

SECURITY ANALYSIS

Introduction

Investment decision depends on securities to be bought, held or sold.

Buying security is based on highest return per unit of risk or lowest risk per unit of return. Selling security does not depend on any such requirement.

A security considered for buying today may not be attractive tomorrow due to management policy changes in the company or economic policy changes adopted by the government. The reverse is also true. Therefore, analysis of the security on a continuous basis is a must.

Security Analysis involves a systematic analysis of the risk return profiles of various securities which is to help a rational investor to estimate a value for a company from all the price sensitive information/data so that he can make purchases when the market under-prices some of them and thereby earn a reasonable rate of return.

Two approaches viz. **fundamental analysis and technical analysis** are in vogue for carrying out Security Analysis.

In fundamental analysis, **factors affecting risk-return characteristics** of securities are looked into while in technical analysis, **demand/ supply position** of the securities along with prevalent share price trends are examined.

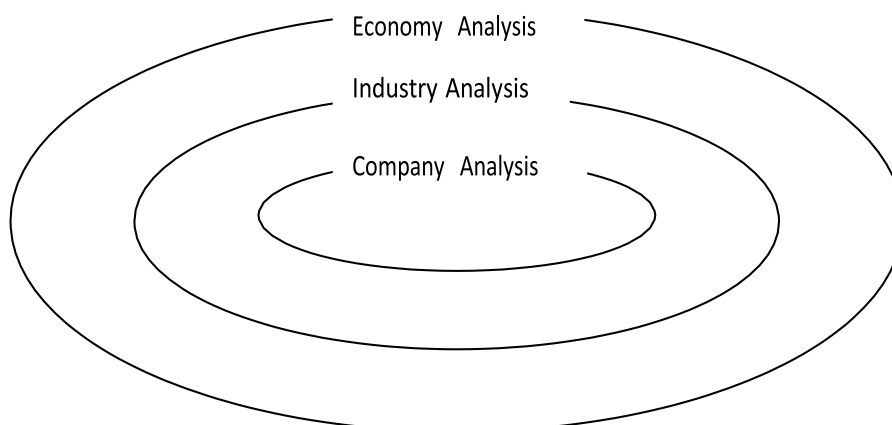
A. FUNDAMENTAL ANALYSIS

Fundamental Analysis is based on the assumption that the share prices depend upon the future dividends expected by the shareholders.

The present value of the future dividends can be calculated by discounting the cash flows at an appropriate discount rate and is known as the '*intrinsic value of the share*'. A share that is priced below the intrinsic value must be bought, while a share quoting above the intrinsic value must be sold.

Price of Shares = $D_1/Re - g$ or $D_0(1+G)/Re - g$ or $E_1 * DPS/ Re - g$ or $E_0(1+G) * DPS/ Re - g$

The key variables that an investor must monitor in order to carry out his fundamental analysis are economy wide factors, industry wide factors and company specific factors.



1. Economic Analysis

Macro-economic factors e.g. historical performance of the economy in the past/ present and expectations in future, growth of different sectors of the economy in future with signs of stagnation/degradation at present to be assessed while analyzing the overall economy.

Trends in peoples' income and expenditure reflect the growth of a particular industry/company in future. Consumption affects corporate profits, dividends and share prices in the market.

Factors Affecting Economic Analysis

Some of the economy wide factors are discussed as under:

- (a) **Growth Rates of National Income and Related Measures:** what is important is the difference between the nominal growth rate quoted by GDP and the 'real' growth after taking inflation into account.
- (b) **Growth Rates of Industrial Sector:** This can be further broken down into growth rates of various industries or groups of industries if required. The growth rates in various industries are estimated based on the estimated demand for its products.
- (c) **Inflation:** Inflation is measured in terms of either wholesale prices (the Wholesale Price Index or WPI) or retail prices (Consumer Price Index or CPI). The demand in some industries, particularly the consumer products industries, is significantly influenced by the inflation rate.
- (d) **Monsoon:** Because of the strong forward and backward linkages, monsoon is of great concern to investors in the stock market too.

Techniques Used in Economic Analysis

Gross National Product (GNP) is used to measure national income as it reflects the growth rate in economic activities and has been regarded as a forecasting tool for analyzing the overall economy along with its various components during a particular period.

