a privately organised market which are used to facilitate trading of securities.
- It is as ready market where buyers and sellers are always available to buy and sell the securities.
- The securities of corporations, trusts, Government, municipal corporations, etc. are allowed to deal at stock exchange.
- It is a market wholly governed and regulated by SEBI.

Functions of Stock Exchange:

1. **Ensure Liquidity of Capital:**

- It provides a place where securities are converted into cash.
- It is a market where buyers and sellers are always available and those who need hard cash can sell their securities.

2. **Economic Barometer:**

- It is a reliable barometer to measure the economic condition of a country.
- Every major change in country is reflected in the prices of shares.
- The rise or fall in the share prices indicates the boom or recession cycle of the country.

3. Pricing of Securities:

- It helps to value the securities on the basis of demand and supply.
- The securities of profitable and growth oriented companies are valued higher as there is more demand for such securities.
- The valuation of securities is useful for investors, government and creditors.
- The investors can know the value of their investment, the creditors can value the creditworthiness and government can impose taxes on value of securities.

4. Contributes to Economic Growth:

- In stock exchange securities of various companies are bought and sold.
- This process of investment and re-investment helps to invest in most productive investment proposal and this leads to capital formation and economic growth.

5. Spreading of Ownership Culture:

- Stock exchange encourages people to invest in ownership securities by regulating new issues, better trading practices and by educating public about investment.

6. Providing Scope for Speculation:

- To ensure liquidity and demand of supply of securities the stock exchange permits healthy speculation of securities.

7. Better Allocation of Capital:

- The shares of profit making companies are quoted at higher prices and are actively traded so such companies can easily raise fresh capital from stock market.
- The general public hesitates to invest in securities of loss making companies. So stock exchange facilitates allocation of investor's fund to profitable channels.

8. Promotes the Habits of Savings and Investment:

- The stock market offers attractive opportunities of investment in various securities.
- These attractive opportunities encourage people to save more and invest in securities of corporate sector rather than investing in unproductive assets such as gold, silver, etc.

9. Safety of Transactions:

- In stock market only the listed securities are traded and stock exchange authorities include the companies names in the trade list only after verifying the soundness of company.
- The companies which are listed they also have to operate within the strict rules and regulations.
- This ensures safety of dealing through stock exchange.

Types of Speculators:

1. Jobber:

- He/She is a professional speculator who has a complete information regarding the particular shares he/she deals.
- He/She transacts the shares of profit.
- He/She conducts the securities in his/her own name.
- He/She is the member of the stock exchange.
- He/She is equivalent to market maker.

2. Broker:

- He/She is a person who transact business in securities on behalf of his clients and receives commission for his services.
- He/She deals between the jobbers and members outside the house.
- He/She is an experienced agent of the public.

3. **Bull:**

- He/She is a speculator who purchases various types of shares.
- He/She purchases to sell them on higher prices in future.
- He/She may sell the shares and securities before coming in possession.
- If the price falls then he suffers a loss.

4. **Bear :**

- He/She is always in a position to dispose of securities which he does not possess.
- He/She makes profit on each transaction.
- He/She sells the various securities for the objective of taking advantages of an expected fall in prices.

5. Stag:

- He/She is also a speculator.
- He/She purchases the shares of **newly floated company** and shown himself a **genuine investor.**
- He/She is not willing to become an actual shareholder of the company.
- He/She purchases the shares to sell them above the par value to earn premium

Trading of Securities:

1. Equity:

- It is a term which is called as equity shares basically issued against the ownership of the business.
- It represents the ownership capital.
- It is also called as ordinary shares.
- The holders of these shares are the real owners of the company.
- They have a voting right in the meetings of holders of the company.
- They have control over the working of the company.
- The rate of dividend on these shares depends upon the profits of the company.
- Equity shareholders take risk both regarding dividend and return of capital.
- Equity share capital cannot be redeemed during the life time of the company.

Types of Equity Shares:

1. Right Share:

- These are the shares issued to the existing shareholders of a company.
- Such kind of shares is issued to protect the ownership rights of the investors.

2. Bonus Share:

- These are the type of shares given by the company to its shareholders as a dividend.

3. Sweat Equity Share:

- These shares are issued to exceptional employees or directors of the company for their exceptional job in terms of providing know-how or intellectual property rights to the company.

4. <u>Growth Shares:</u>

- Shares which have a fairly boom position in the growing market.
- It enjoys an average rate of growth as well as profitability.

5. <u>Speculative Shares:</u>

- Shares that tend to fluctuate widely because there is a lot of speculative trading in them.

6. <u>Defensive Shares:</u>

- Shares that are relatively unaffected of ups and downs in general business conditions.

