B.Com. (Hons.) Course

Semester – V

Paper: Security Analysis and Portfolio Management

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CHAPTER-8

FUNDAMENTAL ANALYSIS AND VALUATION-II

8.0   LEARNING OBJECTIVES

After reading this chapter, you will be able to:-

- Understand the various factors that contribute to a company's strategy and weakness.

8.1   INTRODUCTION

Company analysis is a process carried out by investors to evaluate securities, collecting info related to the company's profile, products and services as well as profitability. It is also referred as 'fundamental analysis.' A company analysis incorporates basic info about the company, like the mission statement and apparition and the goals and values. During the process of company analysis, an investor also considers the company's history, focusing on events which have contributed in shaping the company. A company analysis also looks at the goods and services offered by the company. If the company is involved in manufacturing activities, the analysis examines the products that the company produces and also analyzes the demand and quality

of these products. Conversely, if it is a service company, the investor studies the services offered.

8.2   COMPANY ANALYSIS

The company analysis is the last leg in the analysis of Economy- Industry- Company (EIC) framework of fundamental analysis. The economy analysis provides an investor a broad outline of the prospects of growth in the economy. The industry analysis helps the investor to select the industry in which investment would be rewarding. The investor now has to decide in which of the companies belonging to chosen industries, he should invest he requires the company analysis.

The company analysis has to be made in three different parts:

1.   Study of the financial information and assess the financial health of the company.

2.   Sizing up the present situation and prospects. This requires an analysis of the present businessof the company and its future prospects.

3.   Evaluation of management.

8.3 STUDY OF FINANCIAL INFORMATION

The financial statements of the company can be used to understand and evaluate the financial performance and health of the company. Ratio analysis helps and investor to determine the financial strength and weakness of the company. Such ratio analysis can be made for a company over several past years, and trends can be understood. Also one can compute ratios and compare with other firmsin the same industry over a specific period.

Different ratios measure different aspects of company's health and performances. Such ratios are grouped below, depending on main purpose for which they are used.

1)   Liquidity Ratios. This measure indicates the company's ability to fulfill its short term obligationsand reflect short term financial strength of liquidity.

The commonly used liquidity ratios are:

a) $\text{Current ratio} = \dfrac{\text{current assets}}{\text{current liabilities}}$

A higher current ratio is preferable, as it would enable the company to meet its short term liabilities even if value of current assets declines.

b) $\text{Quick Ratio} = \dfrac{\text{current assets} - \text{inventory} - \text{period expenses}}{\text{current liabilities}}$

This is more rigorous measure as those items which are less liquid are deducted from the numerator of the ratio.

2)   **Leverage Ratios.** The leverage ratios are also known as capital structure ratios and solvency ratios. They measure the company's ability to meet its long-term debt obligations. They reflect company's long * term solvency.

The commonly used leverage, ratios are as follows:

a) $\text{Debt} - \text{equity Ratio} = \dfrac{\text{long} - \text{term Debt}}{\text{shareholder's equity}}$

b) $\text{Debt to total Asset ratio} = \dfrac{\text{total Debt}}{\text{total Asset}}$

c) $\text{Proprietary Ratio} = \dfrac{\text{shareholder's equity}}{\text{total Asset}}$

d) $\text{Interest coverage Ratio} = \dfrac{\text{earnings before interest \& taxes (EBIT)}}{\text{interest}}$

The first three ratios stated above indicates relative contribution of shareholders (owners) and creditors/lenders in financing the company's assets. These ratios give an idea as to the safety margin available to the long term creditors. Higher the margin better it is. The last ratio called interest coverageratio measures the ability of the company to meet its interest payments arising from the debt. Higherthis ratio better is the general health and performance of the company.

3)   **Profitability Ratios:** the profitability of company can be measured by the profitability ratios. These ratios can be calculated by relating the profits either to sales, or to investment, or

to equity shares.

Some of the profitability ratios are as follows:

a)   Gross profit ratio $= \dfrac{\text{gross profit}}{\text{sales}} \times 100$

Gross profit ratio $= \dfrac{\text{sales} - \text{costs of good sold}}{\text{sales}} \times 100$

b)   Operating profit ratio $= \dfrac{\text{earnings before interest \& tax (EBIT)}}{\text{sales}} \times 100$

c)   Net profit ratio $= \dfrac{\text{earnings after tax (EAT)}}{\text{sales}} \times 100$

d)   Return on investment $= \dfrac{\text{earning after tax (EAT)}}{\text{total assets}}$

e)   Return on equity $= \dfrac{\text{earnings after tax (EAT)}}{\text{shareholder's equity}}$

4)   Activity or efficiency ratios. These ratios measure the efficiency of management of assets of the company. They reflect the efficiency at which the assets of the company. They reflect the efficiency at which. They-reflect the efficiency at which the assets are employed often they are called as turnover ratios:

Important activity ratios are follows:

a) $\quad \text{current asset turnover ratio} = \dfrac{\text{sales}}{\text{current assets}}$

This indicates how fast current assets are turned over in a year. Higher ratio implies that current assets are used more efficiently.

b) $\quad \text{Fixed assets turnover ratio} = \dfrac{\text{sales}}{\text{fixed assets}}$

Higher this ratio, greater is the utilization of a given fixed assets of the company. It is also called fixed asset coverage ratio.

c) $\quad \text{Inventory turnover ratio} = \dfrac{\text{sales}}{\text{average inventory}}$

This reflects how efficiently inventory is managed. In general, faster the turnover of inventory greater is the contribution to profits of the company.

d) $\quad \text{Debtor turnover ratio} = \dfrac{\text{sales}}{\text{average debtor}}$

This ratio shows how good the receivable management in the company is. If this ratio is high it means bills are converted into cash faster, thus enabling the company to have higher sales and profits with a given amount of cash or working funds.

5)   Valuation Ratio. These ratios are most relevant for valuation of company's securities. They are as follows

a) $\quad \text{Earnings per share(EPS)} = \dfrac{\text{earning (i.e. profit) after use}}{\text{number of outstanding equity shares}}$

b) $\quad \text{Dividend pay - out ratio} = \dfrac{\text{dividend per share(DPS)}}{\text{earnings per share(EPS)}}$

c) $\quad \text{Dividend per share(DPS)} = \dfrac{\text{dividend payment ratio(EAT)}}{\text{number of outstanding shares}}$

d) $\quad \text{Book value per share} = \dfrac{\text{net worth}}{\text{number of outstanding equity shares}}$

Where, networth = assets - liabilities.

The ratio of book value per share is often seen as a measure of intrinsic value of a share. Generally, we find a share being quoted a certain number of times of its book value (say usually from 5 to 10 times). But, it is not always necessarily right to take this ratio as indicative of intrinsic

value of shares as market quoted price is often reflecting the future earning potential of the share, which maynot have any relation with the assets of the company. Moreover, the book value of share is based on historical cost of the assets of the firm.

e) $\quad$ Yield Ratio $= \dfrac{\text{dividend} + \text{price share}}{\text{initial price}}$

f) $\quad$ Price / earnings ratio $\left(P\!/\!_E \text{ Ratio}\right) = \dfrac{\text{market price per share}}{\text{earning per share}}$

g) $\quad$ Earning yield $= \dfrac{\text{earning per share}\,(EPS)}{\text{market price per share}}$

h) $\quad$ Dividend yield $= \dfrac{\text{dividend per share}\,(DPS)}{\text{market price per share}}$

i) $\quad$ Retention ratio $= \dfrac{\text{retained} + \text{earnings}}{\text{profit After Tax}}$

j) $\quad$ Return on equity $= \dfrac{\text{Profit After Tax}}{\text{Net worth}}$

k) $\quad$ Price volatility $= \dfrac{\text{market high in the year} - \text{market low in the year}}{\text{average market price in the year}}$

From an analysis of past performance, as judged by the ratio analysis, the analyst has to forecast the future prospects of the company. The investment decision would depend on such forecasts. The impacts of some key measures are shown below in the tabular form as favourable or unfavourable. Such an analysis needs to be made by the analyst for wide range of ratios.

8.4 KEY MEASURES AND THEIR IMPACTS

Areas of impact	Favorable Factors	Unfavorable Factors
On Earnings Levels	a. High Book Value Per Share b. High Earning Per Share c. High Return on Equity	a. Low Book Value Per Share b. Low Earning Per Share c. Low Return on Equity
On Growth Rate	a. High growth Rate in Earnings Per Share	a. Low growth Rate in Earnings Per Share b. Low Retention Ratio

	b. High Retention Ratioc. HighReturn on Equity	c. Low Return on Equity
On Risk Exposure	a. Low Debt. Equity Ratio b. Low Variability of EarningsPer Share c. Low Price volatility	a. High Debt: Equity Ratio b. High Variability of EarningsPer Share c. High Price volatility index

8.5 ANALYSIS OF BUSINESS OF THE COMPANY

Analysis of financial data must be supplemented by an appraisal of the company's business. This is mostly in quantitative terms. The variables and issues which are likely to affect the future prospects of the company must be examined.

In this context analyst must ask a series of questions in the relevant areas of investigation.

1. **Company's market share.** What is the market share of the company? To which segments of the market the company caters? Does it export?

2. **Product portfolio.** What are relatives' shares of various products in the portfolio of business of the company? What are the prospects of these goods? How competitive is the position of the company in these products? What are the overall prospects for the company?

3. **Marketing and distribution.** What is the company's image in the market place? How loyal are the customers? How is the distribution network-is it widespread, old and well established?

4. **Procedure Capacity of the firm.** What is the productive or installed capacity of the firm? Is it fully utilized? Are these plans of expansion of production capacity? Are there any modernizationplans?

5. **Order Position.** How is the order position of the company? How many months or years production capacity it represents?

6. **Availability and cost of inputs.** Is the company well placed with respect to the

availability of basic raw material, power fuel and other inputs? Are they available at reasonable rates? What are the relative cost advantages and disadvantages in respect of the inputs? Are the supplies monopolists?

7. **Regulating Framework.** Are there any government regulations on the business that the company conducts? Is there licensing requirement? Are there price controls? Are there stringentenvironment norms or regulations? In export encouraged? Are there certain supportive policesof the government to the business?

If answer of most of these question are favorable the business of the company appears to be prima facie, attractive and hence the company has a promising prospects.

8.6 EVALUATION OF MANAGEMENT

All said and done, the management of the company is an important input contributing to the failure or success of the company. It is therefore, desirable to assess the quality and competence of management. Many financial analyst are of the opinion that management need not be considered as animportant factor, as quality of management is reflected in growth of sales profits earned returned on equity and similar performance measures. The Management experts on the other hand argue that suchresults like profit after tax, sales growth and return on equity are to be considered separately and management has to be viewed independently. Peter Drucker for instance observes that, the performance of business today is largely a result of the performance or lack of it, of earlier managementof year past, Good management means doing a good job in preparing today's business for the future. Thus it is important to examine how the present management is giving shape to the company's future.

Thus the analyst should ask the question like:

- ✓ What is the caliber, motivation dynamism and commitment of the top management to thecompany 'growth and development.
- ✓ Does the management have any specific mission, objective pans and time bound feasibleprogrammes?
- ✓ What emphasis is given to research and development?
- ✓ How are the management planning and control systems pursued by the company?
- ✓ is the management investor-friendly and is committed to maximization of value of the

firm?

The answers to this kind of question are hard to come by. Nevertheless and investor or analyst has to gather some ideas in respect of the above by referring to published material, reading annual reports including Director's Reports and attending annual general body meeting.

8.7 SELF CHECK EXERCISE

1.   Define fundamental analysis.

2.   Describe economic forecasting.

3.   Explain Industry analysis.

4.   Discuss Company analysis.

8.8 SUMMARY

A commonly advocated procedure for fundamental analysis involves a 3-step analysis: macro- economic analysis, industry analysis, and company analysis. The analysis of economy, industry and company fundamentals is the main ingredient of the fundamental approach. There are two broad classes of macroeconomic policies, viz. demand side policies and supply side policies. After conductinganalysis of the economy and identifying the direction, it is likely to take in the short intermediate and long term; the analyst must look into various sectors of the economy in terms of various industries. An industry is a homogenous group of companies. The company analysis is the last leg in the analysis of Economy-Industry- company framework of fundamental analysis. The economy analysis provides an investor a broad outline of the prospects of growth in the economy. The industry analysis helps the investor to select the industry in which investment would be rewarding and in company analysis investor would decide in which of the companies he should invest.

8.9 GLOSSARY

Erratic Events: It refers to the unpredictable sales caused by unforeseen events like strikes, riots,Notes war scares, floods, and other disturbances.

Growth Industry: This is an industry that is expected to grow consistently and its growth may exceedthe average growth of the economy.

Cyclical Industry: In this category of the industry, the firms included are those that move

closely withthe rate of industrial growth of the economy and fluctuate cyclically as the economy fluctuates.

Net Asset Value: Net asset value (NAV) is a term used to describe the value of an entity's assets lessthe value of its liabilities.

8.10 ANSWERS TO SELF CHECK EXERCISE

1. For answer refer to section 8.2

2. For answer refer to section 8.3

3. For answer refer to section 8.4

4. For answer refer to section 8.1, 8.2

8.11 TERMINAL QUESTIONS

1. Why should a security analyst carry out industry analysis?

2. Why does portfolio manager do the industry analysis?

3. What is the need of company analysis? Do we need the company analysis?

8.12 SUGGESTED READINGS

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CHAPTER-9
TECHNICAL ANALYSIS-I

Structure:-

9.0 LEARNING OBJECTIVES

After reading this chapter, you will be able to:-

- Describe the assumption of technical analysis

9.1 INTRODUCTION

Fundamental analysis and technical analysis are two main approaches to security analysis. Technical analysis is frequently used as a supplement to fundamental analysis rather than as a substitute to it. Fundamental analysis forecasts stock prices on the basis of economic, industry and company analysis. The stock value is judged with the help of a risk return framework based upon earning power and economic environment. However, according to technical analysis, the price of stock depends on demand and supply in the market place. It has little correlation with the intrinsic value. All financial data and market information of a given stock is already reflected in its market price. Technical analysts have developed tools and techniques to study of markets only. Technical analysts study the technical characteristics which may be expected at mayor market turning points and their objective assessment. The previous turning

points are studied with a view to develop some characteristics that would help in identification of major market tops and bottoms. Human reactions are, by and large consistent in similar though not identical reaction; with his various tools, the technician attempts to correctly catch changes in trend and take advantage of them.