Some of the techniques used for economic analysis are:

- (a) **Anticipatory Surveys:** They help investors to form an opinion about the future state of the economy. It incorporates expert opinion on construction activities, expenditure on plant and machinery, levels of inventory – all having a definite bearing on economic activities. Also future spending habits of consumers are taken into account. Survey results do not guarantee that intentions surveyed would materialize.
- (b) **Barometer/Indicator Approach:** Various indicators are used to find out how the economy shall perform in the future. The indicators have been classified as under:
 - (i) *Leading Indicators:* They lead the economic activity in terms of their outcome. They relate to the time series data of the variables that reach high/low points in advance of economic activity.
 - (ii) *Roughly Coincidental Indicators:* They reach their peaks and troughs at approximately the same in the economy.
 - (iii) *Lagging Indicators:* They are time series data of variables that lag behind in their consequences vis-a- vis the economy. They reach their turning points after the economy has reached its own already.

Money supply in the economy also affects investment decisions. Rate of change in money supply in the economy affects GNP, corporate profits, interest rates and stock prices. Increase in money supply fuels inflation. stock prices go up during inflationary period.

(C) Economic Model Building Approach: In this approach, a precise and clear relationship between dependent and independent variables is determined. GNP model building or sectoral analysis is used in practice through the use of national accounting framework.

2. Industry Analysis

When an economy grows, it is very unlikely that all industries in the economy would grow at the same rate. So it is necessary to examine industry specific factors, in addition to economy-wide factors.

Factors Affecting Industry Analysis

The following factors may particularly be kept in mind while assessing the factors relating to an industry.

- (a) Product Life-Cycle:** An industry usually exhibits **high profitability in the initial and growth stages**, medium but steady profitability in the maturity stage and a sharp decline in profitability in the last stage of growth.
- (b) Demand Supply Gap:** Excess supply reduces the profitability of the industry because of the decline in the unit price realization, while insufficient supply tends to improve the profitability because of higher unit price realization.
- (c) Barriers to Entry:** Any industry with high profitability would attract fresh investments. The potential entrants to the industry, however, face different types of barriers to entry. Some of these barriers are innate to the product and the technology of production, while other barriers are created by existing firms in the industry.
- (d) Government Attitude:** The attitude of the government towards an industry is a crucial determinant of its prospects.
- (e) State of Competition in the Industry:** Factors to be noted are- firms with leadership capability and the nature of competition amongst them in foreign and domestic market, type of products manufactured viz. homogeneous or highly differentiated, demand prospects through classification viz customer-wise/area-wise, changes in demand patterns in the long/immediate/ short run, type of industry the firm is placed viz. growth, cyclical, defensive or decline.
- (f) Cost Conditions and Profitability:** The price of a share depends on its return, which in turn depends on profitability of the firm. Profitability depends on the state of competition in the industry, cost control measures adopted by its units and growth in demand for its products.
- (g) Technology and Research:** They play a vital role in the growth and survival of a particular industry. Technology is subject to change very fast leading to obsolescence. Industries which update themselves have a competitive advantage over others in terms of quality, price etc.

Techniques Used in Industry Analysis

The techniques used for analyzing the industry wide factors are:

- (a) Regression Analysis:** Investor diagnoses the factors determining the demand for output of the industry through product demand analysis. Factors to be considered are GNP, disposable income, per capita consumption / income, price elasticity of demand. For identifying factors affecting demand, statistical techniques like regression analysis and correlation are used.
- (b) Input - Output Analysis:** It reflects the flow of goods and services through the economy, intermediate steps in production process as goods proceed from raw material stage through final consumption. This is carried out to detect changing patterns/trends indicating growth/decline of industries.

3. Company Analysis

Economic and industry framework provides the investor with proper background against which shares of a particular company are purchased. This requires careful examination of the company's quantitative and qualitative fundamentals.

- (a) **Net Worth and Book Value:** Net Worth is **sum of equity share capital, preference share capital and free reserves less intangible assets and any carry forward of losses**. The total net worth divided by the number of shares is the much talked about book value of a share
- (b) **Sources and Uses of Funds:** The identification of sources and uses of funds is known as Funds Flow Analysis. One of the major uses of funds flow analysis is to find out **whether the firm has used short-term sources of funds to finance long-term investments**. Such methods of financing increases the risk of liquidity crunch for the firm. Many a firm has come to grief because of this mismatch between the maturity periods of sources and uses of funds.
- (c) **Cross-Sectional and Time Series Analysis:** One of the main purposes of examining financial statements is **to compare two firms, compare a firm against some benchmark figures for its industry** and to analyze the performance of a firm over time.
- (d) **Size and Ranking:** In this regard the net capital employed, the net profits, the return on investment and the sales figures of the company under consideration may be compared with similar data of other companies in the same industry group.
- (e) **Growth Record:** The growth in sales, net income, net capital employed and earnings per share of the company in the past few years should be examined. The following three growth indicators may be particularly looked into: (a) **Price earnings ratio**, (b) **Percentage growth rate of earnings per annum**, and (c) **Percentage growth rate of net block**.
- (f) **Financial Analysis:** An analysis of its financial statements for the past few years would help the investment manager in understanding the financial solvency and liquidity, the efficiency with which the funds are used, the profitability, the operating efficiency and the financial and operating leverages of the company. For this purpose, certain fundamental ratios have to be calculated.

