UNIT – 4

Technical Analysis

Objectives

The objectives of this unit are to

- explain the stock price movements in terms of the Dow Theory and charting techniques.
- understand the impact of volume on stock price movements by using indicators and oscillators
- highlight the concept of market efficiency and its different forms.
- apply empirical test to ascertain market efficiency .

Introduction

Technical analysis is the process of identify trend reversal at an early stage to formulate trading strategies of securities. It involves the study of price behavior of securities in the past and on that basis predicating price behavior. Technical analyst make uses of market generate "data" like prices and volumes to find out the future direction of price movement. Technical analysis is widely used by day traders, market makers and even brokers to find out the day to day price movements. According to them price of security contains all sorts of information this is why they study and analyze the historical price trends and patterns. Technical analysis is based on the following assumptions:

- 1. Market value of scrip is decided by the interactions of supply and demand of that scrip only. Quoted price of a security embody the hopes, fears and inside information of market players. All together real and psychological factors bring change in the trend direction or cause a shift in demand and supply of security.
- 2. Market does not move random but it always moves in trend with small correction. Trends may be either increasing or decreasing.
- 3. The proverb, history repeats itself, is applicable on the stock market also. Technical analysts predict the future price of security on the basis of its historical prices.

4.1 Tools and Technique of Technical Analysis

Technical analysts use many tools like DOW theory, volume of trading, short selling, bar and candlestick charts, indicators and oscillators to predict the price behavior of securities to beat the market.

A) DOW Theory

Technical analysis finds it roots in series of articles written in the Wall Street Journal by Charles H Dow in 1884. Later on A J Nelson formalized the Dow theory for economic forecasting. Dow Theory recognize trends as primary, intermediate and short-term. Trend refers to the direction of movement in share prices. The primary trend may be increasing, decreasing or flat movement that last for a year or

two. The secondary or intermediate trends are curative movement, which may last from three weeks to three months. The primary trend may be broken up by the intermediate trend. The short term trends refers to the day to day price movements. It refers to the oscillations or fluctuations. These three types of trend can be compared to the tide, waves and ripples in the sea. A straight line drawn to connect either tops or bottoms of the share price movements is known as trend line. There is a need of at least two tops and bottoms to draw the trend line. Dow explained movement of the indices of Dow Jones Averages by taking following assumptions:

- 1. Individual investor (buyer or seller) cannot influence the market's primary trend.
- 2. Market discounts everything. It means market price of the scrip reflect every change of the economy.
- 3. Theory is not infallible, it means this theory is not a tool to beat the market rather it provides a better understanding of the market.



Figure -1 Types of Trend

Trend Reversal: It describes the reverse change movement of scrip price direction. It also called violation of the trend line. Violation of trend line can be in two situations one is when scrip price intercept the rising trend line from above and other is when scrip price line intercept the falling trend line from below.

a) Primary Trend: It reveals only two market situation by depicting increasing and decreasing movements in scrip price. When scrip price shows increasing trend then it's a situation of bull market on the other hand if scrip price shows decreasing trend then it's a situation of bear market. Bull market shows three clear cut peaks and bear market shows there is clear cut lows regarding scrip price. In bull market every peak is higher than the previous one the bottom are also higher than the previous bottom. In bear market every top and bottom is lower than the previous one. In bull market describe three peaks as revival of the scrip, improvement in corporate profits of the scrip organization, speculation about

scrip price. Revival period encourage investors to buy scrip due to high expectation of the profit in the future, increase in corporate profit also increase the price and number of buyer of the scrip, speculation also increase the price of scrip. These three situations are reverse in bear market. In bear market first phase is of losing hopes, second phase is profits starts declining, third phase depicted in distress in sale of scrip. In first phase lose of hopes lead to sale of scrip, in second phase lower performance of corporate in terms of profits and dividends lead to more pressure on sale of scrip and in third phase sale of scrip is on distress level.



Figure-2 Bull Phase



BEAR MARKET SHOWS 3 TROUGHS, EACH LOWER THAN THE OTHER

Figure-3 Bear Phase

b) **Secondary/ Intermediate Trend:** Those trends which moves against the main trends and leads to correction are considered as secondary trends. In rising market secondary trend can result in the fall of about 33-66 per cent of earlier rise. On the other hand in falling market secondary trend can result in the rise of about 33-66 percent of earlier fall.

c) Minor Trend/ Short Term/ Tertiary Trends

These are the random wriggles that occur in price movements. Minor trends are simply the daily fluctuations. The chartist plots the scrip's price.