Debentures

- It is a medium to long-term debt instrument used by large companies to borrow money, at a fixed rate of interest.
- If a company needs funds for extension and development purpose without increasing its share capital, it can borrow from the general public by issuing certificates for a fixed period of time and at a fixed rate of interest.
- Such a loan certificate is called a debenture.
- Debentures are generally freely transferable by the debenture holder.
- Debenture holders have no rights to vote in the company's general meetings of shareholders.

- Debenture holders are the creditors of the company.
- Debenture holders normally receive fixed rate of return, either business have earned profit or loss.
- Interest on debenture is a tax deductible expenditure and thus it saves income tax.
- Cost of debenture is relatively lower than preference shares and equity shares.
- Issue of debentures is advantageous during times of inflation.

Types of Debentures:

1. **Ordinary Debentures:**

- Such debentures are issued without mortgaging any asset, i.e. this is unsecured.
- It is very difficult to raise funds through ordinary debenture.

2. **Mortgage Debentures:**

- This type of debenture is issued by mortgaging an asset and debenture holders can recover their dues by selling that particular asset in case the company fails to repay the claim of debenture holders.

3. **Non-convertible Debentures:**

- A non-convertible debenture is a debenture where there is no option for its conversion into equity shares.
- Thus the debenture holders remain debenture holders till maturity.

4. Partly Convertible Debentures:

- The holders of partly convertible debentures are given an option to convert part of their debentures into equity shares.
- After conversion they will enjoy the benefit of both debenture holders as well as equity shareholders.

5. Fully Convertible Debentures:

- Fully convertible debentures are those debentures which are fully converted into specified number of equity shares after predetermined period at the option of the debenture holders.

6. Redeemable Debentures:

- Redeemable debenture is a debenture which is redeemed/repaid on a pre-determined date and at pre-determined price.

7. Irredeemable Debenture:

- Such debentures are generally not redeemed during the lifetime of the company.
- So, it is also termed as **perpetual debt**.
- Repayment of such debenture takes place at the time of liquidation of the company.

8. Registered Debentures:

- Registered debentures are those debentures where **names, address, serial number**, etc., of the debenture holders are recorded in the register book of the company.
- Such debentures cannot be easily transferred to another person.

9. Unregistered Debentures:

- Unregistered debentures may be referred to those debentures which are not recorded in the company's register book.
- Such type of debenture is also known as **bearer debenture**.
- This kind of debentures can be easily transferred to any other person.

Bonds

- A bond called as a debt instrument issued normally for a period of more than one year with the purpose of raising capital by borrowing.
- It is a written and signed promise to pay a certain sum of money on a certain date i.e. on maturity, or on fulfillment of a specified condition.
- All documented contracts and loan agreements are bonds.
- Bonds normally issued on discounted value i.e. less than par value but sometimes it can be issued against some fixed interest.
- Bonds can be also called bills, notes, debt securities, or debt obligations.
- **Bills -** debt securities maturing in less than one year.
  Notes - debt securities maturing in one to 10 years.
  Bonds - debt securities maturing in more than 10 years.
- Bonds have set maturity dates that can range from one to 30 years.
- Short-term bonds (mature in three years or less), intermediate bonds (mature in three to ten years) and long-term bonds (mature in ten years or more).
- If the bond has a "call feature", the issuer i.e. the company is allowed to redeem the bond before its maturity date.

Types of Bonds

1. Zero-Coupon Bonds:

- This is a type of bond that makes no coupon payments but instead is issued at a considerable discount to par value.
- It is also called as Deep Discount bonds or Discount bonds.
- For example, let's say a zero-coupon bond with ₹1,000 par value and 10 years to maturity is trading at ₹ 600; you are paying ₹ 600 today for a bond that will be worth ₹ 1,000 in 10 years.

2. Corporate Bonds:

- It is a kind of bond issued by a company as it can issue against stock.
- A short-term corporate bond has a maturity of less than 5 years, intermediate is 5 to 12 years and long term is more than 12 years.
- It is characterized by higher yields because there is a higher risk of a company defaulting than a government.

3. Convertible Bonds:

- A convertible bond may be redeemed for a pre-determined amount of the company's equity at certain times during its life, usually at the discretion of the bondholder.
- Convertibles are sometimes called "CVs."
- The return against these bonds are received both in fixed as well as based on market risk.

4. Callable Bonds:

- Callable bonds, also known as **"redeemable bonds,"** can be redeemed by the issuer prior to maturity.
- Usually a premium is paid to the bond owner when the bond is called.
- The main cause of a call is a decline in interest rates.
- If interest rates have declined since a company first issued the bonds, it will likely want to re-finance this debt at a lower rate.
- In this case, the company will call its current bonds and reissue new, lower-interest bonds to save money.

