CHAPTER 1

INTRODUCTION & DESIGN OF THE STUDY

"To invest successfully over a lifetime, one does not require a stratospheric IQ, unusual business insights or seaside information. What’s needed is a sound intellectual framework for making a decision and the ability to keep emotions from corroding that framework." — Warren Buffett.

1.1 Introduction

Cautious optimism driven by hopes of economic recovery in the west and the inevitable ripple effect on Asian markets has contributed to a stellar performance by Indian Indices BSE Sensex and NSE Nifty Fifty. Both the indices touched all-time and unprecedented highs. The Nifty which was hovering around 6000 plus points barley 2 years ago has galloped to cross 10000 points and is predicted to cross 11500 points by end of 2018. The Sensex also roars from 24000 points to over 32000 points during the same period, in spite of negative sentiments triggered by the North Korean missile test, the decision of the Federal Reserve to start unwinding its treasury bond holding of closed to 4 trillion that it is currently holding and rating downgrades of China and UK by the renowned rating agencies. The Foreign Institutional Investments (FII) inflow, the domestic institutional investment euphoria and informed exuberance from the traders and retail investors have all had a positive impact on market uptick.

As per Robert Neal and Simon Wheatley, (1998) it is the normal conviction among the general population about the share trading system that the best time for buying stock is when retail investors are under the state of mind of selling and best time for selling is when retail investors are under the mind-set of buying the stock. This reference in their article for retail investors sentiments gives profound comprehension and the base for the improvement of this section to a further next level. In share markets the individual investors’ opinion is very important. Retail investors are spread across the geographical area of the country everywhere,
especially after the internet facilities have come. Individual investors thinking, and ideas may go wrong many a times. Understanding the individual investors sentiments and comprehending it and suggest the best timing of investment decision has not been done and tested. Essentially, the whole thing balls down to a simple phenomenon known as Mood and Sentiments. The knee jerk reaction in the short term always access an impetus to markets either one way or the other. Since continued near term sentiments reflectin medium and long-term movements of stock markets it is but necessary to study what causes this mood change and how it affects the markets. This has particularly become easy with sentiment sharing through social media cites such as Twitter and Facebook. So gauging the public moods through meticulous monitoring of tweets is a viable option to determine public mood and its likely impact on stock markets.

Dr. Johan Bollen has successfully developed a model that can predict the movement of Dow Jones index with more 87 per cent accuracy a week in advance, by monitoring 9.3. Million twitter tweets. Hence a similar attempt to track the movement of Nifty Fifty by monitoring social media tweets cannot be dismissed off hand due to in adequate levels of technology penetration in this matter. However, the mood of the investor can also be better captured through a systematic survey with the help of well-designed questionnaire that is tested for reliability and validity.

When GDP was grown from 0.7 trillion to 1 trillion during 2004 - 2007 our Indian Major stock markets BSE and NSE went up 3 times during this period. Similarly, when GDP was doubled from 1 trillion to 2 trillion in spite of turmoil and consequence of economic slowdown from 2008 to 2010 the BSE stock market moved from 15000 bps to 30,000 basis points and 5,000 to 10,000in Nifty Fifty index. China from 7% to 38%which is 5.5 times the USA is 17% to 21%, 25 times growth on the other hand 2 to 3 million which is about 8 times. It will be extremely enticing to visualise when the market level grow when we grow 8.5
times from the current level more than 19 trillion in 2030. This is unprecedented growth is -
likely to largely driven by manufacturing and our predictions serve with greater contributions
from services. Hence there is a bound to be reflection of this growth story in the financial
market particularly in the equity segment.

The fact that much of our growth is driven by private enterprise that accounts for more than
85% in industrial development is another reason why there may be a lot of justified
exuberance in the moments in the next decade. Under these circumstances a recent survey
reported that with 92% of domestic savings are the still with banks and 7% with mutual funds
and just around 1% is still in equity instruments. If the country can achieve a moment of
10% bank deposits to equity the equity market of this country can be the orbit and go into
the universe. There is enough fuel in terms of macro-economic fundamentals to propel the
cryogenic engine called stock market to break out the astounding levels. In this backdrop
understanding the principle faces that drive the market becomes a basic pre-requisite for
investors, analysts and market watchers to predict the market movements with a great degree
of certainty based on a good knowledge of market behaviour. It is common knowledge that
Markets are driven by fundamental in the long terms, liquidity in the medium term and
moods and sentiments in the very short term. Financial literacy is just a matter of intelligent
understanding of all these factors with equal importance.

1.1.1 Preamble:

Modern Finance aims at identifying ways efficiently by understanding, transforming and
interpreting the stock market data into meaningful information that would be useful in
making informed investment decisions. Financial undertakings are profoundly convoluted
and multifaceted; they are frequently stochastic, dynamic, unpredictable, nonlinear, time
differing, volatile, adaptable organized, and are significantly influenced by monetary,
political, ecological, social components (Tan et al., 2007). After, the useful information about
stock market is obtained by summarizing and visualizing, the behavior stock market is to be investigated deeply (Boginski 2006). Although there exists myriad of articles about prediction of stock market, its return, pricing etc., of all more perfect and accurate prediction of stock market model is essential to all. (Kim 2003). Stock market with stock related instruments to fence hazard and appreciate the advantage of referee. Consequently, having the capacity to precisely gauge securities exchange has profound implications to researchers and professionals alike (Leung et al.,2000). Most of the current models depend on exact determining of the levels of the stock file and its return(Leung et al., 2000). Stock market prediction is regarded as the challenging task all the time. Having said this Traditional Finance theory assumes that financial specialists see all choices through a target focal point of risk and return. In the same way it expects that individuals are guided by reason and rationale and free judgment. But the field of behavioural finance recognizes and proves that emotions and herd instincts play a vital role in logical reasoning and decision making. Unlike institutional investors, individual retail investors are prone to such psychological behaviour while making investment choices. At the point where these psychological biases are coupled with the poor financial literacy levels, it may create devastating and havoc in the game of investing. As a result, the argument of the traditional financial theory relating to the efficiency of the stock market is often proved wrong. Therefore, moods and sentiments play a vital role in prediction of stock market in the short run. They drive market to a great extent in predicting the stock market. By tapping and analyzing the moods and sentiment and emotions of investors through social media like twitter and face book is a novel way of predicting the market. (Johen Bollen et al.,2011).

