Chapter-2

REVIEW OF LITERATURE

2.1 INTRODUCTION

Change is the only thing which is perpetual in each and every part of life. History of mankind has a gradual and continuous evaluation phase which is the best example of constant change. Mankind has undergone through psycho- social-economic changes. All financial sectors have been emerging through the process of evolutionary changes in their reciprocal needs, working and regulatory framework. Indian stock market has no exception to it. History of Indian stock exchanges reveals that continual innovative measures have been taken forward to bring transparency in the system, technological progression in the processing of transactions, regulatory control to avoid speculation and scams and launching of different market instruments to give long and wide drift for investment. With this changing scenario, there has been continuous development of new stock market theories and replacement, rejection, approval or addition to earlier theories for better understanding of market behavior. On the basis of these theories, techniques for selection of stocks and forecasting of stock prices are ceaselessly updated.

The chapter Review of literature intends to look into the available work done in research projects, journals, newspapers, books, etc. to review the available literature in the area of research and to understand stock price behavior models, technical charts, indicators and their application. The chapter focuses on the first objective of reviewing literature in the area of research. The chapter is divided in two segments: Review of studies on Stock Price Behavior Theories and Review of studies on Technical Charts and Indicators

2.2 Stock Price Behavior Theories

For more than the decades, investors have continuously been inquisitive about finding a solution to the question of how securities prices can be reliably predicted. There are numerous theories that seek to find the solution of the same question. In this regard, Efficient Market Hypothesis, Fundamental Analysis, Behavioral Finance and Technical Analysis are the major theories available which play a significant role. This segment of chapter reviews the literature available in stock price behavior Theories.

2.2.1 Efficient Market Hypothesis

The term market efficiency is used to explain the relationship between information and share Efficient Market Hypothesis (EMH) assumes the market is informationally efficient, it signifies that security prices fully reflect all available information at any given point of time. It denotes that price movements are random in nature and hence do not imitate any pattern or trends.

According to **Fama Eugene F (1998)** although stock price behavior may have long-term anomalies, however, these anomalies are apparent overreaction or under reaction of stock prices to the information which are common and self-adjusting in nature. According to him, most prominently, these anomalies are fragile and tend to disappear. Thus, according to him the evidence of stock market anomalies does not suggest that the concept of market efficiency should be abandoned.

Bhatt Babaraju K and Chauhan Apurva A (2014) argued that the presence of the strong EMH in the stock market is not possible. They claimedthat investors are not always acting in a rational manner due to the cognitive and psychological errors which they have to deal with. Thus, behavioral factors are important in financial markets as they influence the investors who make the financial decisions. It makes the existence of EMH almost impossible.

Contrary to the theory of EMH, **Malkiel Burton G. (2003)** put forward that as long as stock market exists, some market participants are noticeably less than rational. As a result, pricing irregularities and even predictable patterns in stock returns can appear over the time and even continue for short periods. Finally, he discarded existence of EMH in the scenario of irrational price behavior.

Stefan Iulia (2009) stated that any study of the EMH cannot be generalized in the market as a whole at any given time, as the EMH manifests itself differently in different circumstances, also he found that riskier stocks attend major price volatility at a given level of information than less risky stocks. During a crisis, investors' expectations affect stock prices differently than during a boom. Often prices change even when no news is announced. Thus, he confirmed that impact of information is not a sole factor to decide stock price movements.

The debate between traditional and modern security analysis comes down to the difference between two sets of investment recommendations. One is efficient market hypothesis and other is an inefficient Market Hypothesis. Presence of efficiency of reflecting market prices as per the flow of information in a rational manner is very difficult. Evidence of financial collapse, high volatility, and extreme high or low turnover are the supporters of the absence of market efficiency all the times. **(The New York Times, 21ˢᵗ October 2013)**

2.2.2   Fundamental Analysis

Fundamental analysis covers a close examination of the monetary and non-monetary forces that have an effect on the well-being of the economy, industries and companies. With the study of company's monetary performance and other factors, fundamental analysts rate the underlying stock as under or overvalued. On the premise of this rating, investors are advised to buy or sell a specific stock for long term period.

Focusing on role of fundamental analysis for successful investment decisions, **Abarbanell Jeffery S and Bushee Brian J (1998)** put forward that accounting-based signals (ratios/indicators) reflected in corporate reports can be used to predict future abnormal returns. Among the collection of signals, relative changes in inventories, changes in gross margin and selling expenses, capital expenditures and effective tax rates appear to capture information which can be used for forecasting future earnings / risk associated with investment decisions.