"Technical analysis is directed towards predicting the price of a security. The price at which a buyer and seller settle a. deal is considered to be the one precise figure which synthesizes, weighs andfinally expresses all factors, rational and irrational quantifiable and non-quantifiable and is the only figure that counts". Thus, the technical analysis provides a simplified and comprehensive picture ofwhat is happening to the price of a security. Like a shadow or reflection it shows the broad outline of thewhole situation and it actually works in practice.

9.2 ASSUMPTIONS OF TECHNICAL ANALYSIS

There are some basic assumptions underlying the technical analysis. These assumptions are discussed as follows:

1. The market value of a security is solely determined by the interaction of demand and supply factors operating in the market.

2. The demand and supply factors of a security are surrounded by numerous factors; these factorsare both rational as well as irrational.

3. The security prices move in trends or waves which can be both upward or downward dependingupon the sentiments, psychology and emotions of operators or traders.

4.   The present trends are influenced by the past trends and the projection of future trends is possible by an analysis of past price trends.

5. Expect minor variations, stock prices tend to move in trends which continue to persist for an appreciable length of time.

6. Changes in trends in stock prices are caused whenever there is a shift in the demand and supply factors.

7. Shifts in demand and supply, no matter when and why they occur, can be detected through charts prepared specially to show market action.

8. Some chart trends tend to repeat themselves. Patterns which are projected by charts record price movements and these patterns are used by technical analysis for making

forecast about the future patterns.

9.3 TECHNICAL VS FUNDAMENTAL ANALYSIS

The major differences between the technical and fundamental analysis are as follows:

I. Technical analysis tries to predict short term price movements whereas fundamental analysis tries to establish long term values.

II. The focus of technical analysis is mainly or internal market data, particularly price and volume data whereas the focus of fundamental analysis is on the factors relating to the economy, industry and the company.

III. Speculators who want to make quick money mostly use results of technical analysis whereas investors who invest on long term basis use the results of fundamental analysis.

IV. Fundamental analysis involves completion and analysis of huge amount of data and is therefore, complex, time consuming and tedious in nature. On the other hand, technical analysisis a simple and quick method on forecasting behavior of stock prices.

V. According to the technical analyst, their method is for superior than the fundamental analysis, because fundamental analysis is based on financial statements which themselves are plagued by certain deficiencies like subjectivity, inadequate disclosure etc.

VI. Fundamental analysis is a longer term approach. Even if an analyst identifies an under period security, market may take time to bid its price up. Technical analyst feels that their own techniques and charts are quicker and superior to fundamental analysis.

Thus, technical and fundamental analysis provide exactly opposite approaches to valuation. Butin practice, generally, a judicious combination of both these approaches is used to arrive at better results.

These two approaches are not used as substitutes but as complementary to each other.

9.4 ADVANTAGES OF TECHNICAL ANALYSIS

- **Objective and Rule based**

    Technical analysis offers an objective and rule-based approach to investing in assets.

This means you can follow a tried-and-tested checklist to manage your risks before hitting the buy button. Plus, it provides a bunch of statistical parameters for evaluation, not just profit and loss.

- **Visual Representation**

  Technical analysis involves mapping out the charts for assets. These charts show the journey an asset has taken and point out interesting spots. This makes it easier to spot trends and even recurring patterns from the past. By knowing how the market reacted to these patterns, you can make better decisions when similar patterns pop up again.

- **Accessibility**

  The cool thing is that many tools used by technical analysts are easily accessible and often free or inexpensive. Plus, knowledge about this craft is getting easier and more available. Like this blog ;)

- **Flexible**

  Another neat feature of technical analysis is that it's versatile and fits different markets like stocks, forex, commodities, and cryptocurrencies. It works in various places like the US, Japan, and India and across different timeframes like hourly, daily, weekly, and monthly. So, it's like a universal toolkit for analysing markets

  ### 9.5 LIMITATIONS OF TECHNICAL ANALYSIS

- **False signals**

  One of the most annoying things for technical analysts is dealing with signals that turn out to be false breakouts. Sometimes, this happens because the system is too sensitive, or the price movements are all over the place; it's like trying to catch a slippery fish. Dealing with false signals isn't easy. A more cautious approach might wait a long time before confirming a breakout, missing out on potential gains. A smarter way to handle it is by deploying a weight-of-evidence approach. When you see multiple things like indicators and oscillators pointing in the same direction, it's more likely that the breakout is for real.

- **Inefficiency in less liquid markets**

  Another limitation when it comes to technical analysis is that it might not work as well in markets that have liquidity problems. Why? Because the prices in these markets can be

all over the place and hard to predict. Sometimes, big players in the market can make it look like there's a lot of demand for something when there really isn't.

9.6 MYTHS OF TECHNICAL ANALYSIS

1. Technical Analysis is only for Intraday Trading

This is the most common myth about technical analysis that technical analysis is only appropriate for intraday traders or short-term traders. Technical Analysis existed way before computers were common and many successful investors have openly accepted the use of technical analysis for long term investments. Technical analysis is used by all types of traders and investors on all time frames from a 1-minute chart to a monthly chart.

2. Only Retail Traders use Technical Analysis

Retail traders do use technical analysis for their trade's decision, but it is also widely used by investment banks and hedge funds. Investment banks and Hedge funds have a dedicated team that uses technical analysis for trading. Algo Trading & High-frequency trading has a great amount of trading volume on stock exchanges across the globe which is heavily dependent on technical analysis.

3. Low success Rate

You can look for interviews of all the successful traders who have vast experience and deep knowledge. You will find one thing common about them that they all relied on technical analysis and a lot of them owe their success to technical analysis. There exist a list of investors and traders who have created their fortune with the help of technical analysis.

4. Technical Analysis is Easy

The internet is full of courses based on technical analysis that promises a high return. Most of them have not placed a single order in the stock market or forex market based on technical analysis but selling courses based on a combination of Indicators. Technical analysts need deep learning, complete knowledge, good money management skills to succeed in the market. Technical analysis is only one tool and there are other aspects associated with it.

5. Technical Analysis accurately predicts the price

Inexperienced traders predict the market with exact price points but experienced traders predict the market with the price range and avoid price quoting as points. One must be aware that technical analysis provides the range for predictions and not the exact numbers. Profits are generated by traders and investors who use good risk to reward ratio.

6. Technical Analysis is profitable with a higher winning rate:

This is the most common myth and it must be busted as technical analysis is more about the high risk to reward ration than the winning rate. Assume Naveen makes 4 winning trades out of 10 while Saurav makes 7 winning trades out of 10. Who is more successful? Most people might say Saurav but to know who is more successful then we need more information. One can be more profitable after having less winning rate if that person is going for a good risk to reward ratio. If Saurav makes Rs 10 on his win but losses Rs 10 on his loss, then he ends up with a profit of Rs 40. If Naveen makes Rs 30 on his win and losses Rs 10 on his loss, then he ends up with a profit of Rs 60. Naveen is better off, even with fewer wins.

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CHAPTER-10

TECHNICAL ANALYSIS-II

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10.0 LEARNING OBJECTIVES

After reading this chapter, you will be able to:-

- Describe the various tools of technical analysis.

- Plot technical charts using software available

- Identify trends and patterns and indicators in charts

- Understand stock market news reports

- Interpret technical signals and decides whether to use them or not

10.1 INTRODUCTION

Technical analysis in simple terms means the study of Candlestick Patterns, Chart Patterns, Support & Resistance, Demand & Supply Psychology, and various other indicators. Prediction of stock Market accurately is a difficult task, but technical analysis helps a lot in making it easier to accurately predict the market to a certain extent.

Technical Analysis also helps in understanding the sentiments of the market which is based on human psychology. With the help of Technical Analysis, one can predict the future of the market without going through the fundamental factors of equity, currency, or commodity.

10.2 TOOLS AND TECHNIQUES OF TECHNICAL ANALYSIS

There are numerous tools and techniques for doing technical analysis. Basically this analysis is done from the following four important points of view:

1. **Price:** whenever there is change in prices of securities, it is reflected in the changes in investor attitude and demand and supply of securities.

2. **Time:** the degree of movement in price is a function of time. The longer it takes for a reversal in trend, greater will be the price change that follows.

3. **Volume:** the intensity of price changes is reflected in the volume of transactions that accompany by a small change in transactions, it implies that the change is not strong enough.

4. **Width:** the quality of price change is measured by determining whether a change in trend spreads across most sectors and industries or is concentrated in few securities only. Study of the width of the market indicates the extent to which price changes have taken place in the market in accordance with a certain overall trends.

In terms of the above dimensions various tools and techniques of technical analysis are discussed as follow:

10.2.1 DOW THEORY

The Dow Theory, originally proposed by Charles Dow in 1900 is one of the oldest technical methods still widely followed. The basic principles of technical analysis originate from this theory.

According to Charles Dow "The market is always considered as having three movements, all going at the same time. The first is the narrow movement from day to day. The second is the short swing, running from two weeks to a month or more and third is the main movement, covering at least four years in its duration".

The theory advocates that stock behavior is 90% psychological and 10% logical. It is

mood of the crowd which determines the way in which prices move and the move can be gauged by analyzing the price and volume of transactions.

The Dow Theory only describes the direction of market trends and does not attempts to forecastfuture movements or estimate either the duration or the size of such market trends. The theory uses thebehavior of the stock follow the underlying market trend, most of the times. Therefore, the postulates of the theory were farmed with reference to market indices, specifically constructed to measure market trends.

Basic tenets of Dow Theory: the basic tenets of Dow Theory are few and simple and are as follows:

1. The average (index numbers) discounts everything except acts of god, because they reflect the combined market activities of thousands of investors and brokers. Thus, the aggregate judgement of all stock market participants regarding both the current and potential changes in the demand- supply relationships of stocks, is reflected in the share prices.

2. The 'market' meaning the price of shares in general, swings in trends which may be primary, secondary and minor. Primary movements which last from a year to several years, represent the major market trends it can be either a rising (bull) trend or a falling (bear) trend. Movements in the direction of primary trend are interrupted at intervals by secondary swings in the opposite direction. The secondary trends usually last from several weeks to several months in length. This trend acts as a restraining force on the primary trend trending to correct deviations from its general boundaries. The minor trends are day to day fluctuation in the market. These have little analytical value because of their short duration and variations in amplitude.

3. So long as each successive price advance reaches a higher level than the one before it and each secondary reaction or price decline, stop at a higher level than the previous one, the primary trend is up. This is called a "bull market".

4. When each intermediate decline carries prices to successively lower levels and each intervening advance fails to bring them back up to the top level of the preceding advance, the primary trend is down and that is called 'bear market'.

5. The secondary trends are the intermediate declines or corrections which occur in bull

market and the intermediate advances or recoveries which occur in bear markets or recoveries which occur in bear markets. Normally, these last from three weeks to as many months and generally retrace from 1/3rd to 2/3rd of the gain or loss in prices recorded in the previous swing, in the primary direction.
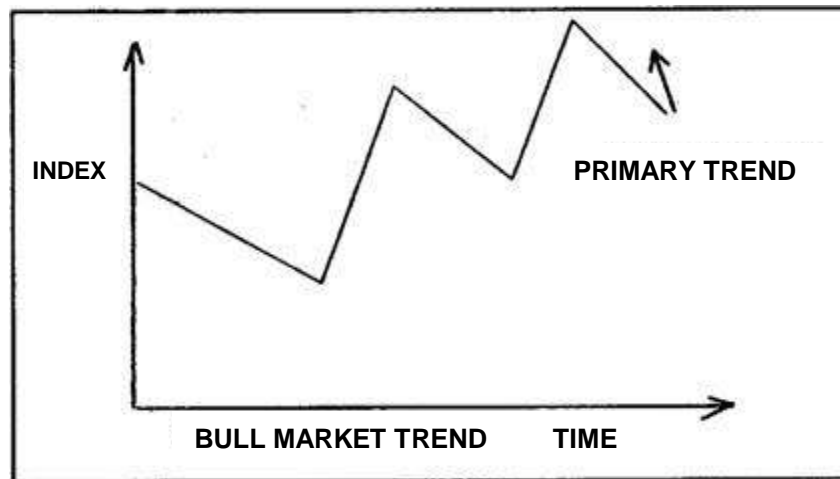
6. The minor trends are the brief fluctuations lasting usually for six days but rarely for three weeks. These are meaningless but go to make up secondary trend. In theory, this is the only trend that can be manipulated.

7. At times a line can substitute for the secondary trend. A line in Dow Theory is a sidewise movement which lasts for two or three weeks, may before as many months and in the course of its formation, prices fluctuate within a range of 5% or less of their mean figures.

8. A trend should be assumed to continue in effect until such time as its reversal has been definitely signalled. The end of a bull market is signaled when a secondary reaction of decline carries prices lower than the level recorded during the earlier reaction and the subsequent advance fails to carry prices above the top level of the preceding recovery. The end of a bear market is signaled when an intermediate recovery carries prices to a level higher than the one registered in the previous advance and the subsequent decline halts above the level recorded in the earlier reaction.