Savings is hard earned money which is excess of income over expenditure. An ordinary middle-income group person spares cash by one means or another, setting presentutilization aside for a later time. When savings is utilized with an aim of attaining additional income or
growth in value it is called investment. The fundamental nature of an investment is that it
includes sitting tight for a reward (Jones P., 2004). Each investment decision has two key
viewpoints: time and risk. While the foregoing something in the present and is sure, the
results of foregoing come is still questionable. The economic well-being of an individual in
the long run depends on how wisely or foolishly he invests. The financial prosperity of a
person over the long haul relies upon how admirably or stupidly he invests.

In the present scenario it is very essential for every individual to park their idle resources to
earn a return and produce a predefined sum of money for an objectivethroughout life and
arrange for an unverifiable future. The vital reason behind it is to invest carefully to meet the
cost of inflation. The rate at which the typical cost for basic items increases is otherwise
known as inflation. "Too much of money chasing too few goods" is the definition of it. The
cost of living is basically what it cost to purchase the goods and services for their basic needs.
Inflation makes to lose its value since it won't purchase a similar measure of goods and
services as it does now or did previously. Savings on the other hand, if not invested will
apparently lose its value because of inflation or ascend in price level. Consequently, if
individual saves, investment turns into an urge or compulsion and not an option. The sooner
one begins investing the better. By investing early, one enables investments to grow more
thereby the idea of increasing one's income, by gathering the vital and the premium or profit
earned on it, year after year.

Making money in the real world is not so easy. With savings invested in different choices
accessible to the general population of a country, the capital is formed and created which is a
prime mover for the growth of an economy. Capital is a vital factor for advancement of any
economy. The pace of financial development is adapted, in addition to other things by the
rate of capital formation. The financial system enables to connect between the surplus
sectors and deficit sectors to increase the level of investment. In the emerging economies as
the income of people increase, the savings increase which in turn leads to gradual investment of the economy.

In this context different studies confirm that there is a connection between rate of savings and investment (Sinha, 2002). India is also one among of this scenario. This can be evidently proved with following tables which depicts the growth in Gross Domestic Savings and the investment in physical and financial assets over the years.

<table>
<thead>
<tr>
<th>ITEM</th>
<th>Amount in Rupees (In crores)</th>
<th>GDP percent in</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2012-13</td>
<td>2013-14</td>
</tr>
<tr>
<td>Household savings</td>
<td>22,32,749</td>
<td>22,80,912</td>
</tr>
<tr>
<td>Financial Assets</td>
<td>7,33,616</td>
<td>8,32,091</td>
</tr>
<tr>
<td>Physical Assets</td>
<td>14,62,483</td>
<td>14,12,039</td>
</tr>
<tr>
<td>Gross domestic savings</td>
<td>33,64,767</td>
<td>36,03,605</td>
</tr>
</tbody>
</table>

Source: SEBI Annual report

From the above Table it is clear gross savings has been consistently increasing from Rupees 33.64 lakh crores to 44.05 lakh crore rupees for the past years. But the rate of gross savings to GDP there is some up and down movement in percentage. The proportion of savings in physical assets is greater than the financial assets. This precisely explains in the economy like India people spend more amounts in physical assets than the financial assets. Physical assets comprise of real estate, gold and silver, precious stones etc., whereas financial assets are shares, debentures and bank deposit etc., through which capital formation is created in any economy. So, any government should encourage in channelizing the savings towards the financial assets which in turn will help in capital formation. But the current trend in India is
that people are interested more in real assets and bank deposits than the other forms. Here lies the importance of financial literacy.

1.1.2 The need for financial literacy:

As far as the nominal GDP is considered India stands in the 10\textsuperscript{th} position while comparing largest economy, fourth position in the world when purchasing power parity is compared. The Global Investment bank "Goldman Sachs", predicted that by 2035 India would become the third largest economy in the world just after US and China. The average income of general people in India is growing and household income is estimated 26,09221 crores as per the 2016-17 SEBI annual report. On the hand in the Financial assets general people invest only 10,82452 crores which tells the general people lack financial knowledge. General public is literate, so they save, but general public is not financially literate to take risk, where they get more return and apparently the capital formation of the country is also grown.

The feeling of open earnestness over the level of financial education in the populace is a response to a changing monetary atmosphere in which people now bear more prominent personal financial obligation even with progressively confounded financial products (Hogarth J. M. 2006) has defined in his study that —financial education include: 1) being proficient, instructed, and educated on the issues of managing cash and resources, keeping money, investment, credit, protection, and taxes; (2) understanding the essential ideas fundamental the administration of cash and resources (e.g., the time estimation of cash in investments and the pooling of risk); and (3) utilizing that information and comprehension to plan, execute, and assess financial choices.

The importance of Financial Literacy is felt with the advent of growing complexities in the Financial Space. Reducing the cost through Financial Engineering, Innovation in Financial products & services, ever changing situation in the local financial market, multifaceted
element of money related items, development in an individual obligation, increment in span of life, change in pension scheme are some basic elements which reiterated time and again the importance of Financial Literacy. Consumer financial decision making emphasises financial capacities of individual. The relationship between financial literacy and economic results, including riches aggregation, savings choices, investment decisions, and credit results evidence on the effect of financial education and on economic results. Indirectly Financial behaviour of Individual is encouraged through bargaining power, utility of funds, debt management, control of spending and importance of savings so on and so forth.