Criticism of Dow Theory: First it is not a theory but a poor prediction from historical data. It is not able to establish between cause and effect relationship. Second it is not acceptable in its forecast. There was considerable lag between the actual turning points and those indicated by the forecast.

4.2 Support and Resistance Level

When the price of a share after reaching up a certain level falls, it is called resistance. And if the price of a stock after reaching down to a certain level rises, it is a support. The levels on continuous basis changes from support to resistance or from resistance to support. For example, if a share price hang around Rs.250 for some period, then it may rise to reach Rs.310. At this level, the price halts for some period and falls back near to its original price i.e. Rs.250 and halt and then goes upwards. In this case, Rs.250 is the support level and Rs.310 is the resistance level.

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Figure -4 Support and Resistance Level

When the share price reverses the support level and moves downward, it signals the violation of the support level and a bearish market expected. If the share price penetrates the resistance level, it indicates violation of the resistance level and bullish market expectations.

4.3 Gaps

Gaps are formed at that price levels where the security is not bought and sold. These are created in a increasing or decreasing trend. If the prices are rising and the high of previous day is lower than the next day's low, a gap is created. For example, if the high price of firm's share on 16 January is Rs.300 and on 17 January, the low is Rs.325, a gap is formed on the bar chart. This means the share has not bought and sold between price levels Rs.300 and Rs. 325 and signals further rise in price.



Figure-5 Gap

In the same way, in a falling price, a gap is created if the low price on previous day is higher than the high price of next day. For example the low price on Tuesday is Rs. 250 and the high price on Wednesday is Rs. 230, a gap is formed and it means that there was no transaction between the level of Rs. 250 and Rs. 230 and further fall in price is expected.

4.4 Charting Techniques

Chart reading is the simplest tools used by technical analyst. With the help of graphic presentation of scrip price data helps investors to find out the trends easily. Charts never lie but interpretation may be different from one analyst to other. Technical Analysts use following four basic charts:

1. Line Chart: To draw line chart closing prices of scrip are taken for a specific time period. A line is drawn by connecting the closing prices over set time period. Line charts do not reflect high, low and opening prices. Reason closing price is often regarded most suitable price in stock data contrast to the high and low for the day.

2. Bar Charts: Most of the stock market analysts use bar chart as it is simple and easy to understand. To form a bar, two dots are put to reflect the highest and lowest traded price of the day, week or month, then a line is drawn to connect these highest and lowest points. A short horizontal stick is put to mark the closing price.



Figure-7 Bar Charts

3. Candlestick Charts Candlesticks charts use of colors to explain the happenings of scrip price during the trading period. Different sites use different color standards to construct candle sticks so it is necessary to understand the candlestick color configuration by technical analysts used by a particular site. To create a candle stick chart analysts require data for a scrip's open, high, low and closing prices for a given period. We are considering two colors i.e. back and white. When the candle body is white it

means closing price is higher than opening price and shows a bullish trend. A black body candle indicates the closing price is lower than the opening price and shows a bearish trend.



Figure-8 Candlestick Charts

4. Point and Figure Charts The point and figure charts are not commonly used by common investors as it differ in concept and constructions from other charts. This chart reflects price movements and do not consider time scale to form point and figure.



Figure-9 Point and Figure Chart

As price of a scrip rises vertical column of crosses (X) is plotted and it will continue till price rises. When there is fall in the price a circle (O) is plotted in the next column and it will continue till the price will falls. When it start rising a new vertical line of crosses(X) is plotted in the next column and so on. On most PFC charts where the price range is between Rs.20 and Rs.100, a box reflects Rs.1, or 1 point for the stock. According to this technique trend reversal in scrip sets at three points/Rupees or more

4.5 Charts Patterns

Charts divulge definite pattern that are of predictive worth. Technical analysts used chart pattern as add on to other information and as affirmation of signals provided by trend lines. Most commonly used chart patterns are discussed below:

'V' Formation: "In the V formation there is long sharp decline and a fast reversal. The 'V' pattern occurs mostly in popular stocks where the market interest changes quickly from hope to fear and vice versa. In the case of an inverted 'V', first the rise occurs and then the decline. There can also be extended 'V's. in it, the bottom or top moves more slowly over a broader area."