From the investment point of view, the most important figures are **earnings per share, price earning ratios, yield, book value and the intrinsic value of the share**.

Various other ratios to measure profitability, operating efficiency and turnover efficiency of the company may also be calculated. The **return on owners' investment, capital turnover ratio and the cost structure ratios may also be worked out**.

To examine the financial solvency or liquidity of the company, the investment manager may work out **current ratio, liquidity ratio, debt-equity ratio, etc**. These ratios will provide an overall view of the company to the investment analyst. He can analyse its strengths and weaknesses and see whether it is worth the risk or not.

- (g) **Competitive Advantage:** Another business consideration for investors is competitive advantage. **A company's long-term success is driven largely by its ability to maintain its competitive advantage**. Powerful competitive advantages, such as **Apple's brand name and Samsung's domination** of the mobile market, create a shield around a business that allows it to keep competitors at a distance.
- (h) **Quality of Management:** Every investment manager knows that the shares of certain business houses command a higher premium than those of similar companies managed by other business houses. This is because of the quality of management, the confidence that investors have in a particular business house, its policy vis-a-vis its relationship with the investors, dividend and financial performance record of other companies in the same group, etc. Quality of management has to be seen with reference to **the experience, skills and integrity of the persons** at the helm of affairs of the company.
- (i) **Corporate Governance:** Following factors are to be kept in mind while judging the effectiveness of corporate governance of an organization:
 - Whether company is complying with all aspects of SEBI (LODR) Regulations 2015?
 - How well corporate governance policies serve stakeholders?

Quality and timeliness of company financial disclosures.

Whether quality independent directors are inducted?

(j) Regulation: Regulations play an important role in maintaining the sanctity of the corporate form of organization. In Indian listed companies, **Companies Act, Securities Contract and Regulation Act and SEBI Act** basically look after regulatory aspects of a company. A listed company is also continuously monitored by SEBI which through its guidelines and regulations protect the interest of investors.

Further, a company which is dealing with companies outside India, needs to comply with Foreign Exchange Management Act (FEMA) also. In this scenario, the Reserve Bank of India (RBI) does a continuous monitoring.

(k) Location and Labour-Management Relations: The **locations** of the company's manufacturing facilities **determines** its **economic viability** which depends on the availability of **crucial inputs like power, skilled labour and raw-materials**, etc. Nearness to markets is also a factor to be considered.

In the past few years, the investment manager has begun looking into the state of **labour- management relations** in the company under consideration and the **area where it is located**.

(l) Pattern of Existing Stock Holding: An analysis of the pattern of existing stock holdings of the company would also be relevant. This would show the stake of various parties in the company.

(m) Marketability of the Shares: Another important consideration for an investment manager is the marketability of the shares of the company. Mere listing of a share on the stock exchange does not automatically mean that the share can be sold or purchased at will. There are many shares which remain inactive for long periods with no transactions being affected. To purchase or sell such scrips is a difficult task. In this regard, dispersal of shareholding with special reference to the extent of public holding should be seen. The other relevant factors are the speculative interest in the particular scrip, the particular stock exchange where it is traded and the volume of trading.

Techniques Used in Company Analysis

Through the use of statistical techniques the company wide factors can be analyzed. Some of the techniques are discussed as under:

(a) Correlation & Regression Analysis: Simple regression is used when inter relationship covers two variables. For more than two variables, multiple regression analysis is followed. The main advantage in such analysis is the determination of the forecasted values along with testing the reliability of the estimates.

(b) Trend Analysis: The relationship of one variable is tested over time using regression analysis. It gives an insight to the historical behavior of the variable.

(c) Decision Tree Analysis: Information relating to the probability of occurrence of the forecasted value is considered useful. A range of values of the variable with probabilities of occurrence of each value is taken up. The limitations are reduced through decision tree analysis and use of simulation techniques.

In decision tree analysis, the decision is taken sequentially with probabilities attached to each sequence. To obtain the probability of final outcome, various sequential decisions given along with probabilities, the probabilities of each sequence is to be multiplied and them summed up.