The absence of financial literacy or low level of financial literacy may lead to unhealthy financial thinking, about financial products and services. This results to poor financial judgments and hence poor personal financial management. Financially illiterate individual either deliberately do financial exclusion or may prefer to get the financial information from temperamental sources, the scrutiny of which may result into misallocation of private wealth, can mire the household into obligation and prompt to much lower status quo. At a macro level, it can cause social decay and promotes unnecessary expenditure in the form of social security. Absence of this information and expertise thus may pose a variety of risk to individual, societal and percolates to overall economy. When the financial literacy level is more the rational thinking of the investor is more. Once could decide about the investment which would be beneficial not only to him but also to his country.

1.2 Need for the Study:

For any capital market individual investors who are otherwise known as retail investors and traders are increasing in great numbers. They are the corner stone of any economy. India is no exception to it. Their dynamic inclusion in the capital market helps the corporate sector to deploy adequate funds required for improvement and guarantees non-stop liquidity in the capital market. This in fact requires creating a great amount of confidence in the minds of
individual investor or retail investors about capital market investment. As the individual or retail investors are spread across the nation, their difficulties from different market participants are not addressed properly. Because of the very same reasons, capital market investments have instigated unscrupulous market participants to take undue advantage of them. It is indeed considered that Indians economic evolution and change cannot be reversed. Subsequently, a more noteworthy in financial intermediation is essential to augment the investment and development, however this will again need structural changes in India’s Public finance by entirely dismantling rules and regulations. This will in turn affect the movement and mobilisation of resources in the capital market, which will hamper or develop the country. Therefore, it is necessary to consider the troubles faced by the investors and improve the capital formation of a country. When the history of stock market movements is to be understood, the slice and dice of past position, FII, FDI, Mutual funds, current and post position of Indian economy, ups and downs of the Indians stock market stories are to be learnt. Later down the storyline, when one address about the investors, especially retail investors and their aversion towards stock market is being felt. Retail investors are those individuals who purchase shares and debentures from the capital market for his personal account and not for organisation. The retail investors trade in smaller quantity. These retail investors money comes from household sectors. So, their funds form a part of capital formation. But retail investors averse stock market for various reasons which must be dealt with. This includes concepts and characteristics of human sentiments stock markets, how news, rumours, recommendations, shocks and scams and other associated factors hit the stock market and the correlation between human sentiments and movement of SENSEX and NIFTY Fifty is to be studied.

Thus, considering all the grievances and troubles from the above context the present study is undertaken to analyse the cause and effect of less participation in the capital market and give
a readymade analysis of stock market for retail investors and encourage them to invest in stock market more by studying the stock market. This study tries to disseminate knowledge by planning out a systematic approach that is suitable for small retail investors and short term also. Hence, investors are to be given more information about trading strategies especially during short term where they do not have to understand the market. In short term the markets are not moved by the fundamentals or not even technical analysis but by the moods and sentiments which is called sentimental analysis and one can predict the market in facilitating the investors to take a strategic decision even in short term.

1.3 Importance of the study:

Globalisation in stock markets plays a vital role in the development of any country and it promotes a significant growth in the economy. In the recent past two decades the financial world experienced a lot of changes which paved way to nation’s growth. Experiences clearly depicted that when a country or economy globalised is moving ahead in the economic performance too. The most vibrant aspect of financial system reforms is the keeping the stock market out of the clutches or by making the stock market free.

Studying of stock market behaviour is not only difficult but also arouses the interest of the researchers, academicians and the investors. The onus of studying stock market leads to predicting the same. Prediction is necessary in this fast world because of the non-availability of time, less risk in decision making for the retailers and investors and traders too. In fact, predicting the stock market is a challenging activity. Often Efficient Market Hypothesis (EMH) is tested to find out the reliability of the information. The result is no investor could make abnormal profit out it. So apart from EMH some other factors also influence the market in the short run.
Emotions, sentiments and moods in any place influence the other. Whether it is home, workplace, stage show, cinema or anything for that matter, emotion only influence and attracts all.

Stock market is no way an exception to it. Though investors call themselves they are rational many times, they are prone to psychological behaviour while making investment choices. In this context, it is very important for an investor to be aware of various psychological feeling that he or she may have while investing. Investor behaviour is characterised by overexcitement and overreaction leading to knee jerk decisions. Generally investors have characters of herd behaviour, over confidence and anchoring. The herd behaviour is described as following the crowd and not having their own independent judgement. It is an attitude portrayed by lack of uniqueness, making individuals think and act like the all-inclusive community. When the market moves up or down the investors think that the others have more information than them. Because of this they imitate others. Anchoring refers to tendency to hold on to some belief even though it is not supported by some information. Likewise, overconfidence is a situation where they rely too much on their own experience.

By and large, it is the sentiments and moods which decided the market in the short run.

Another key gap is that less amount study in the Indian context to predict the stockmarkets with sentiments and moods of the investors. The behaviour of the investors in the short run is with reference to moods and sentiments are being predicted.

The growth of capital market in India is evident from the rise of in the market capitalization and rise of indices to new level with promise of breakout into new peaks. These two stock exchanges are recognised as the leading stock exchanges not only trading volumes but also the ability to attract foreign institutional investments (FII) with more registrations of SEBI to invest in India.
In fact, the last decade has witnessed a huge amount of Foreign Direct Investment too. When the nation is growing, it the stock market that is growing. Hence, every investor should also share its growth and profit. But the data prepared by various reliable sources and agencies reveal that the individual investor is not showing interest and shying away from the market because of the false rumours spread about the stock market. Hence there is a need to study and mitigate the fear and attract more and more investors into stock market. This in fact facilitates to read the moods and sentiments of the investors too.