Tops and Bottoms: "This type of formation is fascinating to watch but what is more important is the middle portion of it. The investor should buy after the upward trend has started and exit before the top is reached. Tops and bottoms are formed at the beginning or the end of the trends. The reversal from the tops and bottoms indicate sell and buy signals".



Figure-10 V Formation

Double top and bottom: This formation signals the end of one trend and the beginning of another. The double top is formed when a stock price rises to a certain level, falls rapidly, rises again to the height or more, and turns down. Its pattern resembles the letter 'M'. The double top may indicate the onset of the bear market. The results should be confirmed with share volumes and trends. In a double bottom, the price of the stock falls to a certain level and increases with diminishing activity. Then it falls again to the same or to a lower price and then goes up to a higher level. The double bottom resembles the letter 'W'. Technical analysts view double bottom as a sign of a bull market as shown in the figure 10.

Head and Shoulders: "This pattern is easy to identify and the signal generated by it is considered to be reliable. In the head-and-shoulder pattern, there are three rallies resembling the left shoulder, a head and a right shoulder. A neckline is drawn connecting the lows of the tops. When the stock price cuts the neckline from above, it signals a bear market. The upward movement of the price for some duration creates the left shoulder. At the top of the left shoulder, people who bought during the upward trend begin to sell, resulting in a dip. Near the bottom, there will be reaction and people who bought during

the first upward trend start buying at relatively low prices thus pushing the price upwards. The alternating forces of demand and supply create new ups and lows".



Figure-11 Head and Shoulder and Inverted Head and Shoulder

Inverted Head and Shoulders: "Here, the reverse of the previous pattern holds true. The price of stock falls and rises, which make an inverted right shoulder. As the fall and rise in price continues, the head and left shoulders are created. Connecting the tops of the inverted head and shoulders gives the neckline. When the prices pierce the neckline from below, it indicates the end of a bear market and the beginning of a bull market. These patterns have to be confirmed with the volume and trend of the market."

Rounding Bottom: Rounding bottom formations give a bullish signal and indicate a possible reversal of the downwards trend. They are normally elongated and U-shaped. In order to show the trend reversal:

- The bottom low has to be a new low.
- The low should not be too sharp and take a few weeks to form.
- The decline and the rise should take more or less equal period.
- The break out has to be higher than the beginning of the decline.
- Volumes are high at the beginning of the decline, low at the end of the decline, and increase during the advance.



Figure- 12 Round Bottom

Cup and Handle: A cup and handle pattern marks the beginning of a bullish trend. In this pattern, the upward trend pauses for a while and continues after confirmation of the pattern. This price pattern

resembles a cup, and is followed by an upward trend. The downwards or sideways movement of stock price forms a pattern like a handle. When the price movement pierces the resistance lines in the handle, the upwards trend continues. The formation of the cup and handle pattern takes several months or even a year or more.



Figure-13 Cup and Handle

Triangles: A triangle formation is easy to recognize and well accepted in technical analysis. Different types of triangle formation are discussed below:

Symmetrical triangle: The symmetrical triangle does not have any bias towards either bull or bear market. It indicates the slowdown or temporary halt in the direction of the original trend. There is always a chance that the original trend will continue after the completion of the triangle.



Figure-14 Different Triangle Charts

Ascending triangle: "Here the upper trend line is almost a horizontal trend line connecting the tops and the lower trend line is a rising trend line connecting the rising bottoms. When the demand for the scrip exceeds the supply of it, there is a breakout. The break will be in favour of a bullish trend. This pattern is spotted during an upward move, and the probability of an upward move is high here."

Descending triangle: "Here, the lower tops form the upper trend line, which is a falling one. The lower trend line would be almost horizontal connecting the bottoms. It indicates the support level. The possibility of a downward breakout is high in this pattern. The pattern indicates that the bear operators are more powerful than the bull operators."

Flags: A flag pattern is commonly seen on price charts. These patterns show the market curations of an over-bought or over-sold situation. These patterns form quickly. Each rise and fall may last only three to four days, but if the pattern is wider, it may take three weeks to become complete.