The following figure gives an example of a bull market trend.
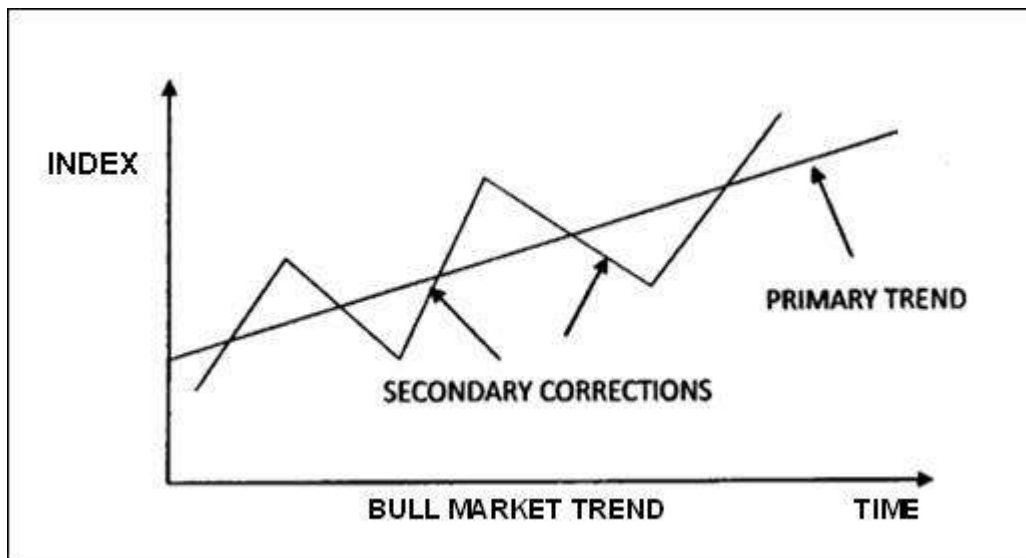
This figure shows a bull market interrupted by reactions. The following figure shows a bear

market trend.

This figures shows a bear market interrupted by recoveries.

Dow Theory's Shortcomings: the Dow Theory is widely applied by technical analysis and has stood the test of time. However, the theory has been criticized on the following grounds:

1. The Dow Theory provides a single of change in the trend, often too late. The end of a bull market is signaled only when the nearest intermediate button is penetrated by more than 3% of the level and the subsequent advance fails to carry prices on the index above the earlier top. Itis estimated that the theory confirms a reversal in trend often 20 to 25% after a peak or trough has occurred. But then there is no other way of forecasting that the change of trend has taken place at the top and it is better to be late than to be wrong.

2. The Dow Theory depends on interpretation and is subject to all the hazards of human ability to interpret. Experience has shown that the theory is usually more nearly right and the faults lies with the persons interpreting it.

10.2.2 CHARTING

Charting is the basic tool in technical analysis, which provides visual assistance in defecting changing pattern of price behavior. The technical analysis is sometimes called the Chartist because of the importance of this tool. The Chartist believe that stock prices move in fairly persistent trends. There is an inbuilt inertia, the price movement continues along a certain path (up, down or sideways) until it meets an opposing force due to demand-supply changes. Chartists also believe that generally volume and trend go hand in hand. When a major uptrend

begins, the volume of trading increases and also the price and vice versa.

The essence of Chartism is the belief that share prices trace out patterns over time. These are a reflection of investor behavior and it can be assumed that history tends to repeat itself in the stock market. A certain pattern of activity that in the past produced certain results is likely to give rise to the same outcome should it reappear in the future. The various types of commonly used charts are:

a)   Line chart

b)   Bar chart

c)   Point and figure chart

a)   Line charts: the simplest form of chart is a line chart. Line charts are simple graphs drawn by plotting the closing price of the stock on a given day and connecting the points thus plotted over a period of time. Line charts take no notice of the highs and lows of stock prices for each period. The following figure presents a typical line chart.


LINE CHARTS   **TIME**
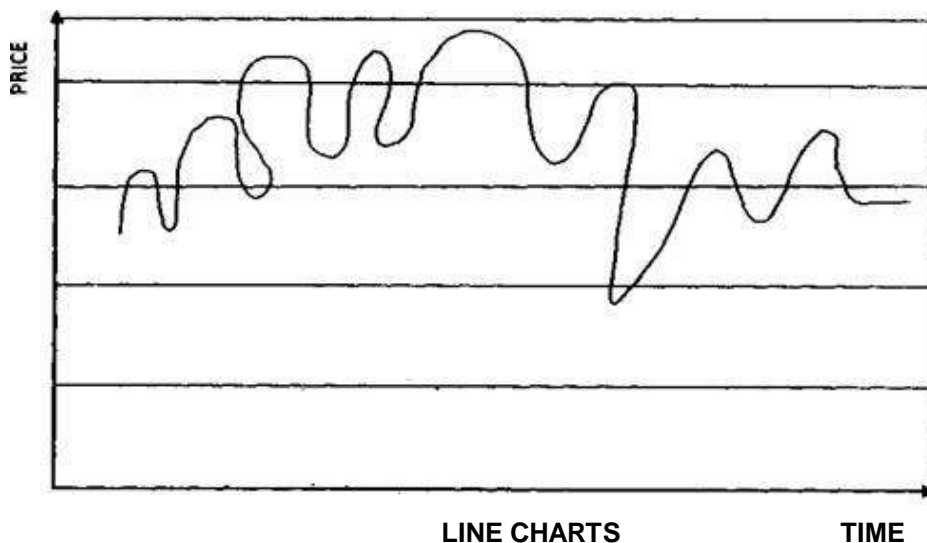
b) **Bar charts:** it is a simple charting technique. In this chart, prices are indicted on the vertical axisand the time on horizontal axis. The market or price movement for a given session (usually a day) is represented on one line. The vertical part of the line shows the high and the


PRICE

BAR CHARTS   TIME
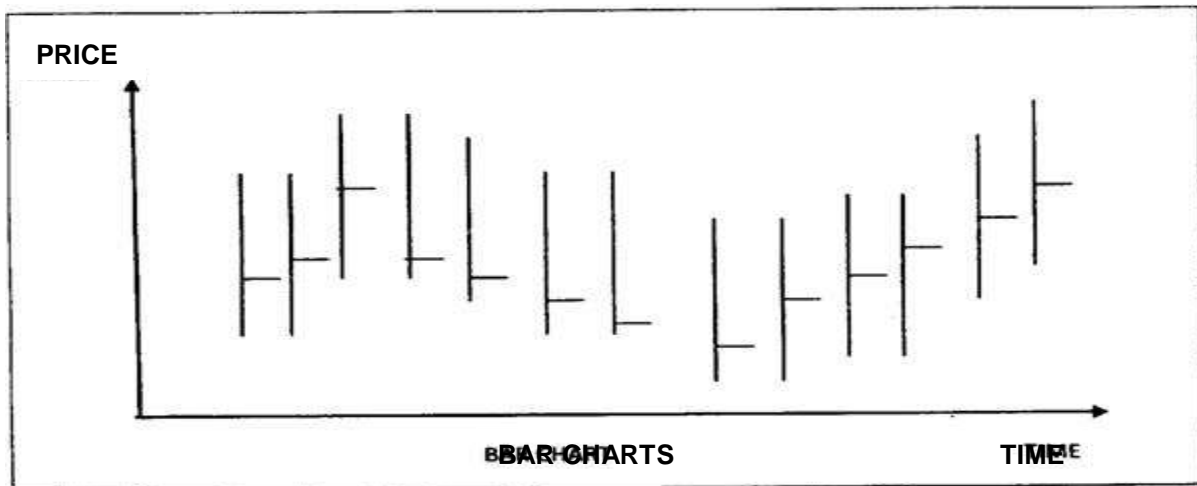
low prices at which the stock traded or the market moved. A short horizontal tick on the vertical line indicates the price or level at which the stock or market closed. The following figure shows a bar chart:

c) **Point and figure Chart (PFC):** though the point figure chart is not as commonly used as the other two charts, it differs from the others in concept and construction, in PFC there is no time scaleand only price movements are plotted. As a share price rises, a vertical column of crosses is plotted. When it fells, a circle is plotted in the next column and this is contained downward while continues to fell. When it rises again, a new vertical line of crosses is plotted in the next column and so on. A point and figures chart that changes column on every price reversal is cumbersome and many show a reversal only for price changes of three units or more (a unit of plot mat be a price change of say one rupee). The following figure shows a point and figure chart:
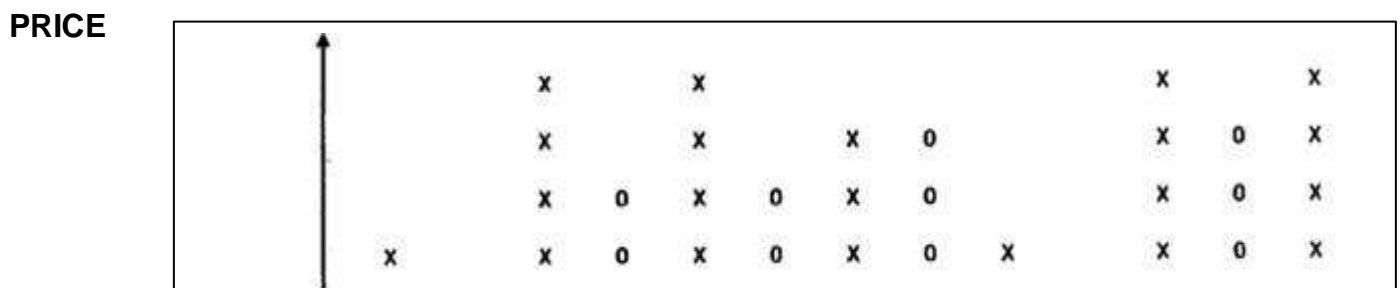
PRICE

10.2.1 TRENDS

A trend can be defined as the direction in which the market is moving. Up trend is the upward movement and downtrend is the downward movement of stock prices or of the market as measured by an average or index over a period of time, usually longer than six months. Trend
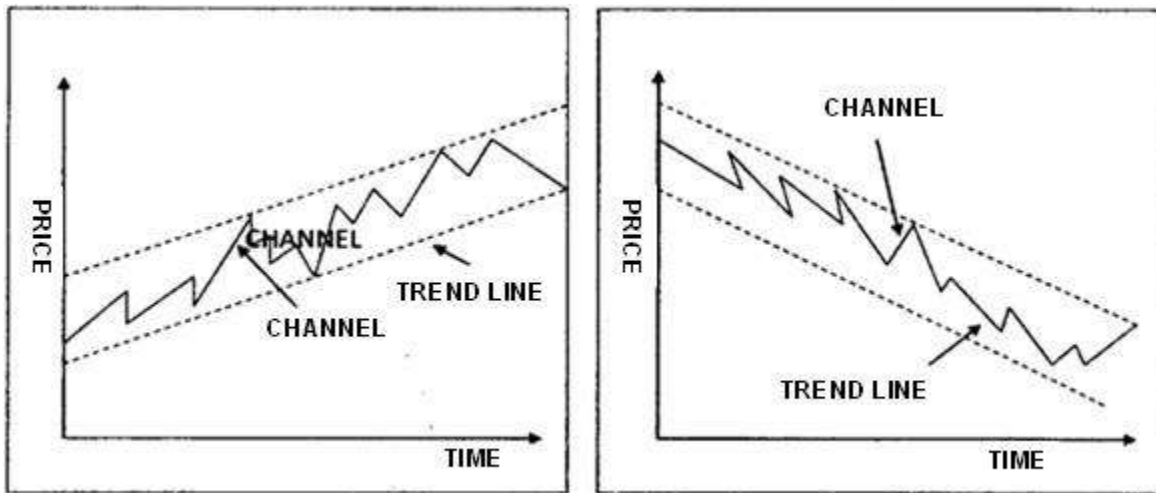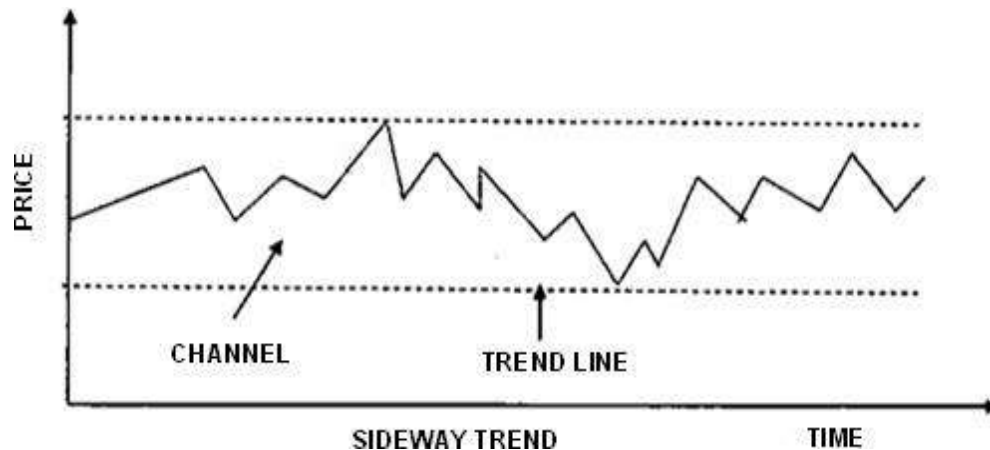

UPWARD TREND LINE   UPWARD TREND LINE

lines are lines that are drawn to identify such trends and extend them into the future. These lines typically connect the peaks of advances and bottoms of declines. Sometimes, an intermediate trend that extends horizontally is seen. If the succession of peaks and troughs occurs at increasingly higher prices, then the market is clearly up trend. This trend is bullish indicating a good time to buy securities. If the peaks and troughs occur at successively lower prices. The market is in down trend which signals to the time to sell securities. The upward and downward trends are shown in the following figures.