As a piece of novelty, this study attempts to find out the movement of stock market along with the moods and sentiments form social media. This would help us to understand how moods and sentiments drive Indian stock market. Hence a comprehensive research attempt is made to analyse the predictability of Indian stock market. It also studies about the insights of investor’s behaviour.

The spotlight of this study is on individual investor as buyer of stock market index. In the context of emerging economy like Indian the index fund and corporate sector funds need to be expanded so that long term capital can be raised by issue of stock market index to the public. Individual investors have a strategic role in the smooth function of capital market are in ensuring the capital flows into most efficient hands. Given high savings rate of households, the challenge before the policy makers is how to attract these savings into capital market. Hence individual investors play a pivotal role in understanding and overcoming the fear about equity market and move towards greater participation with increased levels of risk appetite.

1.4 Statement of the problem:

Every investor aims in the stock market is to gain short term profit for their investment he makes. But at the same time the problem which prevails in the market is the timings of the
investment that is when to enter and when to exit. The volatility in the equity market result loss to uniformed investors to make buying decision based on their own on source of information available. Such investor probably be beneficial or if they are equipped with predictive information about movement of stock indices at a week in advance.

Prediction of stock market is the need of the hour as all retail investors does not have time to review and invest. So, if the ready hand information is given to the retail investors, big investors, foreign investors by taking the moods of social media or any other method. It would be highly appreciable. As the stock market prices were purely driven by the herding with the new information. The mood can turn the euphoric to irritation also. The behavioural finance proves that psychology really helps to prove the financial market. Ben Macleure says that investors are not only rational but also emotional. Researcher advocates that understanding investor’s sentiment can offer a better explanation of stock price performance. The factors that affect investors sentiment needs to be identified.

There are different types of players in Indian Capital Market such as individual investors, mutual funds, foreign institutional investors etc. Many times, individual investing activity is the reflection of institutional investing activity. In India the capital market is existing majorly because of foreign domestic and institutional investors. There is every chance that the interest of the retail investors or small investors is affected because of their smaller size in holding the share which result in vulnerability. This emphasises, that there is a need to study about the problems of retail investors and traders. The stock market witnesses volatility due to sudden entry and sudden exit of the institutional investors. Pertaining to this the researcher is motivated to study the trading strategies, preferences and perception of retail investors in the capital market. Over and above to it, there is a need to analyse the various demographic factors and psychological factors which influence the decision-making process. Unlike institutional investors, retail investors are mainly affected by various psychological and
demographical changes. The psychological approach to investing is based on the premise that stock prices are guided by emotions rather than reasons. The researcher is motivated to study this aspect of the investors and take a decision on how market is affected by moods and sentiments and how much can a market be predicted by taking into considerations the moods and sentiments in the short run.

It is common knowledge that Equity Market is driven public moods and sentiments in the very short term, liquidity in the Medium term and Fundamental in long term. Since traders and many of the retails investors look for short term returns they need advance information regarding the possible movement of the stocks and indices. If this information is available at least a week in advance, it will facilitate their investment decision to a great extent. However, except speculative and wishful thinking and the much spoken about Technical Analysis there is no reliable models to provide this financial intelligence. Moreover, since it is difficult to assess public mood and sentiments it is difficult to predict stock specific and index specific. Therefore, this problem sought to be overcome by developing a reliable model that can predict with 90% degree of accuracy, the movement of stock at least a week to 15 days in advance by monitoring the public mood to social media network like twitter, Facebook, and google plus and solve the problem by taking the questionnaire.

1.4.1. Background of the study:

Traditional research was focusing on asset pricing with special emphasis on company and economic drivers that hold significant impact on asset prices. Of late, the new entrant on the arena of financial literature has been non-economic factors and investor sentiment as possible driver in asset pricing and how it can be made etc., In understanding the financial market human behaviour plays a vital role which was not touched upon these days. The early research was focusing on testing the efficiency of financial market, identifying the anomalies
due to investors behaviour and testing the assumption that the economic agent are rational prescribed by expected utility theory.

In addressing the decision-making process of an individual investor or retail investor, objective evaluation is more than the subjective perception under the condition when their involvement of the decision is high. (Chaiken and Maheswaran 1994; Maheswaran and chaiken, 1991). Since most investment decisions are a result of high investors' involvement, it is reasonable to assume that investor's subjective perceptions will significantly impact investment decision. The field of financial forecasting is characterised by many components such as big data intensity, noise in the market with high degree of uncertainty, unstructured nature, along with hidden relationship (Hall1994). Though EMH claims markets are efficient share price always move in random. The share price always behaves in a highly non-linear dynamic volatile manner. (Black 1991). Modeling of stock index prices should consider the current mood and status of the stock market, such as whether it is bullish/bearish, with business and economic cycles such as boom or recession etc. Apart from these, there are plethora of situations and factors such as domestic and global economic conditions, political situations, investors psyche, catastrophe and other unexpected events that influence the behaviour of stock markets and it results in noise. The stock market exhibits both linear and non-linear behaviour and hence models that show non-linear behaviour are chosen to obtain accurate predictability.

The umpteen conventional models are not able to explain fully the movement in stock market index prices. It is therefore suggested that understanding investor's sentiment would provide a superior explanation of stock price performance. Against this backdrop, it becomes important to predict the stock market by taking investor's moods and sentiments and their reaction in different situation in the short run as market is driven by moods and sentiments in the short run.
1.5 Scope of the study:

This research is limited to studying the movement Nifty Fifty stocks of National Stock Exchange and BSE-30 Sensex. The predictive analysis is constrained by public moods and sentiments which drives the market only in very short period. The scope of the study limits itself to predicting stock price and index movement for a period of not more than 15 days. Hence medium and long-term study is out of the scope of study. It also excludes the prediction of other stocks listed in S&P NIFTY FIFTY and those that are listed in BSE 30. The time period for this purpose would be restricted to 2 calendar years of 2015 and 2016. The study is majorly taken from Bangalore.