Thus, fundamental analysis is basically an examination of the economic and financial aspects of a company with the aim of estimating future earnings and dividend prospects. It includes an analysis of the macro-economic and political factors which will have an impact on the performance of the company. After having analysed all the relevant information about the company and its relative strength vis-a-vis other companies in the industry, the investor is expected to decide whether he should buy or sell the securities

2. TECHNICAL ANALYSIS

Technical Analysis is a **method of share price movements** based on a study of **price graphs or charts** on the **assumption** that **share price trends are repetitive**, that since investor psychology follows a certain pattern, what is seen to have happened before is likely to be repeated.

Technical Analysis is based on the following assumptions:

- (i) The **market value** of stock **depends** on the **supply and demand** for a security.
- (ii) The **supply and demand** are actually **governed by** several **factors** which can be **rational or irrational**. For instance, recent initiatives taken by the Government to reduce the Non-Performing Assets (NPA) burden of banks may result in the demand for banking stocks.
- (iii) Stock prices generally **move in trends** which continue for a substantial period of time. Therefore, if there is a bull market going on, there is every possibility that there will soon be a substantial correction which will provide an opportunity to the investors to buy shares at that time.
- (iv) Technical analysis **relies upon chart analysis** which shows the **past trends in stock prices** rather than the information in the financial statements like balance sheet or profit and loss account.

Principles of Technical Analysis

Technical analysis is based on the following three principals:

- a. **The Market Discounts Everything:** Although many experts criticize technical analysis because it only considers price movements and ignores fundamental factors but the Efficient Market Hypothesis (discussed later in detail) contradicts it according to which a company's share price already reflects everything that has or could affect a company and it includes fundamental factors. So, technical analysts generally have the view that a **company's share price includes everything including the fundamentals of a company**.
- b. **Price Moves in Trends:** Technical analysts believe that prices move in trends. In other words, a stock price is more likely to continue a past trend than move in a different direction.
- c. **History Tends to Repeat Itself:** Technical analysts believe that history tends to repeat itself. Technical analysis **uses chart patterns to analyze subsequent market movements to understand trends**. While many form of technical analysis have been used for many years, they are still considered to be significant because they illustrate patterns in price movements that often repeat themselves.

Theories of Technical Analysis

1. The Dow Theory

It was originated by **Charles Dow**, the founder of Dow Jones Company in late nineteenth century.

The Dow Theory is based upon the movements of **two indices**, constructed by Charles Dow, **Dow Jones Industrial Average (DJIA) and Dow Jones Transportation Average (DJTA)**.

The **movements** of the market are **divided into three classifications**, all going at the same time; **the primary movement, the secondary movement, and the daily fluctuations**.

The **primary movement** is the main trend of the market, which lasts from **one year to 36 months or longer**. This trend is commonly called bear or bull market.

The **secondary movement** of the market is shorter in duration than the primary movement, and is opposite in direction. It lasts **from two weeks to a month or more**.

The **daily fluctuations** are the **narrow movements from day-to-day**. These fluctuations are not part of the Dow Theory interpretation of the stock market. However, daily movements must be carefully studied, along with primary and secondary movements, as they go to make up the longer movement in the market.

Thus, the Dow Theory's purpose is to determine where the market is and where is it going, although not how far or high.

The theory, in practice, states that if the cyclical swings of the stock market averages are successively higher and the successive lows are higher, then the market trend is up and a bullish market exists.

Contrarily, if the successive highs and successive lows are lower, then the direction of the market is down and a bearish market exists.

Charles Dow proposed that the **primary uptrend** would have **three moves** up, the first one being caused by **accumulation of shares by the far-sighted, knowledgeable investors**, the second move would be caused by the **arrival of the first reports of good earnings by corporations**, and the **last move** up would be caused by **widespread report of financial well-being of corporations**. The *third* stage would also see rampant speculation in the market.

Towards the end of the third stage, the far-sighted investors, realizing that the high earnings levels may not be sustained, would start selling, starting the first move down of a downtrend, and as the non-sustainability of high earnings is confirmed, the second move down would be initiated and then the third move down would result from distress selling in the market.

2. Elliot Wave Theory

Inspired by the Dow Theory and by observations found throughout nature, Ralph Elliot formulated Elliot Wave Theory in 1934. This theory was based on analysis of 75 years stock price movements and charts. From his studies, he defined price movements in terms of waves. Accordingly, this theory was named Elliot Wave Theory. Elliot found that the markets exhibited certain repeated patterns or waves. As per this theory wave is a movement of the market price from one change in the direction to the next change in the same direction. These waves are resulted from buying and selling impulses emerging from the demand and supply pressures on the market. Depending on the demand and supply pressures, waves are generated in the prices.