A sideway trend is characterized by stock prices trading in a range where successive peaks occur at the same level and successive troughs occur at the same level and successive troughs occur at the same level. The two levels create parallel trend lines. During this time the investor should be extra careful and wait for more definite indicators of the future market movement. The following figureshows the sideway trend.

PRICE

CHANNEL   TREND LINE

SIDEWAY TREND   TIME

Trend lines encompass advances and declines by joining successive tops and bottoms. Sometimes, it is useful to trap trends by drawing trend lines on both the sides of an upward or downward trend. These parallel lines drawn to encompass trends from both the sides are called channels.

10.2.4 MOVING AVERAGE ANALYSIS

The statistical method of moving averages is also used by the technical analysis for forecasting the prices of shares. While trends in share prices can be studied for possible patterns, sometimes it may so happen that the prices appear to move rather haphazardly and be very volatile. Moving averageanalysis can help under such circumstances. A moving average is a smoothed presentation of underlying historical data. It is a summary measure of price movement which reduces the distortions to a minimum by evening out the fluctuations in share prices. The underlying trend in prices is clearly disclosed when moving averages are used.

To construct a moving average the time span of average has to be first determined. A 10 day moving average measures the average over the previous 10 trading days, a 20 day moving average measures the average values over the previous 20 days and so on. Regardless of the time periodused, each day a new observation is included in the calculation and the oldest is dropped, so a constant number of points are always being averaged. The moving averages are worked out in respect of securities studied and depicted on a graph. Whenever the moving average price line cuts the actual price line of the security or of the market, index from the bottom it is a signal for the investors to sell the shares. Conversely, when the moving average price line cuts the actual price line from above, it is the right time to buy shares.

The moving average analysis is quite a useful method in finding out the trends in security

pries when it is based on long term approach. However, a point of caution is in order. Moving average analysis always invariably provide signal to buy or sell, after the trend reversal has begun. These are neither lead indicators nor juncture points for change in trends. The moving averages should therefore, be used only with other indicators, otherwise these may provide true but mathematically inaccurate information.

The technical analysis can use three types of moving averages-simple weighted or exponential.

10.2.5 ADVANCE DECLINE THEORY

The advance decline theory takes into consideration the total number of securities traded called the width of the market. The greater the number of securities traded compared to the number of securities listed, greater will be the width of the market. This theory takes into consideration the total number of issues traded during a session and compares the number of stocks whose prices advanced with those whose prices declined. The basic idea behind all this is to determine what the majority of stocks are going. The daily net difference between the number of shares whose prices have advanced in a stock exchange and the number of those whose prices have declined is calculated. The net difference is added to next day's difference and so on to form a continuous cumulative index. The index is plotted in a line form on the graph and compared with the index of that stock exchange. The key signals occur when there is divergence between the two, when they diverge, the advance-decline line will show the truer direction of the market because the index of the stock exchange cannot move contrary to the market as a whole, at least not for long.

For example, suppose in Bombay stock exchange, 1600 securities were traded on a particular day. Of the total securities traded 1000 advanced in price, 400 declined and 200 were unchanged. Using the data, the technical analysis will calculate the percentage of the advance or the decline by subtracting the number of declining stocks from the number of advancing stocks and then dividing the difference by the total number of securities traded.

$$\left(\frac{+1000-400}{1600}\right) = \frac{+600}{1600} = 37.5\%$$

Continued positive and high percentages indicate negative percentages indicate a

technically weak market.

Advance-decline theory focuses on the width of the market instead of selected securities. This theory has been widely used as the basis for developing more complex technical measures andtheories about the market movement.

10.2.6 NEW HIGHS AND NEW LOWS

A supplementary measure to the width of the market is the high-low differential or index. A risingmarket is accompanied by a healthy number of new highs. A graph of new highs can be plotted to be read along with a market index. If net new highs trace a series of declining peaks while the index continues to rise, a reversal in imminent. Similarly a graph of net new lows can be expected to signalthe end of a bear market, when it does not confirm the new trough reached by the market index. This is because a declining number of stocks reaching new lows implies that large number of stocks resisting the downtrend in the market index and thus, signifies the end of a bear market.

This method can be used to know the trend of the market and plan the investment strategy accordingly.

10.2.7 SHORT SELLING THEORY

Short selling is viewed as a sentiment indicator by the technical analysis. Short selling refers to selling shares that are not owned. Investors sell short when the expect the market price of a security to decline. They hope to purchase the security at a later date below the selling price and reap a profit. Theshort sellers eventually cover their positions resulting in an increase in the potential demand for the security. Therefore, rising short sales foretell future demand for the security and thus, increments in future price. Large outstanding short interest is, therefore, considered to be a long term bullish indicator. Small or moderate amounts of short interest are considered to have little potential impact on astock's price. Technical analysis consider the short interest ratio to be a more useful measure of the market's potential movement.

$$\text{Short Interest Ratio} = \frac{\text{Short Interest Position}}{\text{Average Daily Trading Volume}}$$

This ratio indicates how many days of trading it will take to cover total short interest. The ratio does not represent a hard and fast indicator of a bullish or bearish sentiment, but there are some rule ofthumb norms against which the ratio is compared. Generally, a short interest ratio is considered to be high when it is greater than 2. This is a bullish indicator because there are a large number of investorsin the market who will have to buy back the shares that were sold short.

Short sales cannot be an exact indicator and is only general in essence. The technical analysts also believe that it is a sophisticated technique and it is difficult for an average investor to understand it.

10.2.8 REVERSAL EFFECT

Reversal effect is a tendency for poorly performing stocks of one time period i.e. a week or a month to perform well in the subsequent time period and vice versa. This effect can be used by the investors in planning their investment strategy of maximizing the returns. The strategy should be to buy stocks that have recently done poorly and sell shares that have done very well.

10.2.9 RELATIVE STRENGTH

The empirical evidence shows that certain securities perform better than other securities in a given market environment and this behavior remains constant overtime. Relative strength is the technical name given to such securities by the technical analysis because these securities have stability and are able to withstand both are the depression and peak periods. Investors should invest in such securities, because these have constant strength in the market. The relative strength analysis may be applied to individual securities or to whole industries or portfolios consisting of stocks and bonds. The relative strength can be calculated by:

i.   Measuring the rate of return of securities

ii.   Classifying securities

iii.   Finding out the high average return of securities

iv.   Using the technique of ratio analysis to find out the strength of an individual security.

Technical analysis measure relative strength as an indication for finding out the return of securities. They have observed that those securities displaying greatest relative strength in good markets (bull) also show the greatest weakness in bad market (bear). These securities will rise and fall faster than the market. Technical analysis explains relative strength as a relationship

between risk and return of a security following the trends in the economy. After preparing charts from different securities over a length of time, the technician would select certain securities which showed relative strength to bethe most promising investment opportunities.

10.2.10 CREDIT BALANCE THEORY

The technical analysts predict that when cash balances build up with the brokers, it represents high potential for the market advancing and vice versa when investors sell their securities, they receive credit balances in their accounts at their brokerage houses. At that time they have two choices-either totake their money or to leave it in the account. The reason for leaving the money in the account will befor investment in the near future, it is believed that a rise in these cash balances represents large reservoirs of potential buying power. The investors leave their money with the brokers only when they anticipate a fall in security prices and thus, buying opportunity. On the other hand, a drop in credit balance suggests that prices of securities will go up in future and investors will not like to buy.

10.2.11 THE FILTER RULES

The filter rules many a times, defined the mechanical trading schemes. Filters are minor price changes arising from random factors. If the price of a security moves up at least X% from

FILTER RULE
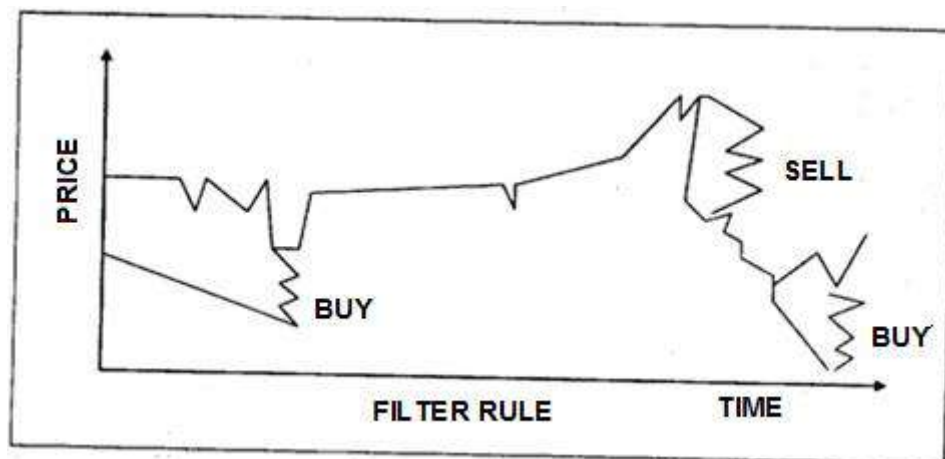
a low point, it should be bought and held until its price moves down at least X% from a subsequent high, at whichtime it could be sold. The security is not repurchased until it moves up again at least X% from the subsequent low point. The following figure illustrates the filter rule.

The major problem with this technique is deciding on the size of the filter. If x is small, it will result in larger number of transactions and therefore larger transaction costs. If x is large, much of the price movement has taken place before the investor acts. So called "Hatch System"

is basically a 10% filter. In general, these rules can be effectively used if the transactions costs are very low. Since these rules can be easily mechanized, they are widely used for computerized trading.

10.2.12 RESISTANCE AND SUPPORT LEVELS

The peak price of the stock is called the resistance area. Resistance level is the price level to which the stock market rises and then falls from repeatedly. This occurs during an uptrend or a sidewaytrend. It is a price level to which the market advances repeatedly but cannot break through. At this level selling increases which cause the price fell.

Support level shows the previous low price of the stock. It is a price level to which a stock or market price fells or bottom out repeatedly and then bounce up again. Demand for the stock increases as the price approaches a support level. The buying pressure or the demand supports
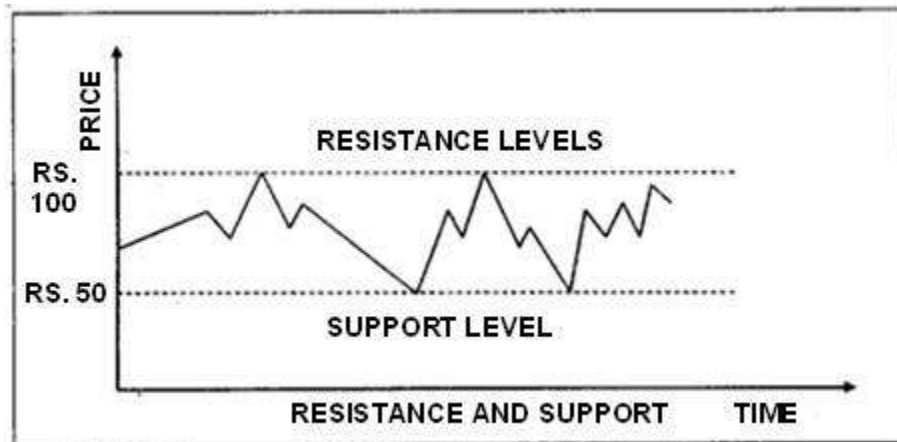
the price preventing it from going lower.

The figure shows that if the share price persistently fails to rise above a certain level this is known as a resistance level. This perhaps because at this price people who purchased previously, but then saw the share prices fell, took the opportunity to sell at the price they previously paid. Likewise, a support level is a price at which buyers constantly seem to some forward to prevent the share pricesdropping any further.

The support and resistance levels are important tools in confirming a reversal, in forecasting the course of prices, and in making appropriate price moves.

10.2.13 BREAKOUT THEORY

Break out is also "confirmation". This is indicated by drawing a line, which is a period of consolidation, when the share prices move sideways within a range of about 5% of the share price. Eventually a break out will occur and it is often suggested that the longer the period of

BREAKOUT THEORY
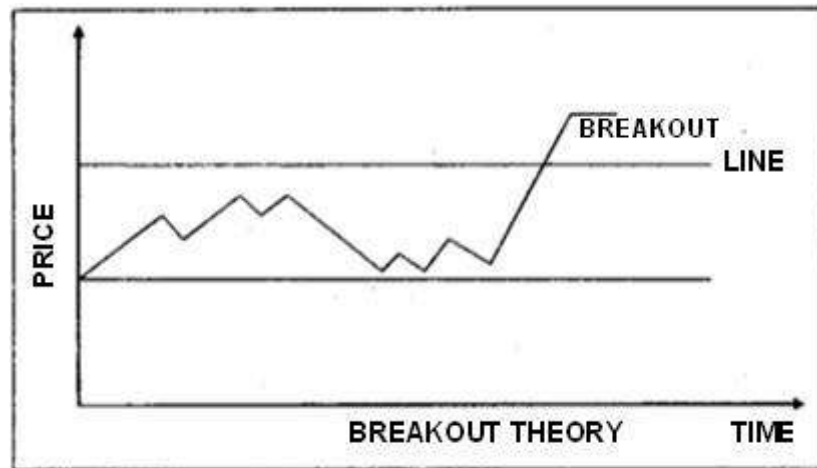
consolidation,the greater will be extent of ultimate rise or fall.