Traditional Finance theory assumes that investors unnecessarily looks all the investment decisions through an objective lens called risk and return. It also presupposes that investors are guided by rationality, logic and at last with the independent judgement. However, the arena of behavioural fiancé recognised and proves that emotions moods and sentiments and herd instincts play an important role in influencing a decision. Unlike institutional investors, individual investors are the victim of psychological behaviour while taking the investment choices. When these psychological biases are added with poor financial literacy level, it creates disaster in the game of investor. Hence, the argument of the traditional finance theory relates to efficient market theory hypothesis most of the times proves to be incorrect. In this place the investors must be very careful, which they are not, of several psychological biases and one should know the methods of overcoming it. Investors behaviour is always feature by over excited and over reactive. To name a few of the psychological behaviour are herd instincts, over confidence, anchoring. These are discussed in the following chapters. As a result of these behaviour investors feel that other have more information. As a consequence of it he or she feels impulsive.
1.6. Research objectives:

To assess the investment scenario in Indian stock market

To identify the moods and sentiments associated with stock market in the short run.

To find out the type of information that changes moods and sentiments of the market.

To predict the stock market prices in advance by understanding the investors sentiments and moods especially Nifty Fifty

To examine the investors’ perceptions about capital market in the short run.

To analyse the investors sentiments and moods with the concept.

To develop trading strategies through predictive analysis

To attract more investors into the capital market

To examine the existing predictive tools and methods

To evaluate the predictive power of predictive analysis

To assess the awareness level of investors with respect to fundamental concepts in capital market.

To strengthen the capital market by bringing more retail investors because of more clear prediction.

1.7 Sources of data:

For this research primary as well as secondary data have been used for further analysis. Secondary data used to develop theoretical framework and to get insight into the research problem. Secondary data have been collected from published authenticated material such as journals, newspapers, internet and books. Computerized database such as Proquest, Istor and Emerald were also used to collect secondary data. In present study, secondary data for the period up to 2016 have been used.
The original data collected for specific objective and for research is called primary data. It might be qualitative or quantitative in nature. Primary qualitative data collection is in-depth and collected through interaction and unstructured way. Qualitative data collection method includes observation, focus groups study, in-depth interviews, content analysis etc., For this study, researcher has conducted focused group interview with experts in stock market to get insight into the problem. For collection of quantitative primary data, structured questionnaire was developed. Questionnaires were personally administered and explained to respondents to ensure accurate collection of data. The primary data was collected through personal interview and online survey.

The population was very large, so practically it was not possible to collect data from every parts of the country. Therefore, majorly the data was collected from Karnataka and remaining states data was collected through online survey like face book and twitter. Data was collected by visiting the different share brokers’ offices such as Motilal Oswal Securities Ltd, Marwadi Share Broker Ltd, Angel Broking, Religare Securities, Reliance Securities, Sharekhan Ltd, Funds India, Karvy, way 2 wealth, Edelweiss. Data was also collected through friends and family contacts. Data was collected during the period from January 2015 to November 2016.

1.8 Research Methodology:

Research Methodology is a scientific way of solving a problem systematically step by step with logic behind it. Methodology is a pivotal aspect through which the outcome of research is governed. Research encompasses the fundamental as well as supporting or allied blocks of each and every subject base. Carlos L. Lastrucci defines Research as “The scientific method, encourages a rigorous impersonal mode of procedure dictated by the demand of logic and objective procedure”. Grinnel (1993) has simplified the debate and stated that the word research is a combination of two words, re and search. The lexicon defines research as in two
conclusion ways the prefix means again, unique and the suffix as to examine closely or carefully.

Thus, by drawing common threads, it is concluded that research in management field is ethical, transparent and structured method of investigation that is directed towards well focused business objective. This information paves way to validate existing postulates or going for novel theories and framework.

Primarily it manages with the information gathered for the study, sources of data, testing design of the study, population of the study, questionnaire design, survey outline instrument used to gather information, method of gathering information, analysis and interpretation of the collected data with different statistical tools in order to find out the strength of the gathered information and limitations of the study.

1.8.1 Research Design:

Preparation of the design for the research problem after hypothesis and objectives is formidable which is known as “research design”. The research design alludes to the general technique that researcher coordinates the distinctive segments of the investigation in a lucid and consistent way, accordingly safeguarding adequately to address a research issue. The activity of a research design is to protect the evidence collected and allowing the researcher to successfully address the research issue legitimately and as unambiguously as expected under the circumstances. In sociologies research, getting data significant to the research issue generally necessitates specifying the kind of proof expected to test a hypothesis, to assess a program, or to precisely portray and survey importance identified with an observable scene. Taking decisions on what, where, when, how on research study is broadly and in detail covered under research design. It is a blueprint of collecting data, measuring it, analyzing
and interpretation of the same in the best possible manner. Research design entails the
detailed plan for executing the research study (Thyer 1993).

1.9 Research Study:

The basic classifications of research study are Exploratory, Descriptive and Causal Research.

1.9.1 Exploratory Research

Exploratory research is mainly carried out to determine the nature of the problem, so as to get
a new dimensions and insights about research.

Its basic objective is to explore and gain background information to define terms, get a clear
opinion of the problem. It is quite changeable in its way and mostly requires a qualitative
investigation. There are several methods or techniques for conducting exploratory research
such as expert interview, questionnaire, structured or unstructured observations, case study,
secondary data resources, pilot survey and focus group discussion. Exploratory research
“tends to tackle new problems on which little or no previous research has been done”
(BrownR.B ,2006). Moving forward by the way of exploration, researcher would be in a
position to expand concepts more visibly, can set priorities, develops operational definition
and get better in the final research design (Cooper, 2008).