Investment plans should not depend upon on day-to-day market movements. Investment plans should be designed on the basis of financial position and potentials of companies. Study of short term price movements has a little role to play for long term investment. Investment in blue chips should be liquidated only when there are

signs of long term recessionary or deflationary situations. Investing regularly, even in a falling market, is the way to maximize the returns. (**The Economic Times dated 9th April 2007**)

Khanifar Hussein, Jamshidi Nasser and Mohammadinejad Mohammadbagher (2012) analyzed national, industrial and company's fundamental factors in their study. They noticed that a company related factors have the highest importance on analysts' decisions; which shows that analysts consider a special priority for financial statements and midterm reports. Among financial statement elements, EPS has the highest importance. On the other hand, the importance of market and industry related factors have lower importance on analysts' decisions. Consequently, their findings show that in fundamental analysis, company related factors have the utmost magnitude than market and industry related factors

DoshiJaimit(The Economics Times 5th June 2013) recognized study of financial factors of a company for investment decisions. According to him, for discovering the stocks for investment, one should look into whether the company is selling products faster than others with profit making years together. Investors are advised to study financial results of the company. They should track news around the company and understand the competition and other forces of the industry before taking investment decisions.

According to **BaresaSuzana, Bogdan Sinisa and Ivanovic Zoran (2012)** in today's efficient market scenario, investors have equally available financial information (of a company) which is required for profitable investments, but an understanding of the financial information and timely decisions decides unlocking of opportunities for profitable investment. They also noted that fundamental analysis has an important role in finding profitable investment opportunities.

According to **SriramKavita (The Economics Times 22nd May 2011)** while analyzing the financial position of companies, for value investing GAPR strategy works better. According to GAPR strategy companies which have growth potentials with reasonable market prices are chosen for investment purpose. Price-to-earnings growth (PEG) ratio is an indicator which can be also used to identify stocks that possess the growth potential at a price that is below the real value of the company. The ratio determines a stock's value while taking into account earnings growth. A lower PEG indicates that the stock is more under-valued.

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Lutey Matt, Crum Michael and Rayome David (2013) articulated possibility for investors to generate better than average returns with actively managed portfolio in S&P 500 stocks.

They emphasized on the use of completely automatic scanning technique of stocks for user defined investing criteria i.e. CAN SLIM strategy. CAN SLIM strategy suggests selection of stocks for investment on the basis of Current earnings, Annual Earnings, New product or services, Supply and demand position of a stock, Leader or laggard, Institutional stake in the stock and Market index's movement criteria) Finally they uttered that use of such strategies which are based on fundamental analysis can give opportunities to beat the average returns of buy and hold strategy.

According to **Banerjee Prithviraj, Deb Soumya G and Banerjee Pradip (2013)** claimed thatstrong performing stocks can be distinguished from underperforming stocks based upon financial analysis of companies which mainly include profitability, leverage & liquidity and efficiency ratios. This shows an ability to distinguish future possible successful and unsuccessful firms and investment opportunities. Thus, this forecasting ability is a result of market inefficiency in respect to reflect the concerned information into stock prices instantly.

According to Agrawal Raamdeo(**The Economics Times, 6th February 2015**) identification of good stocks at an early stage can grab profitable investment activities. According to him buying wonderful businesses and holding its shares for longer horizon, studying future prospects and opportunities of companies, knowing changing financial and other scenario can help investors to track companies with potentials to grow in future. Thus, he gives more weightage to fundamental analysis rather technical or any other model for investing in the stock market.

Cohen Gil, Kudryavtsev Andrey and Hon SnirShlomit (2011) studied the possibility of integration of fundamental and technical analysis for producing better results. They mentioned that common misbelief arguing that fundamental and technical tools cannot be combined for taking investment decisions stands invalid in practice. They found significant differences between professional and non-professional investors in terms of how frequently they use fundamental and technical investment tools. They also found that non-professional investors who use more fundamental tools such as analysts' recommendations when they buy stocks and more technical tools such as "support and resistance

lines" when they sell stocks. Their study indicates that investors use financial statements and support and resistance lines together as primary tools of their decisions.

In contribution to the study of integration of fundamental and technical analysis, **BettmanaJenni L, Saulta Stephen J and Welcha Emma L(2006)** argued that integration of both fundamental and technical measures have the superior explanatory power of equity valuation. They recommended use of both fundamental and technical analysis for equity valuation which can be used for investment decisions.