10.2.14 HEAD AND SHOULDERS PATTERN

The Head and Shoulders pattern is by far the most reliable and widely used of all reversal patterns. This pattern indicates a reversal of an uptrend. This pattern occurs at the end of a bull market and is characterized by two smaller advances flanking a higher advance just as the head lies in between two shoulders. A typical head and shoulder formation is shown in the following figure:


HEAD AND SHOULDERS PATTERN
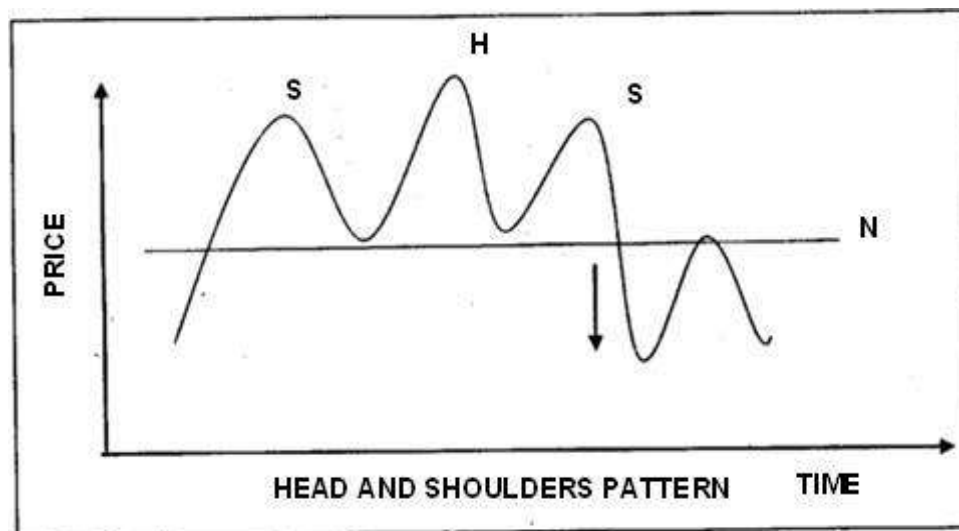
In reality, the shoulders are not always symmetrical. This does not in any way alter the signals provided by the pattern. The important requirement is that the shoulders should be at lower levels than the head. The left shoulder is seen during the time when there is a lull in the trading market

followed by heavy purchases. The quiet time in trading called lull is such to raise the price by pushing to a new peak. The head faces with the time when there are heavy purchases in the market that it raises it and then it fells back to indicates that it is far below the top of the left shoulder. The right shoulder indicated that the price raises moderately by the activity in the price raises moderately by the activity in the market but it does not rise in such a manner that it reaches higher than the top of the head while it is reaching is top, it begins to fell again and decline is indicated. The formation is easily discernible once the right shoulder is formed. The line that joins the points from where the final advance begins and ends is called the neckline. A trend reversal almost always occurs when the neckline is penetrated by the price line.

The head and shoulders pattern may be formed over short period of a Tew weeks or take even years to emerge. This pattern is the most reliable indicator of the onset of a bear market. The method also provides scope for measuring the extent of fall in prices. The prices are expected to decline after the penetration of the neckline by the price line, at least as much as the distance between the head andthe neckline.

10.2.15 DOUBLE TOP FORMATION

The double top occurs as an uptrend is about to reverse itself. A double top is formed when prices reach the previous high and react immediately, the two highs reached being almost at the same level. Two peaks at comparable heights are seen, with a reaction forming a valley in between them.The prices breakout into a bearish phase, once they penetrate the neckline drawn across the bottom of the intervening reaction. The measuring implication is similar as for the head and shoulder formation. If the price line falls below the neckline by a distance equal to the distance between the peak and the trough the indication is to sell. Volume is found to be distinctly low at the second top. The following figure shows the double top formation:

DOUBLE TOP FORMATION
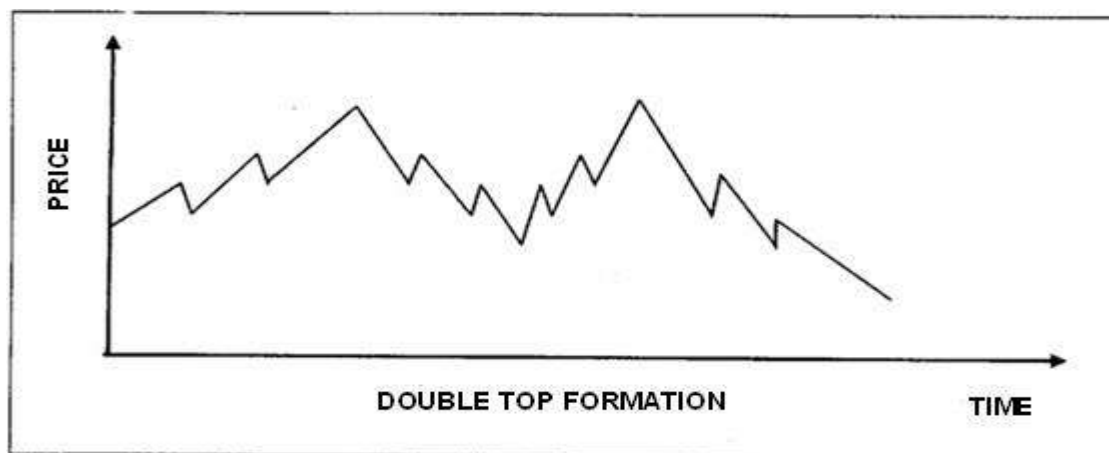
10.2.16 DOUBLE BOTTOM FORMATION

A double pattern is just the reverse of a double top and occurs at the end of a downtrend in prices. In the double bottom, the second decline is supported by substantially more volume, indicating the price about to rise. The following figure shows the double bottom formation.

DOUBLE BOTTOM FORMATION
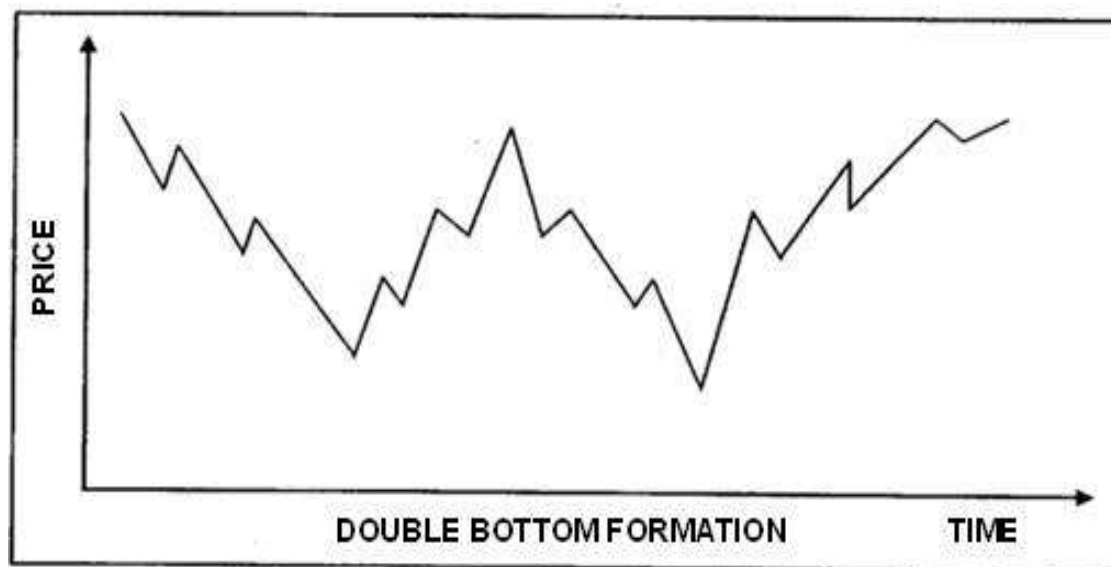
Sometimes, the tops and bottoms are not found exactly at equal levels, but still these provide valid reversal signals. Sometimes the patterns extend to triple tops or triple bottoms. It must be remembered that longer it takes for the second top (bottom) to appear and deeper the intervening valley (peak) more reliable will be the reversal:

10.2.17 ODD-LOT TRADING

Small investors who often buy in odd lots (no tradable lot) are known as odd lotters. Odd lotsare generally groups of less than 100 shares. The odd-lot theory suggests that it is important to find out information about odd lots because such investments are not made by professional investors. This theory reflects the views of common man on daily basis. For finding out the daily record of lots, information must be gathered about the number of shares purchased every day, the number of shares sold every day and also the number of shares which are sold short. By charting out the ratio of odd purchases to odd sales. It is possible to find out the direction of prices because it indicates the buying activity of the common man. If the odd purchases are less than the odd sales, then there is a positive purchase otherwise there can be negative purchase also. The technical analysts emphasis that a fall in the market price is reflected if the net purchases made by the common man are positive. If the net purchases are

negative then it reflects that the bear markets are at a close. Similarly, an increasing ratio of odd lot short sales to total odd sales suggests increasing bearishness. The theory has been opposed by the odd lotters because according to them they buy low and sell high and make profits, which is contrary to the theory.

10.2.18 MUTUAL FUND ACTIVITY

The mutual funds always keep ready cash and take advantage of favorable market conditions and/ or to provide for redemption of shares by holders. Mutual fund cash is expressed as a percentage of net assets on a daily, monthly or annual basis. A low cash ratio indicates a reasonably fully invested position, with the implication that not much reserve buying power is remaining in the hands of the mutual fund. Low ratios are frequently associated with market heights. At market troughs the cash ratio would be high. Such a buildup of cash reserves is an indication of potential purchasing power that can be injected into the market to push it upward.

10.2.19 CONFIDENCE INDEX

Securities market can be analyzed through a calculation of confidence index. The confidence index is supposed to reveal how willing the investors are to take chance in the market. Confidenceindex is the ratio of high grade bond yields to low grade bond yields. When investors grow more confident about the economy, they shift their holdings from high grade to low grade bonds in order to obtain higher yields. High grade bonds are higher in equity but do not yield high returns. Low grade bonds while risky will offer a higher yield. When the investor makes the change from high grade to low grade bonds the prices of low grade bonds rise. This lowers their yield relative to high grade bonds and increases the confidence index.

The confidence index has an upper limit of unity; since the yields on high quality bonds will never rise above the yields on similar low quality bonds. In the period of economic boom when investors grow optimistic and their risk aversion diminishes, the yields difference between high and low quality bonds narrows and the confidence index rises. A rising confidence index is interpreted by technical analysis as an indication that institutional investors are optimistic/ an upturn in confidence index foretells rising optimism and rising prices in the stock market.

Contrary to the rising index, a fell in the confidence index represents the feet that low grade bond yields are rising fester or felling more slowly than high grade yields. Thus movement

is supposed to reflect increasing risk aversion by institutional investors who foresee an economic downturn and rising bankruptcies and defaults/ empirical evidence shows that confidence index is not always positively correlated with the stock market. Although it gives some indications and signals about the stock market trend, yet the signals which are formed by it show errors. However, according to technical analysis, signals always show some errors and complete accuracy can never be predicted.

10.2.20 TRADING VOLUME INDICATORS

Most of the technical analysis believes that volume changes are always a prerequisite to a pricechange. Historical data analysis of price and volume movements indicates that in a normal market, the price rise is accompanied by an expanding volume. During bull market, volume increases with price advance and decrease with price declines. In a major downward price trend, the reverse will hold true. Further, volume generally fells in advance of major decline in the stock price averages and rises sharply during market bottoms. These indications are to be studied carefully before a final decision is taken on the state of the market, whether bullish or bearish, the phase the uptrend or downtrend and look for buy and sell signals at the start of the reversal trends.

Volume is a function of the demand for and supply of stocks and can signal turning points for the market as well as for individual stocks, in the short run, on a day today basis, the demand and supply for each scrip is based on a host of fundamental, technical and other factors.

10.2.21 FIBONACCI NUMBERS

The technical analyses use a number of techniques in predicting the resistance and support levels of the stock market and individual scrips. One of the set of numbers they often use are "Fibonacci numbers". Leonardo Fibonacci, a renowned medieval mathematician identified a sequence of numbers while studying the reproductive behavior of rabbits. The sequence was named after him. The Fibonacci sequence of number is as follows:

1,1, 2, 3, 5, 8, 13, 21, 34, 55,89, 144, 233....

After the initial pair of one, each succeeding number is simply the sum of the previous two

e.g.   2+3 =

53+5 =

8 5+8-

13

8 +13 = 21 and so on

Another feature of these numbers is that after the first few numbers, the ratio of each Fibonacci number to its successor is 0.618 e.g. .

21/34 = 0.618

34/55 = = 0.618

55/89 = = 0.618

89/144 = = 0.618 and so on.

Likewise, Fibonacci number of its predecessor is = 0.618 e.g.

34/55 = = 0.618

55/89 = = 0.618

89/144 = = 0.618

144/89 = = 0.618 and so on.

The advocates of Fibonacci numbers use the ratio 0.382 and = 0.618 to compute the retracement level of the stock movement. For instance, a stock that fells from Rs.100 to Rs.70 (a 30% drop) will encounter resistance to further advances after it recoups 38.2% of its loss (i.e. it rises to Rs.81.46) some technical analysis keep close watch on the resistance and support levels as predicted by the Fibonacci ratios.

10.2.22 COPPOCK INDICATOR

The Coppock indicator is based on wave theory predicting long term changes in investment sentiment and sudden changes cannot be accurately predicted. The indicator may be regarded as a general measure of underlying investor confidence. The Coppock's indicator is calculated as follows:

i. Take this month's average share price index and subtract the index for the same month twelve months ago. Multiply the result by ten.

ii. Repeat this arithmetic for last month and multiply the result by nine. Repeat this sequence for a total often months, multiplying each successive result by eight, seven, six, and so

on down to one.

iii.   Add up all the figures calculated in steps (1) and (2). The result may be positive or negative. Divide the result by ten. The figure so obtained is the coppock indicator for this month.

An average indicator value of zero is taken as the base line. If the coppock value is above zero, a bull market exists, while a figure below zero indicates the existence of a bear market. The start of a bull market is predicted when the points plotted below zero first start to become less bad. Thus, if the figures of January, February, march and April was -100, -110, -112 and -110, then April would give the first indication of a new bull market.