1.9.2 Descriptive Research:

The second set of research design is more organized or structured in approach. Termed as
descriptive research, is a scientific way of observing and describing the behavior of a subject
without influencing it. The prime motto of this research is to get complete information of a
phenomenon under study. According to Sekaran (2006) descriptive research is undertaken to
ascertain and to describe the characteristics of the variables of interest in a situation.
According to Cooper (2008) the objective of descriptive research is to learn who, where and
how of a topic under study. Descriptive research is frequently utilized as a pre-cursor to
quantitative research designs, which is the general diagram giving some important pointers as to what variables are worth testing quantitatively.

1.9.2.1 Detection of association among diverse variables:

The descriptive study could be further bifurcated into categories like

(1) Cross sectional study: The cross sectional study is conducted in a particular moment and on a division of respondents from the population units under the study. The practical applications of the study are most pertinent for a specified time period (Chawla et. al. 2011). In multiple cross sectional design the response is recorded from two or more segments and the response from each sample is recorded only once (Malhotra, 2009). The cross sectional design is often called a social survey design, but the idea of the social survey is so closely connected in most people’s minds with questionnaires and structured interviewing (Bryman et al., 2011).

(2) According to Malhotra (2009) Longitudinal design is where the response is recorded from same division of people over time and again, and the same variables are examined. The longitudinal design represents a distinct form of research design that is typically used to map change in business and management research. (Bryman et al., 2011)

1.9.3. Causal Research:

Malhotra (2009) says ‘The investigation into an issue or topic that looks on the effect of one thing or variable on another. It is used to get proof of cause and effect relationships’. It is also called as experimental research design. Researcher actively manipulates one or more causal variables and measures their influence on the dependent variables of interest through experiment (Chawla et. al. 2011).

In this study, researcher has used two stage research approaches. In the first instance, exploratory research was used to explore and obtain clarity about the problem situation.
Exploratory research has been conducted by using following methods. 1) Qualitative research was done by conducting in-depth focus group interview of senior level experienced and expert persons in share broking industry. 2) Secondary data (authenticated and published data) was collected from moneycontrol.com, yahoo finance, journals and computerized database such as Proquest, JSTOR, Emerald.

In the second stage, descriptive research was conducted for gathering data for testing the research hypotheses. This design used to validate the hypothesis generated from exploratory research. Descriptive research is most suitable for this research as it enables researcher to identify and describe trading strategies through predictive analysis.

1.10. Sampling Design/Plan:

A plan which is explicit in nature in getting samples from given population is otherwise known as sample design. It is general arrangement for selecting objects from the universe before study is undertaken. The below given items are to be dealt clearly in Sample designing process as they are firmly interrelated and significant to all aspects of research, from the very beginning aspect of problem definition to the last aspect of presentation of the results.

1.10.1 The Universe (Population of Interest):

The universe includes all the relevant study elements that qualify for the research study. According to Chawla et al., (2011), Population presents as any collection of people or objects that constitute the main subject of study in a specific survey and are alike in one or more ways. Target population is described as particular collection of people or objects for which the data can be gathered, or observations are made to build up necessary data structure and information. In the current study, the population comprises of Individual investors, retail
investors, traders of India who invest in equity shares of NSE and BSE with sentiments and moods.

1.10.2 Sampling Element:

Sampling element comprises an individual person of the population. In this research individual investor who invests in Indian stock market such as BSE and NSE is considered as sampling element.

1.10.3 Sampling Frame:

It is associated to the population. It is the group of elements on which the sample is really drawn (Cooper, 2008). Where the population size is very large, it becomes virtually impossible to form a sampling frame. In this study also, as population of individual investors, retail investors and traders of Nifty Fifty stock market who are investing in equity shares is very large and not possible to identify clearly, it is very difficult to form sampling frame for the same.

1.10.4 Sample:

It is a subsection of the population. It consists of some elements which are present in the population. It is a part of total population which is selected for further research. For this study, sample consists of 508 respondents who are selected for further analysis. Since some samples are not validated exactly 500 respondents are further given for analysis.

1.10.5 Determination of Sample Size:

The size of sample depends upon the fundamental feature which is inherent of the population, the type of data required from the survey and the cost involved. The most commonly used approach for determining the size of sample is the confidence interval approach covered under inferential statistics. The sample size is determined on the basis of building a confidence interval around the sample means or proportion utilizing the standard error
formula. This is called confidence interval approach. As the population mean is not known and as the statistic of interest is a proportion rather than mean, the proportions method of estimating sample size is used in this study. Following criteria have been considered for calculating sample size.

1.10.6 Level of Precision or Tolerable Error (D):

This is the maximum deviation permitted or difference between the sample data and the population parameter. Based on previous study, for this research allowable error is estimated at 0.05.

Confidence Level (z)

The confidence level is the probability that a confidence interval will include the population parameter. Based on past research, researcher has decided to keep 95 percent confidence level for estimating sample size. The z value associated with the desired confidence level is 1.96.