As per this theory, waves can be classified into two parts:-

- (a) **Impulsive Patterns-(Basic Waves)** - In this pattern there will be 3 or 5 waves in a given direction (going upward or downward). These waves shall move in the direction of the basic movement. This movement can indicate bull phase or bear phase.
- (b) **Corrective Patterns- (Reaction Waves)** - These 3 waves are against the basic direction of the basic movement. Correction involves correcting the earlier rise in case of bull market and fall in case of bear market.

As shown in the following diagram waves 1, 3 and 5 are directional movements, which are separated or corrected by wave 2 & 4, termed as corrective movements.

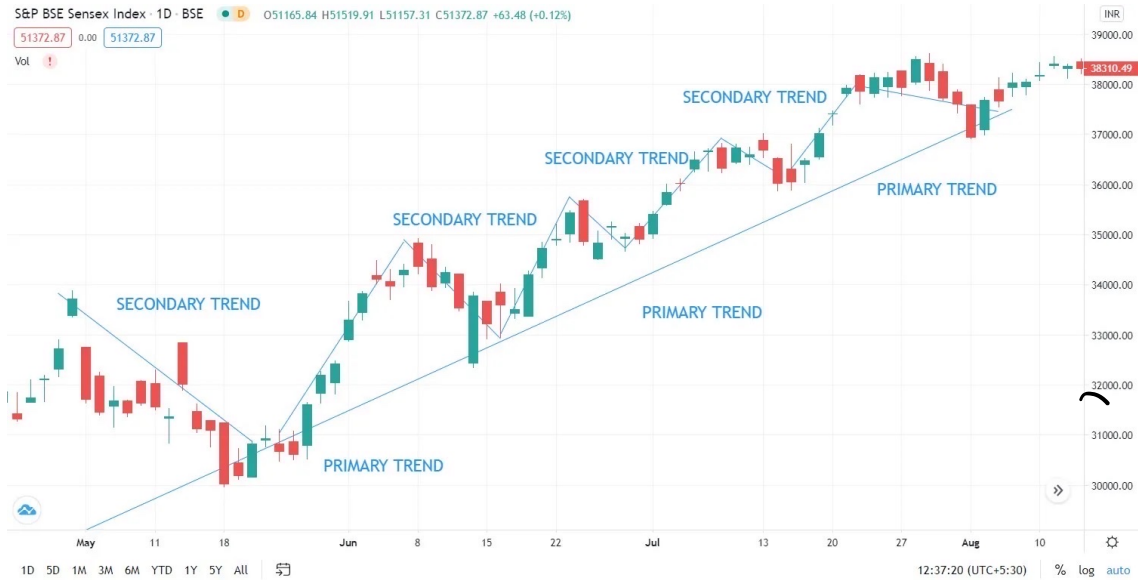
3. Random Walk Theory

While discussing the Dow Jones theory, we have seen that the theory is based on the assumption that the behaviour of stock market itself contains trends which give clues to the future behaviour of stock market prices. Thus, supporters of the theory argue that market prices can be predicted if their patterns can be properly understood. *Such analysis of stock market patterns is called technical analysis*. Apart from this theory there are many approaches to technical analysis. Most of them, however, involve a good deal of subjective judgment.

Many investment managers and stock market analysts believe that stock market prices can never be predicted because they are not a result of any underlying factors but are mere statistical ups and downs. This hypothesis is known as Random Walk hypothesis which states that the behaviour of stock market prices is unpredictable and that there is no relationship between the present prices of the shares and their future prices. Proponents of this hypothesis argue that stock market prices are independent. A British statistician, M. G. Kendall, found that changes in security prices behave nearly as if they are generated by a suitably designed roulette wheel for which each outcome is statistically independent of the past history. In other words, the fact that there are peaks and troughs in stock exchange prices is a mere statistical happening – successive peaks and troughs are unconnected. In the layman's language it may be said that prices on the stock exchange behave exactly the way a drunk would behave while walking in a blind lane, i.e., up and down, with an unsteady way going in any direction he likes, bending on the side once and on the other side the second time.