10.2.23 BLOCK UPTICK DOWNTICK RATIO

Trading in the equity market has become dominated by institutional investors who tend to trade in large blocks. It is possible to determine the price change that accompanied a particular block transaction. If it is above the prior price, it is an uptick and if it is below^ it is downtick. It is assumed thatthe price change indicates whether the transaction was initiated b a buyer (in which case you would expect an uptick) or a seller (in which case you would expect a downtick). This line of reasoning led to the development of the uptick-downtick ratio as indicator of institutional investor sentiment. The ratio has generally fluctuated in the range of 70 (a bearish sentiment) to about 130 (a bullish sentiment).

10.2.24 ELLIOT WAVE THEORY   TIME Wave5 1 1   1 2 4 A B C C

Elliot wave theory was established in the 1936s by R.N. Elliot and later popularized by Hamilton Bolton. This theory attempts to develop a rational for a long term pattern in the stock price movements. This theory is difficult to grasp and somewhat intimidating. The principle behind the theory is actually relatively simple.

In its most basic form the theory states that the stock market follows a repetitive rhythm of waves. A wave is a movement of the market price from one change in the direction to the next change in the direction. The waves are the result of buying and selling impulses emerging from the demandand supply pressures on the market. If the demand exceeds the supply, there is pressure of overboughtposition in the market leading to rising trend in the prices. On the other hand, if the supply exceeds demand, there is an oversold position in the market leading to a downward trend in the prices. Depending on the pressure of the oversold and overbought

position, the waves are generated in the prices.

The stock market, generally, follows a repetitive rhythm of a five wave advance followed by a three wave decline. If we count the waves, we find that one complete circle has eight waves, five upand three down. In the advancing portion of the cycle, the waves are numbered as shown in the following figure:

ELLIOT WAVE THEORY   **TIME**
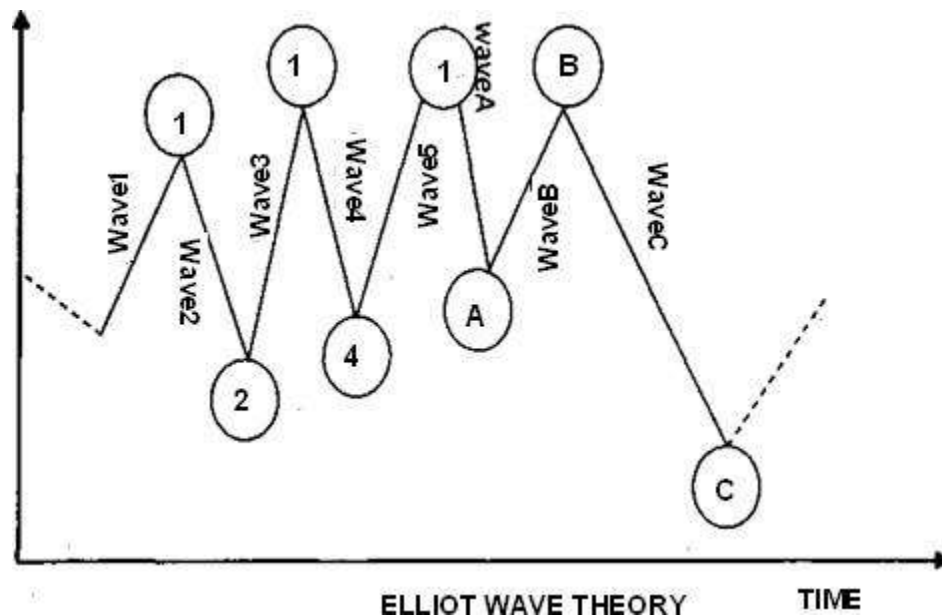
Waves 1, 3 and 5 are rising waves these are also called impulse waves. Wave z and y move against the uptrend. Waves 2 and 4 correct waves 1 and 3 and are thus called corrective waves. After the five waves numbered advance has been completed, a three wave correction binges, identified by waves A and B and C.

This theory has been accepted as one of the important tools of technical analysis for the investor and trader to decide on the timing of investment and for developing important market strategies. However the wave theory has two basic limitations: It is difficult to identify the turning point in each stage.

i.   Investors cannot distinguish between a major and minor five stage movement because therhythm as well as the count numbers of waves may not be consistent.

10.2.25 OSCILLIATORS (RATE OF CHANGE)

The rate of change index is a widely used tool of technical analysis to measure the momentum of price changes. Oscillators refer to the velocity of price change reflecting the market momentum which is measured by the rate of change of prices. The rate of change may

be over a very short period (i.e. 5 to 10 days) or a longer period (i.e. 3 to 6 months). Most of the oscillators move in the same direction either positive or negative, depending on the trends of the market. An overbought market is reflected by a positive reading and a oversold market is respected by a negative reading. The shape of the oscillator when plotted on the graph will depend on the period for which it is calculated. Oscillatorwill have a smoother curve, if it is for a long period, but if it is compiled on a daily basis, it will be widely fluctuating.

By properly reading the graph, the investors can make use of oscillators for making their investment decisions. As a general rule, if the oscillator reaches the extreme lower end, it is advisableto buy, but if it reaches the extreme upper end, it is advisable to sell. The crossing of the zero line can be taken as an indication of buy and sell decisions. The market is said to be overbought when the oscillator is at the upper extreme, thus it is advisable to sell. On the other hand, if the oscillator is at the lower extreme, the market is oversold and it is advisable to buy. A study of oscillator is very useful to confirm the conclusion arrived at by the trend analysis and the use of charts.

10.2.26 STOCHASTICS

Stochastic is a price-velocity technique. It is based on the theory that as price increase, closing prices have a tendency to be nearer to the peaks reached during the period. Similarly when prices fell, closing prices have a tendency to be nearer to the troughs reached during that period. George C. Laire had developed the stochastic technique. Thus technique is based on a single formula:

$$\%K = \frac{C\text{-}L}{H\text{-}L} \times 100$$

Where   %K = Stochastic

C = Latest closing price

L = Low price during the last N
periods H = High price during the last
N periods

N can be any number of periods % K is then smoothened to derive % D by using the

simple moving average technique. For interpreting stochastic, divergence analysis is used.

1.   A bearish divergence occurs when the security's price makes a high then corrects moving lower and subsequently reaches a higher high. At the same time, corresponding dealers of the % D line make a high followed by a lower high.

A.   HIGHER HIGH
BEARSH DIVERGENCE

B.   LOWER HIGH
BULLISH DIVERGENCE

C.   LOWER PEAKS
% D
BEARSH DIVERGENCE

D.   % D
LOWER HIGH
BULLISH DIVERGENCE

% K   % D

BUY   % K   % D

SELL

(a)   (b)
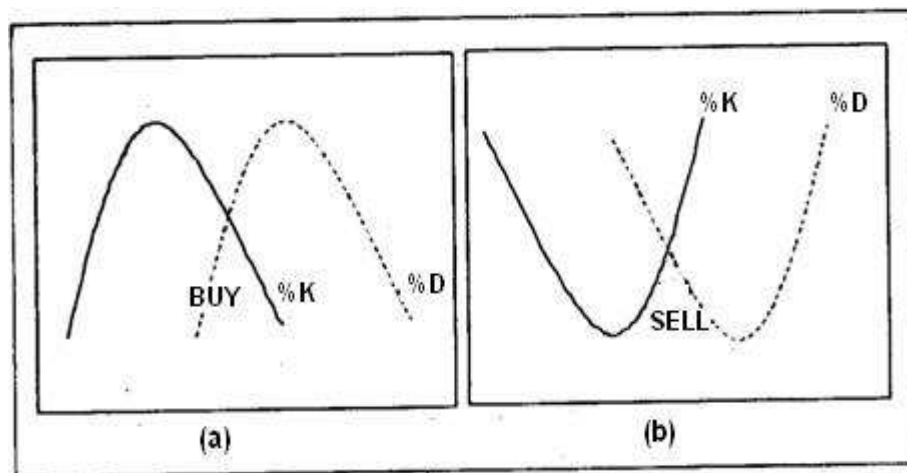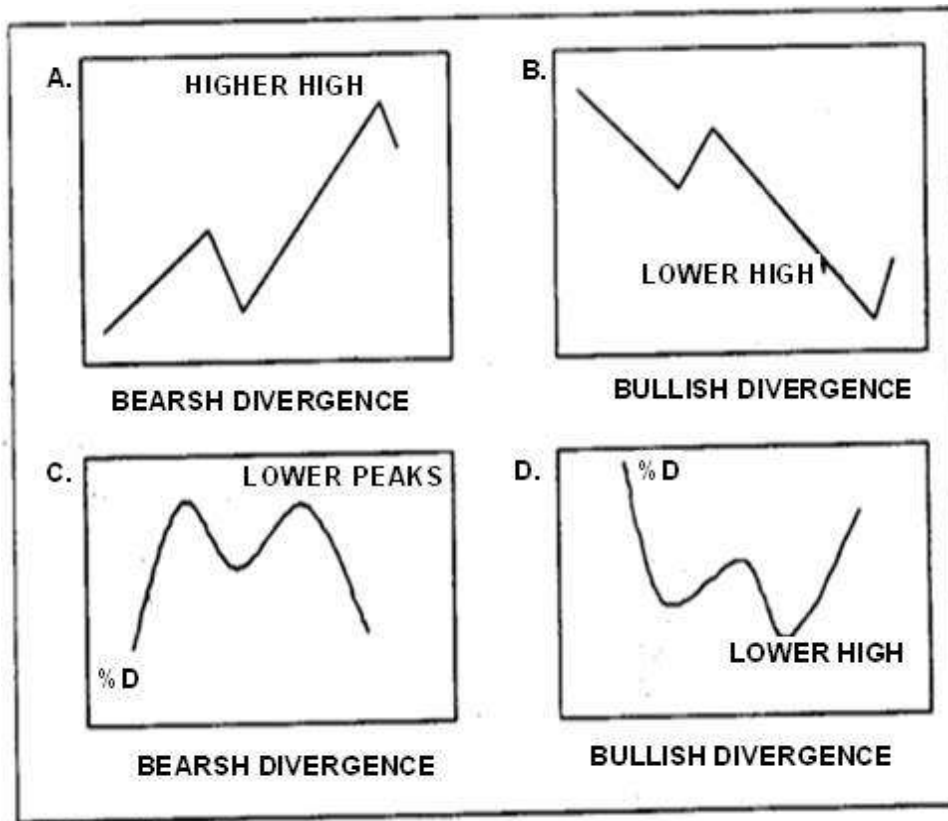
The above figures clarify the principle method of interpreting stochastics.

2.   A bullish divergence occurs when the security's prise makes a low, then corrects moving

higher and subsequently reaches a lower low. At the same time corresponding bottoms of the %D line makes a low followed by a higher bottom-

In the final analysis, in bearish divergence, a sell signal occurs when %K line move below %0 line. In a bullish divergence a high signal occurs when %K line moves above the %D line. Sometimes %K line touches 0% or 100%. This only suggests great weakness or great strength of the scrip.

10.3 EVALUATION OF TECHNICAL ANALYSIS

Critics have pointed out that technical analysis is not by itself, the road to be richer. Despite assertions by technical analysis, the technical analysis is an art. Like any other art, its successful use requires talent, experience intuition and above all commonsense. This tool must be used along with fundamental analysis, only then it can convert the modest profits to good profit. There are some inherent limitations of technical analysis as follows:

1.   Technical analysis is based on the past and historical data. Unexpected future events are not taken into consideration by it.

2.   To earn more profit, the technical analysts have to cleverer and luckier tan others. In a stock market, profits are always realized at the expense of others who are trying to earn profits at theirterms.

3.   False signals can always occur in the stock markets. If the technical analysis acts without confirmation, they would make mistakes and would suffer unnecessary expenses and losses.

Technical analysts have been in existence for quite a long period of time now and they are unlikely to disappear. For doing their work in a better way they require improved quantitative methods coupled with improved behavioral research.

10.4 SELF CHECK EXERCISE

1.   Discus the assumptions of Technical Analysis.

2.   Explain Dow Theory.

3.   Explain Charting.

4.   Describe Short selling theory.

10.5 SUMMARY

The term technical analysis is used to mean a fairly wide range of techniques; all based on the concept that past information on prices and trading volume of stocks gives the enlightened investor a picture of what lies ahead. It attempts to explain and forecast changes in security prices by studying only the market data rather than information about a company or its prospects, as is done by fundamental analyst. Fundamentalists make their decisions on quality, value and depending on their specific investment goals, the yield or growth potential of the security. Technical analysts use three basic types of charts. These are Line Charts, Bar Charts, Point and Figure Charts

10.6 GLOSSARY

Confidence Index: It is the ratio of a group of lower-grade bonds to a group of higher-grade bonds.

Indicators: Indicators are calculations based on the price and the volume of a security that measuresuch things as money flow, trends, volatility and momentum.

Odd Lots: Stock transactions of less than, close to 100 shares.

Trend line: A charting technique that adds a line to a chart to represent the trend in the market or astock.

10.7 ANSWERS TO SELF CHECK EXERCISE

1.   For answer refer to section 9.2

2.   For answer refer to section 10.2.1

3.   For answer refer to section 10.2.2

4.   For answer refer to section 10.2.7

10.8 TERMINAL QUESTIONS

1.   What is technical analysis? Describe the assumptions of technical analysis.

2.   Distinguish between technical and fundamental analysis.

3.   What are tools and techniques of technical analysis? Describe in brief.

10.9 SUGGESTED READINGS

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CHAPTER-11

MARKET EFFICIENCY

Structure:-

11.0   LEARNING OBJECTIVES

After reading this chapter, you will be able to:-

- Understand the concept of market efficiency

- List the factors that contribute to an efficient market

- Describe briefly the tests for each of the forms for the efficient market hypothesis

- Discuss the evidence related to the EMH

- Discuss the implications of the EMH for investors.