Figure-15 Pennant and Flags

Pennant: The shape of pennant similar to a symmetrical triangle. There can be rising as well as falling pennants. "In a bullish pennant, the lower tops form the upper trend line. The lower trend line connects the rising bottoms. The bullish trend occurs when the value of scrip moves above the upward trend line".

4.6 Indicators and Oscillators

A technical indicator is a mathematical calculation based on historic price, volume, or (in the case of futures contracts) open interest information that aims to forecast financial market direction.

An indicator indicates the nature or overall direction of market. A technical indicator is a set of data point obtained by applying mathematical/statistical techniques to the price, volume of a stock or index. Price data consists of opening, high, low or closing price of a security. An indicator may use any of the said price data or use volume of trade in their formulas. **Oscillators** show the market/scrip momentum across a reference point from one extreme to another. The momentum signals overbought and oversold situations of the scrip/market and a probable trend reverse. Daily, weekly, or monthly closing price data of security are used to construct oscillators. Daily price oscillators are helpful for short term buying and selling of securities. To know the trend of the market Investors and traders use the indicators (Volume of trade, Breadth of the market, short sales and moving averages) and oscillators (Moving Average

Convergence and Divergence MACD, Rate of Change ROC, Relative Strength Index RSI, and Stochastic)

Technical Indicators:

a) Volume of trade: Trading volume is considered as an outstanding technique of confirming trends. A high up or down in price results in large change in volume. A huge volume with rising price signals a bull market and a huge volume with falling price signals bear market.

b) Breadth of the Market: A cumulative net difference between the number of shares whose price rose /advanced from the previous day and the number of shares whose prices fell/Declined comparing to previous day during the same period is called breadth of the market. To know the future trend the Advance Decline line and market index is plotted on the graph and compared. When the A/D line is sloping down while index line is moving up, bull to bear expected and when A/D line is moving up and the index decline is sloping down bear to bull waiting for.

c) Short Sales: Short interest/short sales refer to a contact to sell scrip that is not owned. The speculators who expect a fall in the price of scrip/market sell now in the hope of buying in future at low price to book profits. The ratio of short sales of a particular selected month and average daily volume of the preceding month is computed. If the ratio is less than 1, signals bear market. Between 1 and 0.5 signals neutral market. Values above 1 signal a bullish market.

d) Moving Average: Moving here refers that the body of the data will be moving ahead by including recent observations and excluding the oldest one. For example a five day moving average, the body of the data moves ahead by including sixth day observation, and leaving the first day's observation, and so on. Moving averages consider closing prices of scrip to study the trend of the market/stock price. The period of the average determines the period of the trend that is being identified. To identify a short term, medium term and long term trend, 10-30 days, 50-125 days and 200 days moving averages are used respectively.

i) Index and Stock Price Moving Averages: The moving average of the individual share/stock and the index are plotted on graph paper for trend comparison. "If the moving average of the stock penetrates the stock market index from above, it is a sell signal. Unfavorable market conditions prevail for the particular stock. If the stock line pushes up through the market average, it is a buy signal."

ii) Comparison of Short term and Long term Moving Averages: If you plot short term and long term moving averages on the graph the intersection of two moving averages give buy or sell signal. "When the share price is falling and short term average intersects the long term moving average from above it is a signal to sell. If the stock price is rising and the short term average intersects the long term average from average from average from below it indicates a further rise in price and it gives a buy signal."

e) Exponential Moving Average:

An exponential moving average (EMA) is a weighted moving average. Latest prices data are assigned more weight than older one. The reason behind it latest recent prices data are regarded more significant

than older for accuracy of forecasting trend. A 200 day long term simple average gives equal weight age to price data that are more than six months old. Calculation of the EMA is more complex than calculation of a simple moving average. An EMA calculation first needs an exponent. The calculation of exponent is simple.

Exp = 2/n+1

Where n= the number of days of the moving average. If it is 10 days, then the exponent is as following

Exp = 2/10 + 1 = 0.1818

If 200-day EMA is calculated then

Exp = 2/200 + 1 = 0.01

The weight given for the shorter period is more than the weight given for the longer period. The weighting declines by half when the moving average period doubles.