The supporters of this theory put out a simple argument. It follows that:

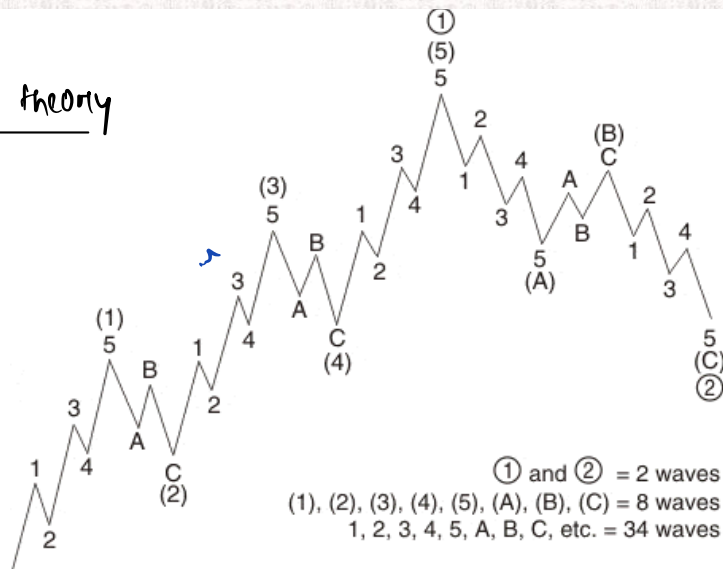
- (a) Prices of shares in stock market can never be predicted.
- (b) The reason is that the price trends are not the result of any underlying factors, but that they represent a statistical expression of past data.
- (c) There may be periodical ups or downs in share prices, but no connection can be established between two successive peaks (high price of stocks) and troughs (low price of stocks).



Dow Theory



Elliott Wave theory



EFFICIENT MARKET THEORY (EFFICIENT MARKET HYPOTHESIS)

As per this theory, at any given time, **all available price sensitive information is fully reflected in securities' prices.**

Thus, this theory implies that **no investor can consistently outperform the market as every stock is appropriately priced based on available information.**

Stating otherwise this theory states that **no one can "beat the market"** hence making it **impossible for investors to either purchase undervalued stocks or sell stocks for inflated prices as stocks are always traded at their fair value** on stock exchanges.

Level of Market Efficiency

That price reflects all available information, the highest order of market efficiency. According to Eugene Fama, there exist three levels of market efficiency:-

- (i) **Weak form efficiency** – Price reflects all information found in the record of past prices and volumes.
- (ii) **Semi – Strong efficiency** – Price reflects not only all information found in the record of past prices and volumes but also all other publicly available information.
- (iii) **Strong form efficiency** – Price reflects all available information public as well as private.

Weak form efficiency

According to the Weak form Efficient Market Theory current price of a stock **reflect all information found in the record of past prices and volumes.** This means that there is no relationship between the past and future price movements.

Three types of tests have been employed to empirically verify the weak form of Efficient Market Theory- **Serial Correlation Test, Run Test and Filter Rule Test.**

Semi – Strong efficiency

Semi-strong form efficient market theory holds that stock prices adjust rapidly to **all publicly available information.**

By using publicly available information, investors will not be able to earn above normal rates of return after considering the risk factor.

Strong form efficiency

According to the Efficient Market Theory, **all available information, public or private,** is reflected in the stock prices. This represents an extreme hypothesis.

Challenges to the Efficient Market Theory

- (a) **Information inadequacy** – Information is neither freely available nor rapidly transmitted to all participants in the stock market. There is a calculated attempt by many companies to circulate misinformation.
- (b) **Limited information processing capabilities** – Human information processing capabilities are sharply limited. According to Herbert Simon every human organism lives in an environment which generates millions of new bits of information every second but the bottlenecks of the perceptual apparatus does not admit more than thousand bits per seconds and possibly much less.
- (c) **Irrational Behaviour** – It is generally believed that investors' rationality will ensure a close correspondence between market prices and intrinsic values. But in practice this is not true. J. M. Keynes argued that all sorts of consideration enter into the market valuation which is in no way relevant to the prospective yield. This was confirmed by L. C. Gupta who found that the market evaluation processes work haphazardly almost like a blind man firing a gun. The market

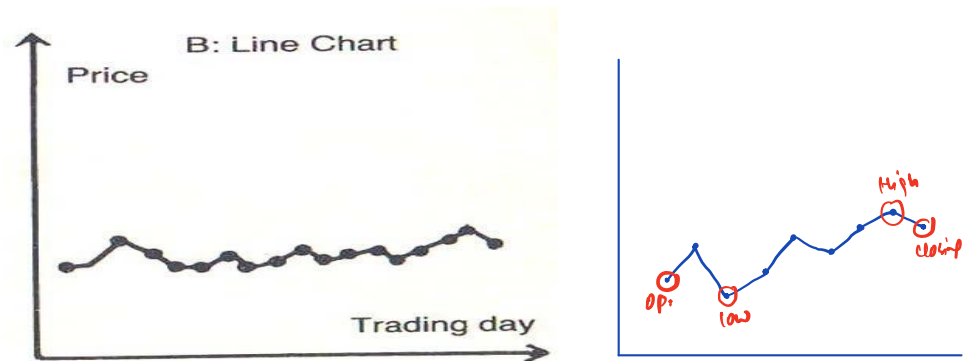
seems to function largely on hit or miss tactics rather than on the basis of informed beliefs about the long term prospects of individual enterprises.