5. Junk Bonds:

- A junk bond, also known as a "high-yield bond" or "speculative bond," is a bond rated ‘BB’ or lower because of its high default risk.
- **‘BB’ rating involves moderate risk.**
- It typically offer interest rates three to four percentage points higher than safer government issues.

Preference Shares

- Preference shares, more commonly referred to as preferred stock, are shares of a company's stock with dividends that are paid out to shareholders before common stock dividends are issued.
- Most preference shares have a fixed dividend, while common stocks generally do not.
- If the company is in a position of loss the fixed dividend can be carry forward to the next year and company can pay return of both the years.
- If the company enters bankruptcy, the shareholders with preferred stock are entitled to be paid from company assets first.
- Preferred stock shareholders also typically do not hold any voting rights of the company.

Types of Preference Shares:

1. Cumulative Preference Shares:

- When unpaid dividends on preference shares are treated as arrears and are carried forward to subsequent years, then such preference shares are known as cumulative preference shares.
- It means unpaid dividend on such shares is accumulated till it is paid off in full.

2. Non-cumulative Preference Shares:

- Non-cumulative preference shares are those type of preference shares, which have right to get fixed rate of dividend out of the profits of current year only.
- They do not carry the right to receive arrears of dividend.
- If a company fails to pay dividend in a particular year then that need not to be paid out of future profits.

3. <u>Redeemable Preference Shares:</u>

- Those preference shares, which can be redeemed or repaid after the expiry of a fixed period or after giving the prescribed notice as desired by the company, are known as redeemable preference shares.
- Terms of redemption are announced at the time of issue of such shares.

4. <u>Non-redeemable Preference Shares:</u>

- Those preference shares, which can not be redeemed during the life time of the company, are known as non-redeemable preference shares.
- The amount of such shares is paid at the time of liquidation of the company.

5. **Participating Preference Shares:**

- Those preference shares, which have right to participate in any surplus profit of the company after paying the equity shareholders, in addition to the fixed rate of their dividend, are called participating preference shares.

6. **Non-participating Preference Shares:**

- Preference shares, which have no right to participate on the surplus profit or in any surplus on liquidation of the company, are called non-participating preference shares.

7. **Convertible Preference Shares:**

- Those preference shares, which can be converted into equity shares at the option of the holders after a fixed period according to the terms and conditions of their issue, are known as convertible preference shares.

8. **Non-convertible Preference Shares:**

- Preference shares, which are not convertible into equity shares, are called non-convertible preference shares.

Types of Investors

1. Active Investors:

- Active investors stay aware of their stocks' performance, do a lot of research and keep up with the daily financial news.
- They don't necessarily buy one day and sell the next, but they do pay attention to changes in trends and buy or sell based on those trends.
- This person is an interested investor who takes a great deal of care with each investment decision and does not necessarily hold an investment long term.

2. Passive Investors:

- This kind of investor doesn't try to go for the biggest possible gains at all times.
- Instead, the passive investor accepts reasonable gains in exchange for a lower stress level and more free time.
- This person may invest in mutual funds so the funds' money managers can make buy and sell decisions.
- He/She may buy individual stock in established companies and hold that investment for a year or more.
- Passive investors tend to remove stress from investment decisions by setting parameters for adding more stock to their portfolios.

3. Speculator Investors:

- Some investors look for a chance to make money fast.
- They search the market for stocks that are moved to go up because of an unexpected deal.
- They tend to sell after a stock makes them a little money, reasoning that they can repeat the process of buying and selling frequently and therefore outperform the market.

4. Retirement Investors:

- People investing for retirement tend to change their tactics as they approach retirement age.
- They may choose an aggressive approach when they are younger.
- This involves buying riskier stocks that have the potential for growth.
- Such an investor may switch to more moderate-risk stocks during midlife and then switch to fixed income stocks that produce income during retirement.

Margin Trading

- In the stock market, margin trading refers to the process whereby individual investors buy more stocks than they can afford to.
- Margin trading also refers to intraday trading in India and various stock brokers provide this service.
- Margin trading involves buying and selling of securities in one single session.
- It is the process requires an investor to speculate or guess the stock movement in a particular session.
- Margin trading is an easy way of making a fast growth.
- With the advent of electronic stock exchanges, the once specialised field is now accessible to even small traders.

Process of Margin Trading

- The process is fairly simple.
- A margin account provides you the resources to buy more quantities of a stock than you can afford at any point of time.
- For this purpose, the broker would lend the money to buy shares and keep them as collateral.
- In order to trade with a margin account, you are first required to place a request with your broker to open a margin account.
- This requires you to pay a certain amount of money upfront to the broker in cash but now use other sources, which is called the minimum margin (MM). This would help the broker recover some money if there is loss.