EMA = (Current day's close – Previous day EMA) * Exponent + Previous day EMA

A rising exponential moving average indicates rising prices and falling moving average signals decreasing trend in prices.

Oscillators:

a) Moving Average Convergence and Divergence (MACD): The difference between two exponential moving averages is called moving average convergence and divergence. It measures the convergence and divergence between two exponential moving averages of varying periods. Short term and long term exponential moving averages are calculated using the closing prices. The MACD considers the difference between the short term and long term exponential moving averages. Daily or weekly moving averages are also calculated. A 12-day and 26-day exponential moving average and 12-day and 48-day exponential moving averages are common among traders.

The MACD is the short term exponential moving average (SEMA) minus the longer – term exponential moving average (LEMA). If the value of SEMA is more than that of LEMA, the MACD is positive and vice-versa. If both the values are equal, the MACD will be zero. Convergence takes place when moving averages move towards each other. Divergence occurs when the shorter and longer moving averages move away from each other. Usually changes that occur in MACD are due to changes in the short term moving.

MACD Signal Line: The signal line is a trigger line that signals buy or sell strategy. For example signal line of 9-day EMA of MACD line indicates: When the MACD crosses the signal line from below, it is a bullish crossover. When the MACD crosses the signal line from above, it is a bearish crossover.

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b) Relative Strength Index (RSI): This oscillator was evolved by Wells Wider and is applied to now the inbuilt technical strength and weakness of a specific share/ market. RSI of a share/market can be computed by following formula:

RSI = 100 - (100/1 + Rs.)Rs. = average profit per day ÷ average loss per day

Depending on the requirement and wish of the analyst RSI can be computed for any number of trading days or the time period of trading implemented in a specific stock exchange. Even it can be constructed for 5,7,9 and 14 days. However longer period RSI reduce possibility of giving the wrong signal. Reactionary or sustained up or down in stock price is predicted by the RSI.

The establish rule of RSI followed by technical analyst is that if the RSI cross 70 it signal of downturn and better to sell the scrip and if RSI falls down below 30, it is time to purchase the scrip.



Figure-17 Relative Strength Index

c) Rate of Change – This oscillator measures the rate of change between the current price and the price a number of days in the past or from one period to next period. It is constructed by considering daily closing price for daily ROC and weekly closing price for constructing weekly ROC. Overbought and oversold positions of a security and trend reversal are sensed by ROC. As a general rule if ROC reaches the extreme lower end, it is advisable to buy stock and on the other hand if it touches extreme upper end it is time to sell. Calculation of ROC may be for a short period i.e. 5 days or a longer period 3 months, 6 months or 12 months.

d) Stochastic: It was George C lane that developed the stochastic oscillators in the late 1950s. Stochastic oscillator is a momentum indicator shows the location of the closing price relative to the high-low range in a predefined period. Usually, when the stock price increases, the closing prices tend to be near the high price of the day. When prices fall, the closing prices tend to be near the low price of the day. Lane developed this stochastic indicator on the basis of his observations. The stochastic indicator has two lines - % K and % D. The % K line is faster than the %D line. The % D line lags behind % K line. The values of the % K and % D line lie between zero and 100. Thus, the lines oscillate between 0 and 100.

To calculate this stochastic indicator, typically five days, weeks, or months are used. Yet, stock traders use different periods to suit their method of trading. The formula used for the construction of the %K line is

%K = 100 {(C – L₅) / (H₅ – L₅)}

Where

C = Latest closing price

 L_5 = Lowest price touched by the scrip during the last five days

 H_5 = Highest price touched by the scrip during the last five days

Given below is the formula for the calculation of %D line

 $D = 100 * (H_3/L_3)$

Where

 $H_3 =$ Three day sum of (C – L₅)

 $L_3 =$ Three day sum of $(H_5 - L_5)$

In the stochastic oscillator, the overbought region is above the 70 mark and the oversold region is below the 30 mark. It is observed the stochastic generates best buy signal below the 15 mar and the best sell signal above the 85 mark. %D line is taken to identify the overbought and oversold zone. Presence of %K line in the overbought and oversold region gives early indication of the possibility of the % D line following it. When %D line is in the overbought zone and the %K line intersects it from above, it

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generates a sell signal. In the oversold region if the % line moves above the %D line, it gives a buy signal.