11.1   INTRODUCTION

Before taking any investment decisions, every investor has to use some technique for valuating the securities. Two different approaches in use for investment decision making, already discussed inthe previous chapters, are fundamental analysis and technical analysis. The fundamentalists use the intrinsic value of securities for identifying the securities to be purchased or sold. The technical analysts believed in the past behavior of the prices. However, in real life, investment decision making is not guided by a single tool-fundamental or technical, but other quantitative factors requiring a lot ofpersonal judgment. Thus, in this chapter we study a third theoretical approach. The Random Walk Theory, where the price of securities is determined by the independent market forces, which absorb all the information efficiently.

In a theoretical sense, markets are considered to be efficient if there is a free flow of information and the information is observed quickly by the market. Market efficiency signifies: how quickly and accurately does relevant information has its effect on the security prices. In an efficient market, all the known information is immediately discounted by all the investors and reflected in the security prices in the market. No single investor has an information edge over the others as everyone knows all possible to know information simultaneously. Moreover, every investor the information similarly and behaves rationally. A few important definitions of market efficiencies are as follows:

According to James Lorie: "Efficiency....... means the ability of the capital market to function, so that prices of securities react rapidly to new information. Such efficiency will produce prices that are appropriate in terms of current knowledge and investor will be less likely to make unwise investments"

According to E.F.Fama: "efficient market is defined as the market where there is large number of rational profit maximizes actively competing with each predict even the market value of individual securities t information is almost freely available to all participants"

In an efficient market scenario, all instruments in the market will be correctly priced all the available information is perfectly understood and absorbed by all the investors, present as well as prospective. No excess profits are possible in this scenario. A security's price will be a good estimate ofits investment value where investment value is the present value of security's future prospects as estimated by well informed and capable analysts. Any substantial disparity between price and value would reflect market inefficiency. Alert analysts would seek to take advantage of this inefficiency, immediately. Underpriced securities will be purchased creating

pressure for price decline due toincreased supply to sell. Thus, in a perfectly efficient market, analysts immediately compete away any chance of earning abnormal profits. For the capital market efficiency theory to operate, the following assumptions are made:

1. Information must be free and quick to flow so that all the investors can react to the newinformation.

2. Transactions costs such as sales commission, and bottlenecks are not there.

3. Taxes have no noticeable impact on investment policy.

4. Every investor can borrow or lend at the same rate.

5. Investors must be rational and behave in a cost effective competitive manner. They should beable to recognize efficient assets and invest in those assets which have highest returns.

6. Market prices are efficient and not sticky and absorb the market information quickly and themarket responds to new technology, new trends, changes in tastes etc. Efficiently and quickly.

In the efficient markets, the forces of demand and supply move freely and in an independentand random manner. This concept of randomness has led to the theory of random walk in thedetermination of prices. Random Walk Theory is a special case of the efficient market theory.

11.2   RANDOM WALK THEORY

The basis of Random Walk Theory is that the market information is immediately and fully spreadso that all the investors have full knowledge of the information. As per this theory, changes in stock prices are independent of each other. The prices of today are independent of the past trends. The priceof each day is different it may be higher or lower than the previous price or many be unchanged. The present price is randomly determined and is influenced only by the information. This theory has been empirically tested and the analysts have also found an explanation for the efficiency of the markets. As the equilibrium price of the security is determined by demand and supply forces based on available information, this equilibrium rice will immediately change as fresh information becomes available. Based on the fresh information, a new equilibrium prices will be reached which is totally independent of the past price. The random

walk theory totally contradicts the technical analysis which believes that presents prices are based on the past trends and the history of trends repeats itself.

The Random Walk Theory in its absolute form has the following assumptions:

1. There is a perfectly competitive market in its absolute operating in an efficient manner in orderto equate the actual stock price with its present discounted value.

2. Market is supreme and no individual investor or group can influence it.

3. All investors have the same information and nobody has superior knowledge so that theprevailing market price reflects the stocks present value.

4. Stock prices discount all the information quickly. If there is any deviation from the equilibriumprice, it is quickly corrected and the equilibrium price is restored.

5. A price change occurs in the value of stock only because of information relating to fundamentalswhich affect the company or the stock markets. In such a case the equilibrium level itself shifts.

6. The prices move in an independent fashion without undue pressures or manipulation.

7. The instant adjustment in prices is recognition of the fact that all available information is reflected in the stock prices.

8. Institutional investors or major fund managers have to follow the market and cannot influence it.

9. Future change in prices will only be as a result of some other new piece of information which was not available earlier.

10. The changes in the stock prices show independent behaviour and are dependent on the new pieces of information that are received but within themselves are independent of each other. Whenever new piece of information is received in the stock market, it independently receivesthis new information and this is independent and separate of all other pieces of information.

This rapid shift to a new equilibrium level whenever new information is received is the Random Walk Theory.

11.3 EFFICIENT MARKET HYPOTHESIS

The random Walk Theory is based on efficient market Hypothesis (EMH) EMH says that successive absolute short run price changes are independent. The hypothesis is based on the assumption that the all the securities markets are efficient. To have efficient markets, it is essential that both internal and external efficiency must be there:

Internal efficiency: internal efficiency refers to the markets where the transactions costs arelow transitions move at a very high speed. Investor has no control over this type of efficiency.

External efficiency: markets are considered to be externally efficient if they absorb all the information in an unbiased manner. In such market, the new information is immediately reflected in the security prices. The price adjusts to the new information only when the investors are rational and markets are efficient.

E.F. Fama has provided that the efficiency of markets depends on the extent of absorption of information, the time taken for absorption and the type of information absorbed. The absorption of information by the markets is of different degrees. Fama has given three classifications of efficiency, explained as follows:

1.   **Weak form:** the weak form of the market is the oldest statement. This form of market holds that current prices of stocks fully reflects all historical information, thus, past data cannot be used to predict future prices.

In the words of Adam Smith "prices have no memory, and yesterday has nothing to do with tomorrow".

This form assets that any attempts to predict prices based on historical information is totallyfutile as future changes are independent of past price changes. The weak form contradicts the technicalanalysis, which states that prices move in a predictable manner and historical price movements can help to forecast future trends.

The weak form of efficiency holds good in any market, since even the critics of EMH admit that prices adjust to the information ultimately. Empirical evidence has shown that as past prices are alreadyabsorbed by the market, the prices move in an independent fashion. Both EMH in its weak form' and random Walk Theory postulate that analyzing the past does not improve the forecasting ability of stock prices and new information and prices that result from them cannot be predicted.

2.   Semi-strong form: The semi-strong form of EMH postulates that markets absorb quickly and efficiently all the publicly available information, as well as the information regarding historical prices. As prices adjust to the information quickly and accurately, abnormal/superior profits cannot be earned on aconsistent basis. The empirical evidence supports the convention that the public reacts quickly to the new information, but there has been some 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 analyse and conclude the effect of any public information.

The semi-strong form is not empirically well supported but in many foreign markets the semi- strong form is found to be applicable and markets quickly absorbs all published information. The revolution in information communication technology has made the application of semi-strong form possible in developed countries.

3.   Strong form: The strong forms of EMH represent the most extreme case of market efficiency possible. According to the strong form, the prices of securities fully reflect all available information both public and private. If this form is true, prices reflect the information that is available to the select groups like the management, financiers, stock exchange officials etc. Thus, according to this form, no information that is available be it public or inside can be used to consistently earn superior investment returns. This implies that not even security analysis and portfolio managers, who have access to information more quickly than the general public are able to use this information to earn superior returns. Studies made in developed countries have shown that strong form of efficient market does not exist there also. Investors have not shown consistently higher returns even with all the information available to them. It was also found that average investor could do better by picking up securities in a random fashion.

In the strong from, two basic conditions are there 1. Successive price changes or returns are independent and 2. The successive price changes or return changes are identically distributed. The strong form theory is not, merely based on price or return levels as such but in changes between successive levels.

11.4   TESTING TECHNIQUES OF EMH

EMH states that successive absolute price changes are independent in the short run subject to the assumption that market comprises of rational investors. However, in really,

investors are not always rational. For selecting the securities they consider a number of other factors also in addition to risk and return. It is very difficult if not impossible to segregate the fractional influences of these factors. In the stock market, particularly in the Indian stock market, sentiments play a major role in price behavior the counters.

There are reversal techniques for testing the EMH. The techniques can be direct or indirect. Direct tests asses the Success of specific investment strategies or trading rules. Indirect tests are statistical tests of prices or returns. EMH can also be tested by some scientific methodology or simply by looking at evidences various testing techniques as relating to weak, semi strong and strong form are explained as follows.

11.4.1 TESTS OF WEAK FORMS

In the weak form of market no investor can use any past information to earn abnormal profits. The weak form takes into consideration only the average change of today's prices and states that they are independent of all prior prices. The weak form enjoys a fair degree of chance to hold good even in a developing market like ours. The evidence supporting the random walk behavior also supports the EMH and states that the large price changes are followed by larger price changes but they do not change in any direction which can be predicted. This observation in a way contradicts the random walk behavior but it does not violate the weak form. Different tests used for weak forms of EMH are as follows:

1.   **Earlier researches:** in 1900, research was first conducted by bachelor. He had developed a theory for the behavior of commodity prices. His analysis showed that the commodity prices followed a random walk. Further research was done by cowls in 1934, Jones in 1937 and Kendall in 1953. These researches also supported that the security prices went round a random walk. All this research was based purely on economic series data. Statically properties of data were analyzed and evidence of efficient market in its weak form was provided. Research was then conducted by Roberts and Osborne in 1959. Robert's research is called stimulation test. He took the Dow Jones's industrial average and compared it with a variable generated by a random walk mechanism. He conducted that this mechanism showed patterns which were very similar to the movement of stock prices. He also conducted that a series of cumulative random numbers closely resembled actual stock price series and that the changes in the random numbers principles series as expected do not exhibit pattern as it exhibits in the case of stock price changes.

According to Osborn's research, the price changes are independent of the price changes in the previous period.

2.   Serial correlation test: one method of testing for randomness in stock price changes is to measure their correlations. A number of researchers like Fame, Fischer, and Jensen etc. In the USA and many experts in India have conducted tests for serial correlation of the price changes. In this test, acertain number of stocks are selected. For a particular period the changes in the prices of these stocks are selected. For a particular period the changes in the-prices of these stocks are observed. Then in another period, for the same stocks, the changes in the stock prices are noted. For these changes, correlation analysis is conducted/ if the correlations are closed to zero, the price changes are said to beserially independent. Thus, if the coefficient of correlations is zero or close to zero, it can be concluded that the prices move in a random fashion and are not dependent on past prices.

3.   Runs test: another test for measuring relationship between successive price changes is the runs test. In this test, the sample is tested for randomness of order. The dictionary meaning of run is a sequence by different occurrences or by none at all. A run is thus a consecutive sequence of price changes of the same sign. Unlike correlation tests, run test ignored the absolute value of numbers inthe series and took into research only the positive and negative signs. The run tests are made by counting the number of consecutive signs or runs in the same direction. Under the hypothesis of independence of successive price changes, the distribution of the total number of runs is approximatelynormal. For testing the randomness of stock prices, we take a series of stock prices. Starting with the first price each price change is denoted by a +, -, or zero sign. Plus sign indicates that the price under consideration has increased as compared to the preceding price, negative price indicates that the price has decreased as compared to the preceding price and zero sign indicates that the price has not changed as compared to the preceding price. In case the sign has changed from a plus to minus orfrom a minus to a plus, a new run is counted to have begun. In this test, the actual number of runs(R) iscompared with the expected number of runs of all types and if the actual number of runs are not significantly different from the expected number of runs, then the price changes are considered to be

independent or random. Run tests were conducted by Fama, Hagerman and Richmond, Black and Scholls, Granger and Morgenstern etc. For detecting significant relationships between prices of securities.

4.   Filter test: critics were of the view that the correlation test were not of good measure as these were extremely narrow to prove the complex nature of the stock price behavior. The filter test was donefirst by Alexander in 1961 to find out if any abnormal returns could be earned using past price data. This rule was further tested by Fama in 1965 and Fama & blume in 1970. In this test, filters are fixed at some percentage change and price movements are observed. Some trading strategies run of these filter levels on the premise that once movement called resistance or support levels, the stock price will move in the same direction.

This rule works in the following manner, let us assume a 5%, filter rule, suppose a stock has been decreasing in price, when the stock price increases to decline and increases 5% above its low point, this triggers a buy signal. If the stock has been increasing in price and then begins to decline, once the price has declined 5% from its previous peak, a sell signal is triggered. Several studies have examined this type of trading strategy. Utilizing filter which ranged from as small as ½ to 1% to as large as 50%. The results showed that larger filter did not work well but the smaller ones worked better as they were more sensitive to the market changes. These studies also found out, after adjusting for trading costs (commissions) all such filter rules produced results that were below normal. In every case a strategy of simply 'buying and holding' a well diversified portfolio outperformed the filter rules.

The results of using filter tests turn out to be that stock prices do not have momentum from which one can make returns in excess of those warranted by the level of risk assumed. The test by Rao(1988) shows that the returns under buy and hold strategy are higher than that under strategy without considering the trading costs.

11.4.2 TESTES OF THE SEMI-STRONG FORM

The semi-strong form states current prices instantaneously reflected all publicly available information such as quarterly reports, changes in accounting information, dividends, splits etc. The test of this form examines how quickly and accurately the stock returns get revised upwards or downwards as a result of release of some information. Different studies conducted for testing the semi-strong form or markets are as follows:

1.   **Market reaction test:** In 1969, Fama, Fisher, Jensen and Roll tested the speed of the market's reaction to a firm's announcement of a stock split and the accompanying information with respect to a change in dividend policy. They concluded that the market was efficient with respect to its reaction to information on the stock split and also was efficient to reacting to the information contents of stock split vis-à-vis changes in the dividend policy. The stock split information brought in market reaction just before the split announcement. During this period, the investors could achieve abnormal returns on the basis of this information. But the average cumulative abnormal return which was going higher just before the announcement stopped increasing or decreasing in any significant manner in the following period once the split announcement was made.