- Once the account is open, you are required to pay an initial margin (IM), which is a certain percentage of the total traded value pre-determined by the broker.
- Before start trading, trader need to maintain the minimum margin (MM) through the session, because on a very volatile day, the stock price can fall more than one had anticipated.

Types of orders

1. Buy Orders:

- Buy orders are the orders to buy the stocks.
- These are placed when you expect a rise in share prices.
- The investor place a buy order when he finds the stock price is cheaper.
- Before placing an order you have to make sure that what is the price at which you are going to buy the stock, what is the quantity of shares you need, also ensure you have enough money to buy the stock.

2. Sell Orders:

- Sell orders are the orders to sell the stocks.
- If you are finding that the price of a particular stock that you are holding presently will go down, you have to place a sell order.
- The reason for selling can be anything either because the investment target has been met or you expect a decline in price.

3. Limit order:

- A Limit order is an order to buy or sell stocks at a specified price.
- Use of a Limit order helps to ensure that the customer will not buy/sell the stocks at a price less favourable than the limit price.
- **For Example:**

a. A buy limit order for Airtel at Rs.410 will buy shares of Airtel at Rs.410 or less.

b. A sell limit order for Airtel at Rs.410 will sell shares of Airtel at Rs.410 or more.

4. Market Order:

- A market order is an order to buy or sell a stock at the price at it is currently available in the market.
- When you submit a market order, the order can execute at any price that is prevailing in the market.
- There is no guarantee in the money that you are going to receive.

Securities and Exchange Board of India

- The Securities and Exchange Board of India (SEBI) is the regulator for the securities market in India.
- It was established in the year 1988 and given statutory powers on 12 April 1992 through the SEBI Act, 1992.
- SEBI has its headquarters at the business district of Bandra Kurla Complex in Mumbai, and has Northern, Eastern, Southern and Western Regional Offices in New Delhi, Kolkata, Chennai and Ahmedabad respectively.
- It has opened **local offices at Jaipur and Bangalore.**
- SEBI is managed by its members, which consists of following:

a. The chairman who is nominated by Government of India.
b. Two members, i.e., Officers from Finance Ministry.
c. One member from the Reserve Bank of India.
d. The remaining five members are nominated by Government of India, out of them at least three shall be whole-time members.

- Currently there are 20 local offices in India, 4 in North Zone, 5 in South Zone, 5 in East Zone, 5 in West Zone and 1 in Shimla.

Objectives of SEBI:

a. To regulate the activities of stock exchange.

b. To protect the rights of investors and ensuring safety to their investment.

c. To prevent fraudulent and mal-practices by having balance between self regulation of business and its statutory regulations.

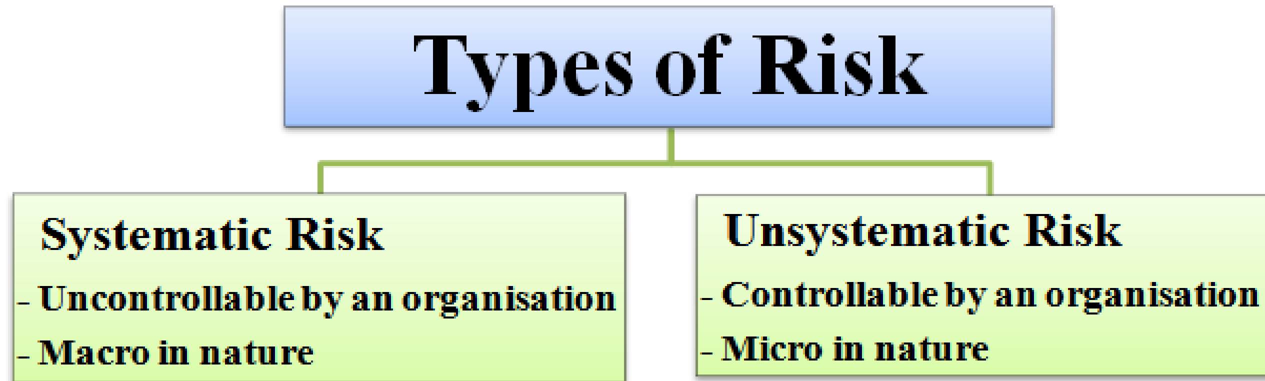
d. To regulate and develop a code of conduct for intermediaries such as brokers, underwriters, etc.

Functions of SEBI:

1. SEBI checks price manipulation.
2. SEBI prohibits fraudulent and Unfair Trade Practices.
3. SEBI undertakes steps to educate investors so that they are able to evaluate the securities of various companies and select the most profitable securities.
4. SEBI has issued guidelines to protect the interest of debenture-holders wherein companies cannot change terms in mid-term.
5. SEBI promotes training of intermediaries of the securities market.
6. SEBI has permitted internet trading through registered stock brokers.
7. Even initial public offer of primary market is permitted through stock exchange.
8. SEBI registers and regulates the working of mutual funds etc.
9. SEBI regulates takeover of the companies.
10. SEBI conducts inquiries and audit of stock exchanges.