(d) Monopolistic Influence – A market is regarded as highly competitive. No single buyer or seller is supposed to have undue influence over prices. In practice, powerful institutions and big operators wield great influence over the market. The monopolistic power enjoyed by them diminishes the competitiveness of the market.

Charting Techniques

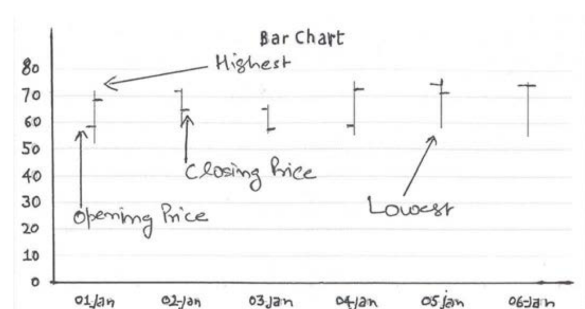
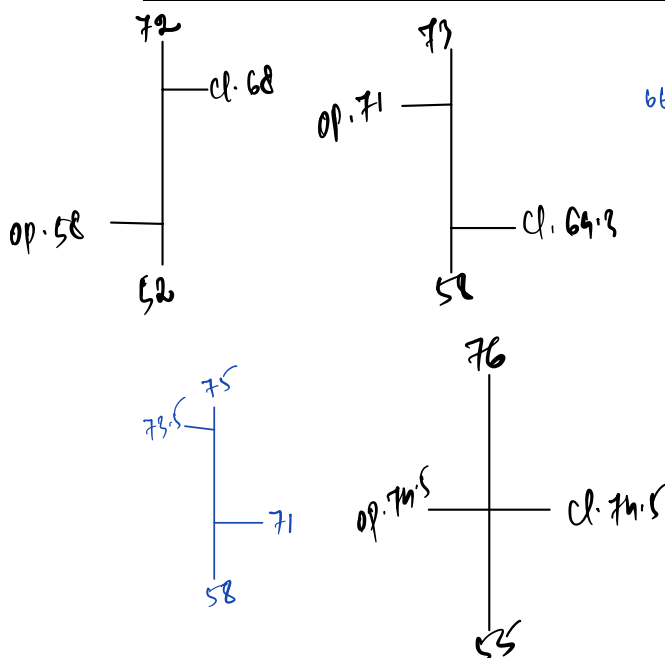
Broadly technical analysts use four types of charts for analyzing data. They are as follows:

(i) Line Chart: In a line chart, lines are used to connect successive day's prices. The closing price for each period is plotted as a point. These points are joined by a line to form the chart. The period may be a day, a week or a month.

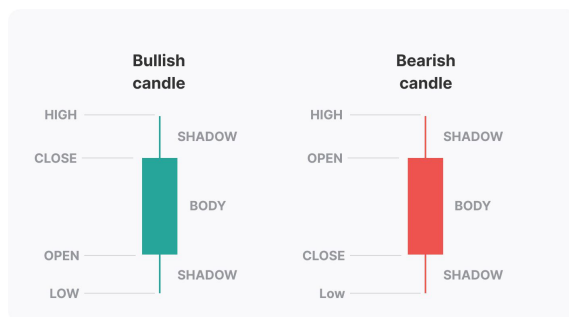


(ii) Bar Chart: In a bar chart, a vertical line (Bar) represents the lowest to the highest price, with a short horizontal line protruding from the bar representing both the opening and closing prices for the period. For example, the prices of share of A Ltd. for 6 days are as follows:

Days	Opening Price (₹)	High Price (₹)	Low Price (₹)	Closing Price (₹)
01-Jan	58	72	52	68
02-Jan	71	73	58	64.30
03-Jan	66	67	56	57
04-Jan	58.50	75.50	55	72
05-Jan	73.50	75	58	71
06-Jan	74.50	76	55	74.50