4.7 Evaluation of Technical Analysis

Among different approaches of security analysis Technical analysis approach is considered extremely controversial. It has its avid supporter's as well stern opponent. Supporters of technical analysis argue their position in the following manner

- 1. Due to crowd psychology effect, trends continue for considerable time period. Tools and techniques of technical analysis lend a hand to recognize these trends early helps in investment decision making.
- 2. Shifts in demand and supply are gradual rather than instantaneous. Technical analysis approach helps in identifying shifts in market forces i.e. demand and supply early and provide indication to future price movements.
- 3. Basic qualitative and quantitative information of a company is absorbed and digested by market over a period of time. This is why, the trends continue in more or less in the same direction till the information is fully incorporated in the stock price.
- 4. Charts provide a picture of what has happened in the past and hence give a sense of volatility that can be expected from the stock.

The critics of technical analysis consider technical analysis is a futile exercise on the basis of following arguments:

- 1. "Most technical analysts are not able to offer convincing explanations for the tools employed by them.
- 2. Empirical evidence in support of the random walk hypothesis cast its shadow over the usefulness of technical analysis.
- 3. By the time an uptrend or downtrend may have been signaled by technical analysis, it may already have taken place.
- 4. Ultimately, technical analysis must be a self defeating proposition. As more and more people employ it, the value of such analysis tends to decline.
- 5. The numerous claims that have been made for different chart patterns are simply untested assertions.
- 6. There is a great deal of ambiguity in the identification of configurations as well as trend lines and channels on the charts. The same can be interpreted differently. As an example, here is an extract from a commentary of a technical analyst:

Despite these limitations, technical analysis is very popular. It is only in the rational, efficient and well ordered market where technical analysis has no use. But given the imperfections, inefficiencies and

irrationalities that characterize real markets, technical analysis can be helpful. Hence, it can be concluded that technical analysis may be used, albeit to a limited extent, in conjunction with fundamental analysis to guide investment decision-making, as it is supplementary to fundamental analysis rather than substitute for it."

Source: <u>https://www.wisdomjobs.com/e-university/security-analysis-and-investment-management-tutorial-356/evaluation-of-technical-analysis-11452.html</u>

Difference between Fundamental and technical analysis

- 1. Fundamental analysis is done by an investor for long term investment in securities of companies and follow conservative. Whereas technical analysis is done generally by short term investor/speculator to book profit through short term buying and selling securities and follow aggressive approach.
- 2. Buy and hold securities at least for one year policy is adopted by fundamental analyst as he does not expect any major boost in the value of his investments in short period i.e. less than a year. Technical analyst believes in making quick money by short term buying and selling of securities on account of change in prices
- 3. Fundamental analyst by investing in equity shares maximize his income through current yield/dividend and long term capital gains by way of capital appreciation. Whereas for technical analyst no distinction between current income and capital gains. He believes in in short-term profits through buying and selling securities.
- 4. Forecasting of stock prices is based on economy industry and company statistic in case of fundamental analysis. The decision variables to value the stock are risk and return associated with it. Whereas, pattern of demand and supply of stock forms the basis to forecast security price in case of technical analysis
- 5. Fundamental analyst uses tools of financial analysis and statistical forecasting techniques to find the intrinsic value of scrip. Technical analyst mainly uses charting techniques, indicators and oscillators etc. to know and predict the trends of security price.

4.8 Efficient Market Hypothesis/Random Walk Theory

Market efficiency is the accuracy and speed with which the market translates the expectation into prices. Once the information is available in the public domain the market will react to it. Expectations of returns also have an impact on the psychology of other investors. The efficient market hypothesis negates the technical analysis that security prices follow a certain trend/pattern. It states that share price fluctuations are random and do not follow any regular pattern. French Mathematicians Louis Bachelier revealed in his article in 1900 that security price fluctuations were random. His findings were further supported by British Statistician Maurice Kendall that stock price series is a wandering one. Each change in the price of security is independent of the previous one. Further in 1970 American economist Eugene Fan stated that efficient markets fully reflect the available information.