What is Risk?

- Risk simply means the possibility of loss or damage.
- **Risk** is the potential of gaining or losing something of value.
- Values (such as physical health, social status, emotional well-being or financial wealth) can be gained or lost when taking **risk** resulting from a given action , foreseen or unforeseen.
- **Risk** involves the chance an investment's actual return will differ from the expected return.
- Risk implies future uncertainty about deviation from expected earnings or expected outcome.
- Risk measures the uncertainty that an investor is willing to take to realize a gain from an investment.



The meaning of systematic and unsystematic risk in finance:

1. Systematic risk is uncontrollable by an organisation and macro in nature.
2. Unsystematic risk is controllable by an organisation and micro in nature.

1. 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 effects the 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:

a. **<u>Interest rate risk:</u>**

- 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.

b. **<u>Market risk:</u>**

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

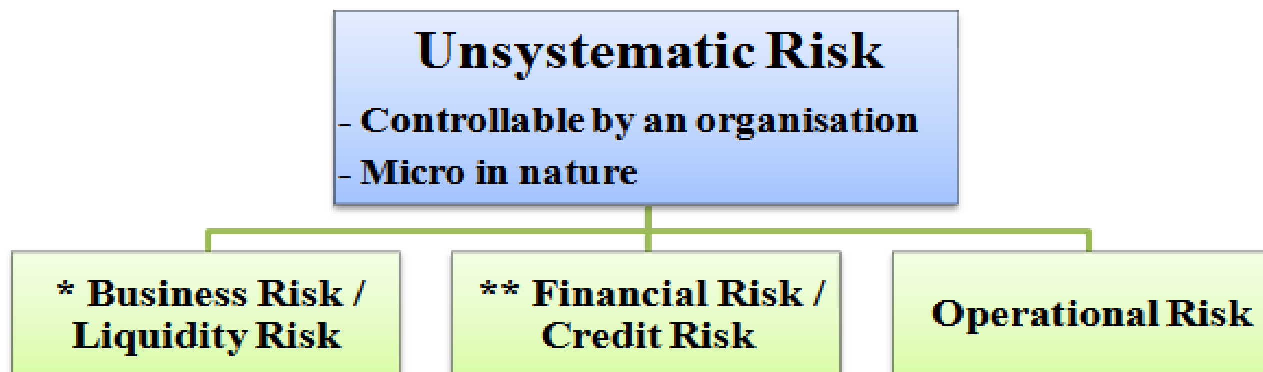
c. **<u>Purchasing power or inflationary risk:</u>**

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

2. 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 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.

a. Business or liquidity risk:

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

b. 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:

i. Owned funds. For e.g. share capital.
ii. Borrowed funds. For e.g. loan funds.
iii. Retained earnings. For e.g. reserve and surplus.

c. 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.

Methods to Measure Risk:

1. Standard deviation:

- The investment industry's primary measure of risk is standard deviation.
- Standard deviation really tells you how much an investment will fluctuate from the average return.
- **For example**, if Bell Charts or Normal Distribution (by Morning star) says that a fund has a standard deviation of 3.0, this means that the monthly return will be 3% lower than the average monthly return and 3% higher than the average monthly return. If the average monthly return increase to 2% more, then the range at a standard deviation of 3.0 ranges between -1% to 5%.

2. <u>Chance of loss:</u>

- Chance of loss measures **how often a fund loses money versus makes money**.
- Ultra-conservative investments make money 100% of the time and never lose.
- At the other extreme, some funds lose money as much as 60% of the time and make money only 40% of the time.
- The more often a fund loses money, the greater the patience required by the investor.

3. Beta ratios:

- Beta ratios are used to measure the risk of an investment relative to the risk of a comparable market benchmark.
- If a fund has a beta of 1.0, it is said to have the return is same as related to risk of the market.
- If a fund has a beta of more than 1.0, it is said to have the return is less as related to high risk of the market.
- If a fund has a beta of less than 1.0, it is said to have the return is more as related to low risk of the market.
- If a fund has a negative beta, it is said to have a fixed return against no risk.

Markowitz’s Theory

- A Nobel Memorial Prize winning economist who derived the modern portfolio theory in 1952.
- Markowitz's theory emphasized the importance of portfolio risk, the correlations between securities and diversification.
- His work changed the way that people invested.
- Harry M. Markowitz is credited with introducing new concepts of risk measurement and their application to the selection of portfolios.