1.10.7 Standard Deviation of the Population:

The estimated standard deviation of the population is to be decided based on past research. Researcher is interested in knowing the population proportion of retail investors who are investing in share market, it is estimated that the true proportion would be within the limit of +/- 50 percent. It means that 50 percent retail investors may not be aware about the share market
Sample size is decided as follows (Malhotra, 2011)

\[ n = \frac{1}{\pi} \times Z^2 \]

\[ D^2 = 0.5 \times (1 - 0.5 \times 1.96)^2 \]

\[ 0.5^2 = 384.16 = 385 \]

Where

\[ n = \text{Sample size} \]

\[ Z = \text{Z value from the standard normal distribution for the confidence level looked-for by the researcher.} \]

For this study researcher has assumed 95 percent confidence level. Then from the standard distribution table the Z value is 1.96.

\[ \pi = \text{frequency of occurrence of something expressed as a proportion} \]

\[ D = \text{Tolerable error. This can be decided by the researcher. For this study researcher assumed tolerable error 0.05.} \]

1.10.8 Justification of Sample size:

As per the above calculation number of sample required for the study is 385 but under the current study researcher has taken response from 508 respondents which is more than sufficient to estimate the population proportions with 95 percent confidence level and allowable tolerance limit of 0.05.
1.11 Sampling Technique:

It is process of choosing a sufficient number of elements from the population so that the study of the samples will not only help in understanding the characteristics of the population but will also enable to generalize the results. Broadly, sampling methods can be classified in two groups; 1) Probability and 2) Non-probability sampling. Probability sampling techniques are difficult as such sampling frame is not available and population size is unknown. Thus, appropriate sampling technique is Non-probability snowball sampling. Those retail investors who have invested in share market were selected and requested to participate in the survey.