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Efficient Market Assumptions

- i. The basic assumption of efficient market hypothesis is that all pertinent information is accommodated in the stock price.
- ii. A security is never overpriced or underpriced It is always priced fairly.
- iii. Investors can never time and again beat the market by using investment strategies.
- iv. There are no taxes transaction charges and no restrictions on investments.
- v. Investors are rational and risk averse, expecting high return and low risk.
- vi. In efficient market investors earn normal returns for their level of risk.

Fama suggested that efficient market hypothesis can be divided into three categories weak form, semi strong form, and the strong form.

Weak Form : The weak form of the efficient markets hypothesis holds that the current price of security fully reflects all historical information, thus, past data cannot be used to predict future prices. This form holds that any attempt to predict prices based on past information is futile as future price changes are independent of past price changes. Weak form of market efficiency is opposite to technical analysis which states that price move in predictable manner and historical price movements can help to forecast future price trends. Empirical evidence has shown that security prices adjust to information and prices move in independent manner. Both weak form of market efficiency and random walk theory states that analyzing the past information does not improve the forecasting ability of security prices.

Semi-Strong Form: The semi-strong-form of market efficiency hypothesis asserts that market absorbs quickly and efficiently all those publicly information, as well as the information regarding historical prices. As prices adjust to the information quickly and accurately, abnormal profits cannot be earned on a consistent basis. The empirical evidence support the convention that the public reacts quickly to the new information correctly, but there has been evidence that market does not always digest the new information correctly The inefficiency in the market mechanism absorbing the data is found to be corrected over a period of time, as the investors take time to analyze and conclude the effect of any public information. However, the semi strong form of EMH not empirically well supported but in many foreign markets the semi-strong form is found to be applicable and markets absorbs all published information due to means of modern information and communication technology.

Strong Form: The strong form of market efficiency hypothesis states that the current prices of securities fully reflect all available information both public and private. If this holds true, that price reflect the information that is available to the select groups like the management, financiers, stock exchanges official etc. Thus according to this form no information that is available be it public or inside can be used consistently to earn abnormal returns. This means that security analysts and portfolio managers who have access to more information than ordinary investors, are not able to use it to earn more profits The empirical research have found evidence that is inconsistent with the strong form of the EMH.

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4.9 Market Inefficiencies/Anomalies

Many researches in the past have proved the presence of market inefficiency. Parallel several studies contradict the concept of market inefficiency. These are outlined in the following paragraphs:

i) Overreactions of the market: Recent researches have proved market overreacts to corporate news. For example news of reduction in a company's profits resulting decline in share price is market overreaction. After this initial decline stock will take several weeks to reach the normal level. During this period investors buy the stock when it was low priced and sells it once the normal level reached and earns an abnormal return which goes against the efficient market hypothesis.

ii) Reversal to Mean Return: Several studies have proved that stock returns have tendency to return to their average level. That means stocks that currently yield low return tend to high return in future and vice-versa. This leave rooms to predict the future price which is against the EMH.

iii) Delayed Absorption of New Information

iv) Low Price/Earning Effect: Many studies found that stock with low price earnings ratio yield high return than stock with higher P/Es. It is known as PE effect. If historical information of P/E ratios can help investor to obtain superior stock return, it questions the validity of semi-strong form of market hypothesis.

v) Small Firm Effect: The theory of small firm effect maintains that investing in small firms with low capitalization provide superior return.

Self Assessment Questions

- 1. How do moving averages help to evolve buy and sell strategy?
- 2. How do RSI and ROC indicate the momentum of price change?
- 3. Explain the different types of oscillators.
- 4. What is Dow theory and how is it used to determine the direction of the stock market?
- 5. How does technical analysis differ from fundamental analysis?
- 6. Do stock prices have a support level and resistance level? If so, explain.
- 7. 'The nature of triangles gives different indications' Comment.
- 8. How does Efficient Market Hypothesis is different from technical analysis?

Suggested Book Readings:

- 1. Security Analysis and Portfolio Management:- By Punithavathy Pandian. Vikas Publishing House PVT. LTD.
- 2. Security Analysis and Portfolio Management:- By S Sasidharan and Alex K Mathews. Tata McGraw Hill Education Private Limited.
- 3. Security Analysis and Portfolio Management:- By S Kelvin. PHI Learning Private Limited.
- 4. Security Analysis and Portfolio Management:- By Donald E Fisher, Ronlad J Jordon and A K Pradhan. Pearson IN.