- He started with the idea of risk aversion of average investors and their desire to maximize the expected return with the least risk.
- Markowitz model is thus a theoretical framework for analysis of risk and return and their inter-relationships.
- He used the statistical analysis for measurement of risk and mathematical programming for selection of assets in a portfolio in an efficient manner.
- His framework led to the .concept of efficient portfolios.
- An efficient portfolio is expected to yield the highest return for a given level of risk or lowest risk for a given level of return.

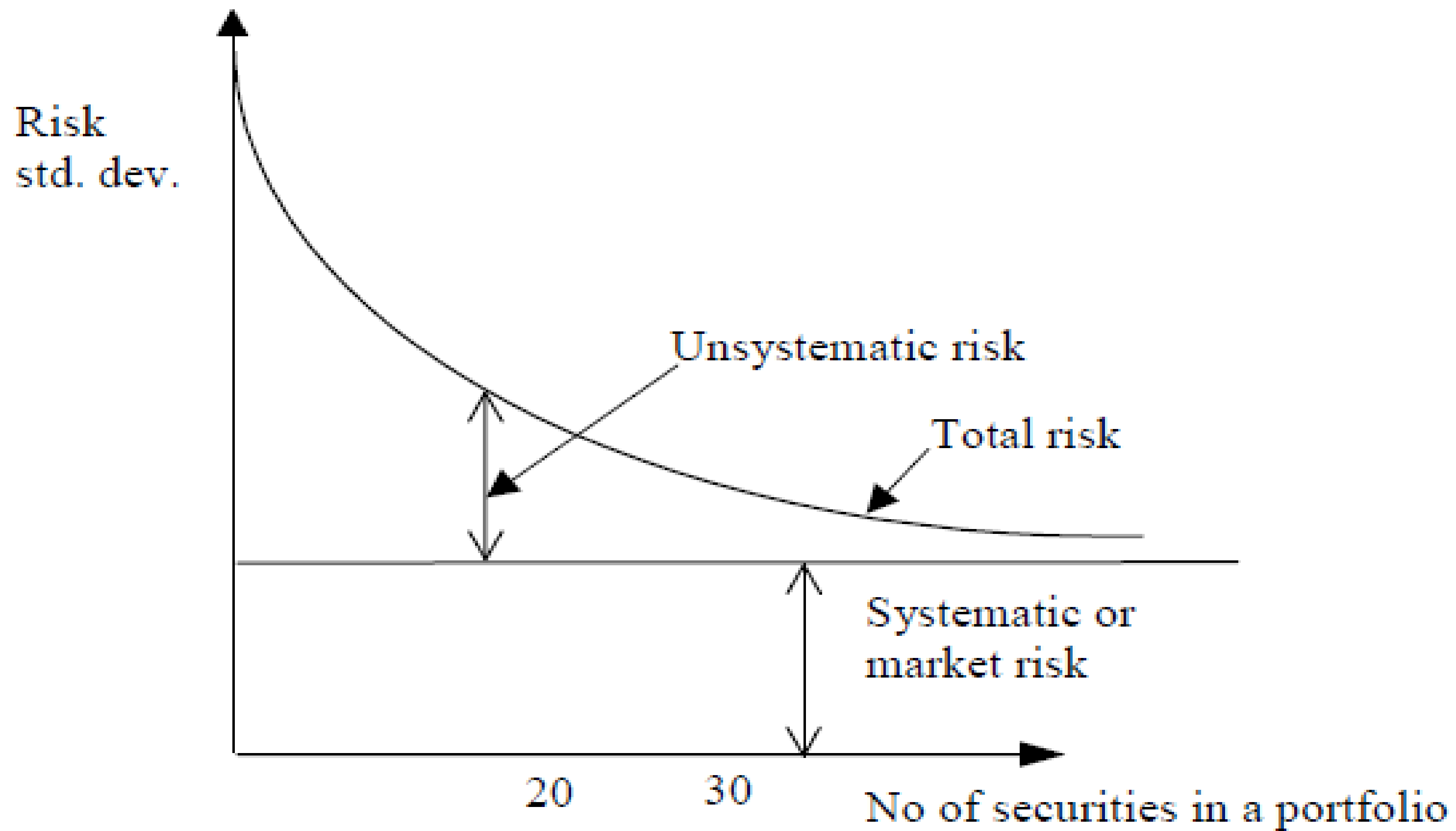
- Markowitz generated a number of portfolios within a given amount of money or wealth and given preferences of investors for risk and return.
- Individuals vary widely in their risk tolerance and asset preferences.
- Their means, expenditures and investment requirements vary from individual to individual.
- Given the preferences, the portfolio selection is not a simple choice of anyone security or securities, but a right combination of securities.
- Markowitz emphasized that quality of a portfolio will be different from the quality of individual assets within it.
- Thus, the combined risk of two assets taken separately is not the same risk of two assets together.