2.   **Earnings impact:** r. Ball and P. Brown examined the effect of annual earnings announcements.They classified firms into groups based on whether their earnings increased or decreased relative tothe average corporate earnings. They found that before the earnings announcement stocks associated with increased earnings provided positive abnormal returns and the stocks associated with decreased earnings provided negative abnormal returns. Both groups' generated normal returns after the earnings were released, thus, providing support for the semi-strong form of EMH.In a study by Obaidullah in 1991, both positive and negative unexpected earnings were found tomove up and down respectively in equal measure with no significant post release drift, thus, indicating quick adjustment of returns to earnings information.

3.   **Secondary offering impact:** in 1972, M.S. Scholls conducted a study to observe the reaction of security prices to the offer of secondary stock issues. The study showed that the price of security decreases when the issuer was a company which indicated to the market that such an offer contained some bad news. But secondary offerings by banks and insurance companies were not viewed in a negative manner and the security prices did not fall significantly. The study proved that the price behavior of secondary issues lent support with the market just to a new piece of information in an unbiased manner and almost immediately.

4.   **Block trade impact:** in 1972 only Kraus and Stoll conducted a research study to examine the effects of large block trades on the behavior of security prices. The study showed that there was a temporary effect on share price which was associated with the block trade. There was no price behavior which could be predicted after the day on which the block trade occurred. This was constant with the semi-strong from the EMH.

5.   Bonus impact: even though the bonus issue never brings any additional value to investors. Yetit does influence the expectations regarding future. As a result, the adjustment which starts well before such announcement is less than accurate as against 'one to one' adjustment with the bonus ratio. The cumulative average abnormal return after the zero date (the date on which price sensitive information is released) does not drift significantly, indicating fairly quick price adjustment. However, there has been a significant upward drift before the zero date which means the market has anticipated the event. This is Considered to be an indication of efficiency of the market.

11.4.3 TESTS OF THE STRONG FORM

In the strong form of EMH, all the information, public as well as private is known to the investors and hence a particular investor cannot reap abnormal profit using this information. Thus, all the information is fully reflected in the security prices. This is the most extreme form of EMH. Most of the research work has indicated that EMH in the strong form does not hold good. Different tests of the strong form are as follows:

1.   Trading by stock exchange officials: top officials of the stock exchanges have access to all the information on the overbought or oversold position. If private information is of no use, it should not be possible for them to make profits using the information. Studies carried out in USA on the profits made by such experts who have access to such information have showed that experts consistently make abnormal profits. All this indicated that strong form of EMH does not hold.

2.   Trading by mutual fund managers: mutual fund managers are supposed to be experts in investment decision making and are able to get that information which is not accessible to the common man. Mutual fund managers should thus be in a position to earn consistent abnormal profits. The performance of mutual fund had been tested by friend in 1972, Sharpe in 1966 and by Jensen in 1969. The studies showed that the mutual funds were not better in performance than an individual investor who purchases the same securities with the same risk. Mutual funds should constantly be able to earn an extra ordinary return but empirical evidence does not indicate this.

The studies done by Barua and Verma in 1991 and Obaidullah and Ganshan in the same year show that mutual funds do provide abnormal returns thus contradicting the near strong form

of EMH.

11.5   RANDOM WALK MODEL TECHNICAL ANALYSIS AND FUNDAMENTAL ANALYSIS

The random walk theory is inconsistent with the technical analyst's point of view in determining the behavior of stock prices. The technical analyst claims that history repeats itself and by studying the past behavior of security prices, future prices can be predicted. Random walk hypothesis does not agree with this line of reasoning. It states that successive price changes are independent not based on any past or future data.

The random walk hypothesis supports and to some extent believes in fundamental analysis. In semi-strong form, random walk theory states that fundamental analysis which is superior in nature will definitely lead to superior profits. It believes that in the short run, changes in information help the superior analyst who has the capability of obtaining inside information to outperform other investorswho follow the 'buy and hold' strategy. Random walk theory speaks only of the phenomenon of shortrun price change independence; it says nothing about trends in the long run or how price levels are determined.

In a random market, the analyst should perform the following functions for making superior analysis of the firm:

i.   To determine the risk and return characteristics of each security. In the hope of coming across situations where his expectations differ significantly from those of the market as a whole.

ii.   To construct an adequate portfolio by combining the risk return characteristics of securities.

iii.   To hold the portfolio for a considerable length of time and to continuously evaluate the securitiesheld in it.

iv.   To revise the portfolio, if need be, after consistent evaluation.

The random walk theory may be in contradiction of technical analysis; still some research has been conducted on the analysis of stock behavior through technical analysis.

11.6   THE SIX LESSONS OF MARKET EFFICIENCY

Economic all over the world are in agreement that capital markets functions sufficiently well so that opportunities for easy profits are very rare. Therefore, whenever we come across an instance where the market prices apparently don't make sense, we should not throw the efficient

markethypothesis onto the economics garbage heap. Rather we should think carefully above whether there is some missing ingredient which our theories have ignored. The financial managers should, thus, assume that security prices are fair and it is very difficult to outguess the market. Six lessons of market efficiency (given by Brealey and myers) which every finance manages should learn are as discussed below:

Lesson 1: Markets Have No Memory

According to the weak form of the efficient market hypothesis the sequence of past price changes does not contain any information about price changes. Economics agree with the hypothesis when they emphasis that markets have no memory. Sometimes, financial managers don't seem to believe this statement. They generally have the following misconceptions e.g.:

i.   After an abnormal price rise, equity financing should be restored to rather than debt financing.

ii.   After a fall in prices, equity stock should not be issued.

But in reality, the market has no memory and the cycles that financial managers seem to rely ondo not exist. Therefore, the idea to catch the market while it is high or to want a rebound in prices does not hold any relevance.

Sometimes the financial managers may have some inside information indicating the overpricing or underpricing of firm's stock. Supposing, there is favourable inside information which the market does not know the stock price can rise sharply if the news is revealed. Therefore, if the company sold shares at the current price, it would be offering a bargain to new investors at the expense of present investors.

Naturally, the managers are reluctant to sell new shares when they have favourable inside information. But in reality, such information has nothing to do with the history of the stock price. The firm's stock could be selling at half its price of a year ago and yet there could be special information suggesting that it is still grossly overvalued or it may be undervalued at twice last year's price.

Lesson 2: trust market prices

Price can be trusted in an efficient market because they impound all available information about the value of each security. It implies that in an efficient market, investors cannot achieve

superior rates of return consistently. To do that, one not only needs to know more than anybody else rather he needs to know more than everybody else. Every financial manager must be aware of ti is message particularlywhile managing the firm's exchange rate policy or for its purchase and sales of debt. Any overconfidence on the part of the financial manager will endanger the firms' consistent financial policy. The company's assets may also be directly affected by management's faith in its investment Skills.

Example: the management of a company thinks that the stock of another company which it is planning to purchase is undervalued. Approximately 50% chances may be that the hindsight may turn out to be true and the stock may actually be undervalued. But 50% chance is that it may actually be overvalued. Therefore, the purchasing company is playing a fair game except for the cost of acquisition.

Financial managers sometimes take large gambles because they believe that they can predict the direction of interest rates, stock prices or exchanger rates and sometimes their management encourages them to speculate. Such speculation does not always result in losses because in an efficient market, there is always a 50:50 probability of winning or losing. But according to lesson 2, investors would better trust market prices rather than incur large risks in the greed for higher profits.

3. **Lesson 3: Read The Entrails**

Since the prices impound all the available information an investor should learn to read the entrails as the security prices can tell a lot about the future. The market's assessment of the company's securities can provide important-information about the company's prospects. Therefore if a company is offering a much higher yield on its bonds than the average, it can be assumed that the company is in financial trouble.

Example: if the investors are confident that the interest rates are going to rise over the next year, they will prefer to wait before they make long term investments. Any company who wants to borrow long term money today will have to offer the inducement of a higher rate of interest. In other words the long term rate of interest will have to be than the one year rate. Thus, in an efficient market, the difference between the price of any short term and long term contracts always say something abouthow participant expect prices to move.

4. **Lesson 4: there are no financial illusions**

There are no financial illustrations mean efficient markets, investors are selfishly concerned with the firm's cash flows and the portfolio of those cash flows to which they are entitled. However, there are occasions when the managers seem to assume, that investors suffer from financial illusions.

Example: some companies considerably manipulate the earnings exported to the stock holders. This is done by window dressing or 'creative accounting'. Creative accounting means choosing accounting methods that stabilize and increase reported earnings. Managers go to this trouble because they assume that stockholders take the figures at face value. One way of affecting the reported earnings is through the method of costing of the goods taken out of inventory. Companies can choose between two methods LIFO method and FIFO method. The choice between these two methods will affect the reported earnings and the tax payments. In times of inflation, earnings calculated under FIFO would be higher than those calculated under LIFO. The income tax authorities insist that the same method that is used to report to shareholders also be used to calculate the firm's taxes. Therefore, the lower tax payments from LIFO method also bring lower apparent earnings.

However, the shareholders are under no financial illusion. They look behind the figures and focus on the amount of the tax savings. If markets are efficient, investors would welcome a change to LIFO accounting even though it reduces earnings. Research has concluded that this is exactly what happens so that the shift to LIFO accounting is associated with an abnormal rise in the stock prices.

5. **Lesson 5: Do It Yourself Alternative**

In an efficient market, the investors always have an alternative of "do it yourself". They will not pay others for what they can do equally well themselves. Many of the controversies in corporate financing centre on how will individuals can replicate corporate financial decisions.

Examples: a company wanted to merge with another company. The reason given by the finance manager for this merger was that it would produce a more diversified and hence more stable firm. The investors of the company however have different idea. They argued that if they could hold the stocks of both companies why they should thank the companies for diversifying. It is much easier and cheaper for the individual investors to diversify than it is for the firm.

Another controversy arises when the company considers whether to issue debt or equity. If the firm issues debt it can create financial leverage. As a result, the equity will become more risky but with a higher expected return. But shareholders can obtain financial leverage by borrowing on their own account instead of the company issuing debt. The question before the financial manager is therefore, to decide whether the company can issue debt more cheaply than the individual shareholders.

6.   Lesson 6: Seen One Stock, Seen Them All

Lesson 6 implies that investors are likely to regard different stocks as much close substitutes for each other. Investors do not buy a stock for its unique qualities; they buy it because it offers the prospect of a fair return for its risk. This means that stocks are like very similar brands of coffee almost perfect substitutes. The demand for a company's stock is highly elastic. Nobody will like to hold the stock if its prospective return is too low relative to its risk. If the reverse is true, everybody will like to buy the stock. Elastic demand does not imply that stock prices never change when a larger sale or purchase occurs, it does imply that you can sell large blocks of stock at cost to the market price as long as you can convince other investors that you have no private information.

Example: an investor wants to sell a large block of stock, since the demand is elastic; he needs only to cut the offering price slightly to sell the stock. In reality, when he comes to sell the stocks other inventors may suspect that the wants to get rid of it because he knows something which the others don't. Therefore, they will revise their assessment of the stock's value downward. Demand is still elastic, but the whole demand curve moves down. Thus, there is a wide spread agreement that you can sell large quantities of stock at close to the market price as long as other investors do not assume that you have some inside private information.

11.7   SELF CHECK EXERCISE

1.   Discuss the assumptions of capital market efficiency.

2.   Explain efficient market hypothesis.

3.   Describe the tests of semi strong forms of EHM.

11.8   SUMMARY

An efficient capital market is one in which security prices adjust rapidly to the arrival of

new information and, therefore, the current prices of securities reflect all information about the security. Fama divided the overall efficient market hypothesis (EMH) and the empirical tests of the hypothesis into three sub-hypotheses depending on the information set involved: (1) weak-form EMH, (2) semi- strong-form EMH, and (3) strong-form EMH. A simple test for strong form efficiency is based upon pricechanges close to an event. A market portfolio is a portfolio consisting of a weighted sum of every asset in the market, with weights in the proportions that they exist in the market (with the necessaryassumption that these assets are infinitely divisible). Weak-Form and the Random Walk holds that present stock market prices reflect all known information with respect to past stock prices, trends, and volumes.

11.9 GLOSSARY

Efficiency: It means the ability of the capital market to function, so that prices of securities react rapidlyto new information.

Efficient Capital Market: An efficient capital market is one in which security prices adjust rapidly to the arrival of new information and, therefore, the current prices of securities reflect all information about the security.

Market Portfolio: Market portfolio is a theoretical portfolio in which every available type of asset is included at a level proportional to its market value.

Market Value of an Investment: The market value of an investment is described as its current price onthe market.

Internal Efficiency: Internal efficiency refers to the markets where the transactions costs are low transitions move at a very high speed. Investor has no control over this type of efficiency.

11.10 ANSWERS TO SELF CHECK EXERCISE

1.   For answer refer to section 11.1

2.   For answer refer to section 11.3

3.   For answer refer to section 11.4(2)

11.11 TERMINAL QUESTIONS

1.   What do you mean by Capital market efficiency? Explain its assumptions.

2.   Describe briefly the tests for each of the forms for the efficient market hypothesis.

3.　　Discuss the implications of the EHM for investors.

11.12 SUGGESTED READINGS

- Samuels J. M, F.M. Wilkesard R.E. Brayshaw, Management of Company Finance, Chapmanand Hall, London

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