2.2.3 Behavioral Finance

Behavioral finance is a newly discovered branch of finance. According to the theory of behavior finance, financial decisions (including investment in the stock market) are driven by irrational behavior of human factors. Hence it argues that as investors are human which tend to be sometimes emotional or irrational, so investment or trading activities triggered by them are subject to some irrational forces like their expectations, perceptions, biased opinions, etc. This causes the market irrational and hence inefficient to respond rationally to the flow of new information.

Psychologists and experimental economists have put forward a number of research studies in the form of specific behavioral biases that are applicable for the process of decision-making. On this parallel line, **Ricciardi Victor and Simon Helen K (2000)** accepted the presence of emotional and irrational factors which affect investment decisions.

Impact of behavioral forces on stock price movements is acknowledged. Among some behavioral forces one is herding. Herding amounts to investors collectively saying, "I'll have what he's having." It develops a trend and newcomers latch onto it, reinforce it and make it look profitable. This cycle continues until valuations are stretched, often to nonsensical extremes. Impact of behavioral finance can also be seen in high volatility and trading volume which gives confirmation that emotion plays a significant role in markets. Investors are driven largely by emotions. Those emotions cause investors to misjudge the impact of events which cause different actions by different market players with the same set of information available. In a simpler way, article mentions that one may keep a cool head and dispassionately analyze the corporate results, economic data and emerging business

trends to pick investments. But it doesn't mean that everyone else is just as reasonable. If others act irrationally, markets can be distorted and returns can be affected. (The New York Times, 10th October 2009)

According to Pruden Henry O., Paranque Bernard, Baets Walter, Paranque Bernard and Baets Walter (2004) approach of both behavioral finance and technical analysis deal with the market behavior to identify patterns of human behavior that uncover opportunities for profit as both theories are rooted in the assumption that man acts for behavioral reasons in irrational ways. Thus, they conclude that there is integration between Technical analysis and Behavioral finance.

Baker Malcolm and Wurgler Jeffrey (2007) outlined a "top down" approach to behavioral finance and the stock market. They stated that it is quite possible to measure investors' sentiments, and that waves of sentiments have clear evident and regular effects on individual firms and on the stock market as a whole.

According to Ritter Jay R. (2003) it is very difficult to locate trading opportunities that reliably make money, but it does not mean that financial markets are informationally efficient. Evidence of rational behavior of prices is very rare scenario which proves existence of behavioral forces in the form of irrational behavior of investors affecting the market prices in irrational manner.

Ross, Stephen A., (1989) argued that price behavior depends upon the response of the market players to the flow of information. Study revealed that stock prices get changed with response of the market players to the flow of information. However, response of the market players to the new information can be different due to the different behavioral forces affecting the decisions. Hence, movement of prices in a rational manner in respect of flow of information is difficult and rarely possible.

2.2.4 Technical Analysis

Technical analysis is a study of behavior of price-volume data which includes classical technical analysis theories as well as study of chart patterns.

While explaining significance of technical analysis, Study of Oberlechner Thomas (2001) reveals that technical analysis is an important forecasting tool employed by the majority of foreign exchange

market participants in addition to the analysis of fundamental factors, also he noticed that technical analysis is seen as more important on shorter forecasting horizons, whereas on longer forecasting horizons most market participants put more importance on fundamentals.

Vimala. S, Saranya P. B and Saranya R(2014) supported the use of technical analysis for forecasting stock price actions. According to them the investors have chances to make profits with the help of moving average trend line and the relative strength Index. This trend line helps the investors to decide on either to hold or to buy or to sell the scripts at a determined period of time.

Hoffmann Arvid O. I and ShefrinHersh (2014) focused on frequency of applying technical analysis tools among individuals. They reached to the conclusion that individuals having high derivatives turnover are biased to use technical analysis than other investors. Technical analysis is used as the high gasoline by speculative high derivative rollers to fuel their trading

Pruden Henry O, Paranque Bernard and Baets Walter (2004) studies behavioral finance with technical analysis. They argued that behavioral forces make price movements irrational. However, application of charts and technical tools can be used to discern the profitable entries and exit positions for successful trading decisions.