- A portfolio of assets involves the selection of securities.
- A combination of assets or securities is called a portfolio.
- Each individual investor puts his wealth in a combination of assets depending on his wealth, income and his preferences.
- The traditional theory of portfolio postulates that selection of assets should be based on lowest risk, as measured by its standard deviation from the mean of expected returns.

Assumptions of Markowitz Theory

- Investors are rational and behave in a manner as to maximize their utility with a given level of income or money.
- Investors have free access to fair and correct information on the returns and risk.
- The markets are efficient and absorb the information quickly and perfectly.
- Investors are risk averse and try to minimize the risk and maximize return.
- Investors base decisions on expected returns and variance or standard deviation of these returns from the mean.
- Investors prefer higher returns to lower returns for a given level of risk.

Systematic and Unsystematic risk:



Example:

- Suppose the shares of two companies, A and B, have the following probability distributions:

Economy	Probability	Return A	Return B
Boom	0.2	24%	5%
Growth	0.6	12%	30%
Recession	0.2	0%	-5%

a) Calculate the expected return and the expected risk for each security separately and

b) Calculate the expected return and expected risk for a portfolio comprising 75 % of A and 25 % of B.

Solution:

Economy A	Probability (pi)	Return (r)	r x pi	Expected return (ri)	r –ri	$(r-ri)^2 pi$
Boom	0.2	+24	4.8	12	12	28.8
Growth	0.6	+12	7.2	12	0	0
Recession	0.2	0	0	12	-12	28.8
Expected Return			**12**	**Variance**		**57.6**
				Standard deviation		**7.59%**

DOW Theory

- The Dow theory on stock price movement is a form of technical analysis that includes some aspects of sector rotation.
- The theory was derived from 255 Wall Street Journal editorials written by Charles H. Dow (1851–1902), journalist, founder and first editor of *The Wall Street Journal* and co-founder of Dow Jones and Company.
- After Dow's death, William Peter Hamilton, Robert Rhea and E. George Schaefer organized and collectively represented Dow theory, based on Dow's editorials between 1902-1929.
- Dow himself never used the term *Dow theory* nor presented it as a trading system.

Six basic principles of Dow theory

1. The market has three movements:

a. The "main movement", primary movement or major trend may last from less than a year to several years. It can be bullish or bearish.

b. The "medium swing", secondary reaction or intermediate reaction may last from ten days to three months and generally response from 33% to 66% of the primary price change since the medium swing start of the main movement.

c. The "short swing" or minor movement varies with opinion from hours to a month or more. The three movements may be simultaneous, for instance, a daily minor movement in a bearish secondary reaction in a bullish primary movement.

2. Market trends have three phases:

- The initial phase (*phase 1*) is a period when investors "in the know" are actively buying or selling stock against the general opinion of the market. During this phase, the stock price does not change much because these investors are in the minority demanding or absorbing stock that the market at large is supplying or releasing.
- Eventually, the market catches on to these astute (quickly understandable) investors and a rapid price change occurs (*phase 2*). This occurs when trend followers and other technically oriented investors participate. This phase continues until uncontrollable speculation occurs.
- At this point, the astute investors begin to distribute their holdings to the market (*phase 3*).

3. The followings are:

- Stock market discloses all news.
- Stock prices quickly incorporate new information as soon as it becomes available.
- Once news is released, stock prices will change to reflect this new information.
- On this point, Dow theory agrees with one of the premises of the efficient-market hypothesis.

4. The following are:

- Stock market averages must confirm each other.
- In Dow's time, the US was a growing industrial power.
- The US had population centers but factories were scattered throughout the country.
- Factories had to ship their goods to market, usually by rail.
- Dow's first stock averages were an index of industrial (manufacturing) companies and rail companies.
- According to this logic, if manufacturers' profits are rising, it follows that they are producing more.

- If they produce more, then they have to ship more goods to consumers.
- Hence, if an investor is looking for signs of health of manufacturers, he or she should look at the performance of the companies that ship their output to market, the railroads.
- The two averages should be moving in the same direction. When the performance of the averages diverge, it is a warning that change is in the air.
- Both Barron's Magazine and the Wall Street Journal still publish the daily performance of the Dow Jones Transportation Average in chart form.
- The index contains major railroads, shipping companies, and air freight carriers in the US.

5. The following are:

- Trends are confirmed by volume.
- Dow believed that volume confirmed price trends.
- When prices move on low volume, there could be many different explanations.
- An overly aggressive seller could be present for example.
- But when price movements are depend by high volume, Dow believed this represented the "true" market view.
- If many participants are active in a particular security, and the price moves significantly in one direction, Dow maintained that this was the direction in which the market anticipated continued movement.
- To him, it was a signal that a trend is developing.