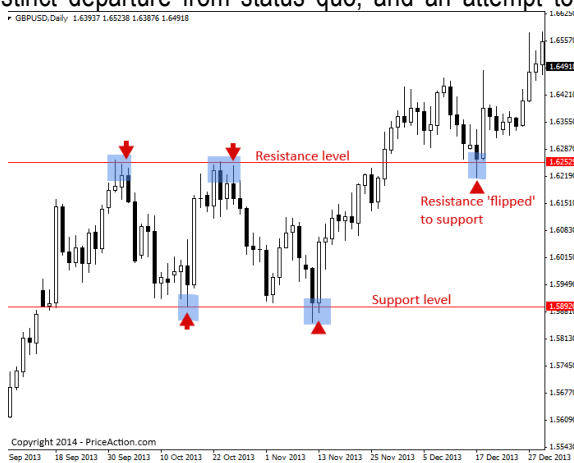
- (iii) **Japanese Candlestick Chart:** Like Bar chart this chart also shows the same information i.e. Opening, Closing, Highest and Lowest prices of any stock on any day but this chart more visualizes the trend as change in the opening and closing prices is indicated by the color of the candlestick.



- (iv) **Point and Figure Chart:** Point and Figure charts are more complex than line or bar charts. They are used to detect reversals in a trend. For plotting a point and figure chart, we have to first decide the box size and the reversal criterion. The box size is the value of each box on the chart, for example each box could be `1`, `2` or `0.50`. The smaller the box size, the more sensitive would the chart be to price change. The reversal criterion is the number of boxes required to be retraced to record prices in the next column in the opposite direction.

Support and Resistance Levels

When the index/price goes down from a peak, the peak becomes the resistance level. When the index/price rebounds after reaching a trough subsequently, the lowest value reached becomes the support level. The price is then expected to move between these two levels. Whenever the price approaches the resistance level, there is a selling pressure because all investors who failed to sell at the high would be keen to liquidate, while whenever the price approaches the support level, there is a buying pressure as all those investors who failed to buy at the lowest price would like to purchase the share. A breach of these levels indicates a distinct departure from status quo, and an attempt to set newer levels.



Decision Using Data Analysis

Technical analysts have developed rules based on simple statistical analysis of price data. Moving Averages is one of the more popular methods of data analysis for decision making.

- (a) **Moving Averages:** Moving averages are frequently plotted with prices to make buy and sell decisions. The two types of moving averages used by chartists are the **Arithmetic Moving Average (AMA)** and the **Exponential Moving Average (EMA)**. An n -period AMA, at period t , is nothing but the simple average of the last n period prices.

$$AMA_{n,t} = 1/n[P_t + P_{t-1} + \dots + P_{t-(n-1)}]$$

To identify trend, technical analysts use moving average analysis:

- (i) A 200 day's moving average of daily prices or a 30 week moving of weekly price for identifying a long term trend.
- (ii) A 60 day's moving average of daily price to discern an intermediate term trend.
- (iii) A 10 day's moving average of daily price to detect a short term trend.

For example Moving Average is calculated by considering the most recent observation for which the closing price of a stock on '10' successive trading days are taken into account for the calculation of a 5-day moving average of daily closing prices.

Trading day	Closing prices	Sum of 5 most recent closing price	Two-item Centered Total	Moving Average
1	25.00			
2	26.00			
3	25.50			
4	24.50			
5	26.00	127.00		
6	26.00	128.00	255.00	25.50
7	26.50	128.50	256.50	25.65
8	26.50	129.50	258.00	25.80
9	26.00	131.00	260.50	26.05
10	27.00	132.00	263.00	26.30

(b) **Exponential Moving Average:** Unlike the AMA, which assigns equal weight of $1/n$ to each of the n prices used for computing the average, the Exponential Moving Average (EMA) assigns decreasing weights, with the highest weight being assigned to the latest price. The weights decrease exponentially, according to a scheme specified by the exponential smoothing constant, also known as the exponent, a .

$EMA_t = (\text{Closing Price of the day} - EMA \text{ of Previous Day}) \times \text{Exponent} + \text{Previous day EMA}$
 $n = \text{Number of days for which average is to be calculated.}$

Dow Jones theory

i) Dow theory based upon two indices \div DJIA & DJTA.

ii) The movements divided into 3 classifications.

- Primary movement \div Main trend lasts from one year to 36m or longer
- Secondary movement \div Shorter in duration than primary movement, and opposite in direction (a weeks to a month or more)
- Daily Fluctuations \div Daily movements from day to day.

Charles Dow proposed that Primary uptrend would have 3 moves \div

First \rightarrow Accumulation of shares by far sighted, knowledgeable investors.

Second \rightarrow Arrival of first reports of good earnings by corporations.

Third \rightarrow Widespread report of financial well being of corporations.