2.3 TECHNICAL CHARTS AND INDICATORS

2.3.1 Chart Pattern Study

Price marks a territory as it moves at higher high and lower low levels within all time frames. A succession of lower lows and lower highs recognize downtrends while up trends print a sequel of higher highs and higher lows. As bulls and bears strive for control, Price patterns and cycles are born. Since markets won't travel upward to infinity or downward below zero, identifiable swings appear within each time frame. Driven by emotional behavior, trend inhales and exhales. Falling prices inflame fear as paper profits evaporate. Fresh rallies stir up greed; inviting momentum players to become deceived. On and on it goes. This journey of price actions is portrayed and visualized in the form of charts. There are mainly four types of charts that are used by investors and traders. Categorization of the charts depends upon the information that users are seeking and their individual skill levels. Line chart represents only the closing prices over a period of time.

Whereas bar chartsexpand on the line chart by adding several more key pieces of information to each data point which is made up of a series of vertical lines that represent opening, high, low and closing price of a given time period. The candlestick chart is analogous to a bar chart. Similar to the bar chart, the candlestick also has a vertical line showing the period's trading range. But the candlestick chart differs in the way that it has better ability to enable readers to understand price actions. This distinction comes with the formation of a wide candlestick on the vertical line, which illustrates the difference between the open, high, low and close. (www.investopedia.com)Thepoint and figure chart is not well known or used by the common investors but it has a long history of use. Point and figure chart is a plotting of day-to-day price actions without taking into consideration the passage of time. It removes the noise, or insignificant price movements, in the stock, which can distort the traders' views of the price trends.

The basic purpose of all types of charts is to study price and volume actions of a stock and to project market trend, its strength and its reversal point to take trading decisions prudently. Thus, chart pattern study discovers several buying and selling opportunities based on interpretation of strength and momentum of volume and trend. It is done with the help of some other tools like support and resistance levels, pivot points, GAP analysis, trendlines, etc. Purpose of use of these tools with chart is to make the job of analyst easy to forecast future price level for decision making. Chart study along with the help of technical tools develops buying and selling signals. However, a major problem with the confirmation of signals generated on the basis of charts is the recognition of patterns and support/resistance/ trend lines, which becomes subjective in nature based upon skill and experience of chart readers. This dilemma is cracked by technical indicators.

According to **Morris Gregory L (2006)** candlestick charts are more useful than line or bar charts as these charts reveal price chart patterns in depth to forecast trend continuation and trend reversal of a market. Furthermore, Tiong**Leslie C.O., Ngo David C.L., and Lee Yunli (2013)** emphasized the use of candlestick patterns to produce the investment signals of buying and selling. According to them predicting the candlestick position is more reliable also it provides information for investment strategy.

Arnold Curtis M (1993) stated that, market cycles, support and resistance, and trend lines are useful to find out the best time to trade gainfully

Mikula Patrick (2002) proved alternative use of technical charts, according to him charts per se are used for trading decisions also they can be used for drawing of patterns and trend lines He studied Andrews' trendline methods and claimed to have this method higher correlation to market movements than any other trendline methods

ChootongChalothon and Sornil Ohm (2012) evaluated the results of candlestick patterns in a combination of EMA, Bollinger Band, MACD, OBV, Stochastic Oscillator and RSI in five stocks from different sectors of the Stock Exchange of Thailand for a time span of 2003 to 2010. Based on the results they proposed that technique of combining chart patterns and indicators outperforms the use of traditional trading methods based on indicators, across multiple stocks and time periods.

2.3.2 Technical indicators

Technical indicators are derivatives of price actions. Indicators are calculations based on the price and the volume of an underlying security that measure such things as money flow, trends, volatility and momentum. Indicators are used as a secondary measure to the actual price movements and add further information to the analysis of securities. Indicators are used to understand price and volume change to offer buy and sell signals. In modern technical analysis, in automated charting softwares, technical indicators are widely used. Increase in the use of technical softwares, availability of different categories of technical indicators and continuous development of new indicators and trading strategies generated need to review the success rate of such indicators.

This segment of the chapter includes reviews of literature available on technical indicators also includes studies which evaluate the performance of technical indicators.

Thorp Wayne A. (2000) admitted MACD as a good blend of lagging as well as leading indicators that works on moving averages and develops oscillator trading system too. MACD surpasses the restrictions of trend following indicators and oscillators. Elaborating the same point, Thorp Wayne A. stated that trend following indicators work only in trending markets, once the market moves in sideways wherever prices move up and down with no sense of direction, trending