6. The following are:

- Dow believed that trends existed despite "market noise".
- Markets might temporarily move in the direction opposite to the trend, but they will soon resume the prior move.
- The trend should be given the benefit of doubt during these reversals.
- Determining whether a reversal is the start of a new trend or a temporary movement in the current trend.

Analysis

- Alfred Cowles in a study in Econometrica in 1934 showed that trading based upon the editorial advice would have resulted in earning less as compared to a buy and hold strategy using a well diversified portfolio.
- He concluded that a buy and hold strategy produced 15.5% annualized returns from 1902–1929 while the Dow theory strategy produced annualized returns of 12%.
- After numerous studies supported Cowles over the following years, many academics stopped studying Dow theory believing Cowles's results were conclusive.
- In recent years however, Cowles' conclusions have been revisited.
- William Goetzmann, Stephen Brown, and Alok Kumar believe that Cowles' study was incomplete and that W.P. Hamilton's application of the Dow theory from 1902 to 1929 produced excess risk-adjusted returns.

- On the 160th anniversary of Charles Dow's Birthday, Jack Schannep of The DowTheory.com, delivered a speech to the Market Technicians Association, describing recent contributions to the Evolution of the Dow Theory and showed that traditional Dow Theory gives a total annualized return, from 1953 until 2011, about 1.5% per year greater than Buy and Hold.
- Many technical analysts consider Dow Theory's definition of a trend and its insistence on studying price action as the main premises of modern technical analysis.

Arbitrage Pricing Theory

- Arbitrage Pricing Theory was developed by Stephen Ross (1976).
- His theory begins with an analysis of how investors construct efficient portfolios.
- This theory offers a new approach for explaining the asset prices and states that the return on any risky asset is a linear combination of various macroeconomic factors that are not explained by this theory.
- Similar to CAPM it assumes that investors are fully diversified and the systematic risk is an influencing factor in the long run.
- However, unlike CAPM model APT specifies a simple linear relationship between asset returns and the associated factors because each share or portfolio may have a different set of risk factors and a different degree of sensitivity to each of them.

Assumptions

- Capital markets are perfectly competitive.
- Investors always prefer more wealth to less wealth with certainty.
- The random probability distribution process generating asset returns can be expressed as a linear function of a set of K factors or indexes.

Factors that effect APT

- Multiple factors expected to have an impact on all assets:
  - Inflation
  - Growth in GNP
  - Major political upheavals
  - Changes in interest rates
- Contrast with CAPM insistence that only beta is relevant.
- APT assumes that, in equilibrium, the return on a zero-investment, zero-systematic-risk portfolio is zero when the unique effects are diversified away.

Example:

Asset	Beta	Risk premium	Portfolio weight
A	1.2	9%	0.5
B	0.8	6%	0.3
C	0	0%	0.2
Portfolio	0.84	?	1.0

a. Calculate the risk premium on each portfolio in combined form.

b. Calculate the total portfolio if market risk premium is 7.5%.

CAPM Model

- A model that describes the relationship between risk and expected return that is used in the pricing of risky securities.
- The model was introduced by Jack Treynor, William Sharpe, John Lintner and Jan Mossin independently, building on the earlier work of Harry Markowitz on diversification and modern portfolio theory.
- The general idea behind CAPM is that investors need to be compensated in two ways: time value of money and risk.

ASSUMPTIONS

- Can lend and borrow unlimited amounts under the risk free rate of interest.
- Individuals seek to maximize the expected utility of their portfolios over a single period planning horizon.
- Assume all information is available at the same time to all investors.
- The market is perfect: there are no taxes; there are no transaction costs; securities are completely divisible; the market is competitive.
- The quantity of risky securities in the market is given.

IMPLICATIONS AND RELEVANCE OF CAPM

- Investors will always combine a risk free asset with a market portfolio of risky assets.
- Investors will invest in risky assets in proportion to their market value.
- Investors can expect returns from their investment according to the risk. This implies a linear relationship between the asset’s expected return and its beta.
- Investors will be compensated only for that risk which they cannot diversify. This is the market related (systematic) risk.

CAPM EQUATION

- **$E(r_i) = R_f + \beta_i(E(r_m) – R_f$**
- **Where;**
- $E(r_i)$ = return required on financial asset i.
- R_f = risk-free rate of return.
- β_i = beta value for financial asset i.
- $E(r_m)$ = average return on the capital market.

BETA

- A measure of the volatility, or systematic risk, of a security or a portfolio in comparison to the market as a whole.
- Beta is used in the capital asset pricing model (CAPM), a model that calculates the expected return of an asset based on its beta and expected market returns.
- Also known as "beta coefficient."

VALUE OF BETA

- **β= 1**
- **β <1**
- **β>1**
- For example, if a stock's beta is 1.2, it's theoretically 20% more volatile than the market.