1.12 Tool of Data Collection/Research Instrument:

To satisfy objectives of the research for the measurement of dependent and independent variables under study, an instrument in the form of structured questionnaire was developed. In order to prepare instrument, different variables have been identified from literature survey. A description of variables, type of measurement and scale used to measure these variables is described in table 1.2.
<table>
<thead>
<tr>
<th>Variables</th>
<th>Scale to measure this variable</th>
<th>Type of measurement used to measure this variable</th>
<th>Literature review</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Education level</td>
<td>Nominal Scale</td>
<td>Multiple choice</td>
</tr>
<tr>
<td></td>
<td>Employment status</td>
<td>Ratio scale</td>
<td>Multiple choice</td>
</tr>
<tr>
<td></td>
<td>State the frequency of trade</td>
<td>Nominal Scale</td>
<td>Multiple Question</td>
</tr>
<tr>
<td>Investors /traders Awareness and Investment pattern</td>
<td>Amount of seed capital in trading</td>
<td>Nominal Scale</td>
<td>Multiple Question</td>
</tr>
<tr>
<td></td>
<td>Volume on Trade (Maximum)</td>
<td>Ratio scale</td>
<td>Multiple question</td>
</tr>
<tr>
<td></td>
<td>Decision on Investment is based on</td>
<td>Nominal Scale</td>
<td>Multiple Question</td>
</tr>
<tr>
<td>Trading /Investing is learnt through Purpose of investment</td>
<td>Nominal Scale</td>
<td>Multiple Choice Question</td>
<td>Nominal Scale</td>
</tr>
<tr>
<td>-------------------------------------------------------------</td>
<td>---------------</td>
<td>--------------------------</td>
<td>---------------</td>
</tr>
<tr>
<td>Investors’ attitude and perception towards investment</td>
<td>In India share price will rise for the next 12 months</td>
<td>Interval scale</td>
<td>Five Point Rating Likert Scale</td>
</tr>
<tr>
<td>Investors’ attitude and perception towards investment</td>
<td>Investors plan to increase their investment in the Indian stock market in the next 12 months</td>
<td>Interval scale</td>
<td>Five Point Rating Likert Scale</td>
</tr>
<tr>
<td>Price of Gold</td>
<td>Interval scale</td>
<td>Five Point Rating Likert Scale</td>
<td>Singhvi (2001)</td>
</tr>
<tr>
<td>Consumer Price Index</td>
<td>Interval scale</td>
<td>Five Point Rating Likert Scale</td>
<td></td>
</tr>
<tr>
<td>Political stability</td>
<td>Interval scale</td>
<td>Five Point Rating Likert Scale</td>
<td>E.Bennet et al. (2012); Singhvi, (2001)</td>
</tr>
<tr>
<td>Inflation</td>
<td>Interval scale</td>
<td>Five Point Rating Likert Scale</td>
<td>Abdullah &amp; Hayworth, (1993); Mukherjee and Naka, (1995); Maysami and Koh, (2000); Udegbunam and Eriki, (2001); Li &amp; Wearing, (2002); H.A.H. Al-Tamimi, (2006); Türsoy et al. (2008); Sehgal Sanjay et al. (2009); E.Bennet et al. (2012); Singhvi(2001)</td>
</tr>
<tr>
<td>Investors’ attitude towards stock market</td>
<td>Fundamental Analysis (PVRatio, Book Value, EPS, Dividend Yield Ratio, ROE, Declaring Result)</td>
<td>Interval scale</td>
<td>Five Point Rating Likert Scale</td>
</tr>
<tr>
<td>Technical Analysis (Charts, Candle sticks)</td>
<td>Interval scale</td>
<td>Five Point Rating Likert Scale</td>
<td></td>
</tr>
<tr>
<td>Individual investors’ attitude toward global cues</td>
<td>Japan rate of Interest</td>
<td>Interval scale</td>
<td>Five Point Rating Likert Scale</td>
</tr>
<tr>
<td></td>
<td>Federal</td>
<td>Open</td>
<td>Interval</td>
</tr>
<tr>
<td>Market Operations</td>
<td>scale</td>
<td>Likert Scale</td>
<td></td>
</tr>
<tr>
<td>-------------------------------</td>
<td>---------</td>
<td>-----------------------</td>
<td>---------------------------</td>
</tr>
<tr>
<td>Brexit</td>
<td>Interval scale</td>
<td>Five Point Likert Scale</td>
<td>Rating</td>
</tr>
<tr>
<td>Federal Fund Futures</td>
<td>Interval scale</td>
<td>Five Point Likert Scale</td>
<td>Rating</td>
</tr>
<tr>
<td>U S Elections</td>
<td>Interval scale</td>
<td>Five Point Likert Scale</td>
<td>Rating</td>
</tr>
<tr>
<td>Western countries terrorist attack</td>
<td>Interval scale</td>
<td>Five Point Likert Scale</td>
<td>Rating</td>
</tr>
<tr>
<td>Investors’ feeling towards sentiments</td>
<td>Interval scale</td>
<td>Five Point Likert Scale</td>
<td>Rating</td>
</tr>
<tr>
<td>Gut Feeling, intuition</td>
<td>Interval scale</td>
<td>Five Point Likert Scale</td>
<td>Shafi, (2014); E.Bennet and Selvam, M., (2013); Singhvi, (2001)</td>
</tr>
<tr>
<td>Hot sector, Hot stock</td>
<td>Interval scale</td>
<td>Five Point Likert Scale</td>
<td>Singhvi, (2001); E.Bennet and Selvam, M., (2013)</td>
</tr>
<tr>
<td>Investors risk tolerance level</td>
<td>Interval scale</td>
<td>Five Point Likert Scale</td>
<td>Kannadhasan. M., (2006); E.Bennet et al. (2012); Singhvi, (2001)</td>
</tr>
<tr>
<td>Stories of successful investors</td>
<td>Interval scale</td>
<td>Five Point Likert Scale</td>
<td>E.Bennet et al. (2012); Singhvi (2001)</td>
</tr>
<tr>
<td>Quick rich philosophy</td>
<td>Interval scale</td>
<td>Five Point Likert Scale</td>
<td>H.A.H. Al - Tamimi, (2006); E.Bennet et al. (2012); Singhvi, (2001)</td>
</tr>
<tr>
<td>Greed among Investors</td>
<td>Interval scale</td>
<td>Five Point Likert Scale</td>
<td>E.Bennet et al. (2012); Singhvi (2001)</td>
</tr>
<tr>
<td>Everyone is also investing</td>
<td>Interval scale</td>
<td>Five Point Likert Scale</td>
<td>E.Bennet et al. (2012); Singhvi (2001)</td>
</tr>
<tr>
<td>Perceptions of “easy money” among investors</td>
<td>Interval scale</td>
<td>Five Point Likert Scale</td>
<td>E.Bennet et al. (2012); Singhvi (2001)</td>
</tr>
<tr>
<td>Trading for gambling and winning</td>
<td>Interval scale</td>
<td>Five Point Likert Scale</td>
<td></td>
</tr>
<tr>
<td>Information available on internet</td>
<td>Interval scale</td>
<td>Five Point Likert Scale</td>
<td></td>
</tr>
<tr>
<td>Information age and access to Information</td>
<td>Interval scale</td>
<td>Five Point Likert Scale</td>
<td></td>
</tr>
<tr>
<td>Social Media Focus on Twitter</td>
<td>Interval scale</td>
<td>Five Point Likert Scale</td>
<td></td>
</tr>
<tr>
<td>Social Media Focus on Facebook</td>
<td>Interval scale</td>
<td>Five Point Likert Scale</td>
<td></td>
</tr>
<tr>
<td>Social Media Focus</td>
<td>Interval scale</td>
<td>Five Point Likert Scale</td>
<td></td>
</tr>
<tr>
<td>on Whatsapp</td>
<td>scale</td>
<td>Likert Scale</td>
<td></td>
</tr>
<tr>
<td>-----------------------------</td>
<td>----------------------</td>
<td>-----------------------------------</td>
<td></td>
</tr>
<tr>
<td>Social Media Focus on Linkedin</td>
<td>Interval scale</td>
<td>Five Point Rating Likert Scale</td>
<td></td>
</tr>
<tr>
<td>In happy Mood</td>
<td>Multiple choice question</td>
<td>3point scale (BUY-1, SELL-2, HOLD 3)</td>
<td></td>
</tr>
<tr>
<td>In Impulsive mood</td>
<td>Multiple choice question</td>
<td>3point scale (BUY-1, SELL-2, HOLD 3)</td>
<td></td>
</tr>
<tr>
<td>In Positive mood</td>
<td>Multiple choice question</td>
<td>3point scale (BUY-1, SELL-2, HOLD 3)</td>
<td></td>
</tr>
<tr>
<td>In Fear Mood</td>
<td>Multiple choice question</td>
<td>3point scale (BUY-1, SELL-2, HOLD 3)</td>
<td></td>
</tr>
<tr>
<td>In angry Mood</td>
<td>Multiple choice question</td>
<td>3point scale (BUY-1, SELL-2, HOLD 3)</td>
<td></td>
</tr>
<tr>
<td>In disgusted mood</td>
<td>Multiple choice question</td>
<td>3point scale (BUY-1, SELL-2, HOLD 3)</td>
<td></td>
</tr>
<tr>
<td>In negative mood</td>
<td>Multiple choice question</td>
<td>3point scale (BUY-1, SELL-2, HOLD 3)</td>
<td></td>
</tr>
<tr>
<td>On seeing smiley</td>
<td>Multiple choice question</td>
<td>3point scale (BUY-1, SELL-2, HOLD 3)</td>
<td></td>
</tr>
<tr>
<td>On seeing cashtag&amp; Hashtag</td>
<td>Multiple choice question</td>
<td>3point scale (BUY-1, SELL-2, HOLD 3)</td>
<td></td>
</tr>
</tbody>
</table>
1.12.1 Pilot Testing of the Questionnaire:

Preparation of Questionnaire is the most important stage for this study. Initially, preliminary research instrument was prepared based on in-depth literature review in the same and/or similar field. Then the research instrument was sent to experts. The changes were incorporated in the research instrument as suggested by the experts and then pilot testing of this modified research instrument was performed. Some drawbacks were detected from the pilot testing. After removing these drawbacks and simplifying language, final research instrument was prepared for the study. The research instrument was not only in English, but, considering that language should not be a barrier to measure objective of research, the whole research instrument was translated into regional language of the state of the translated version of the data collection instrument was sent to reviewers who are subject specialists in the area of language. As per their recommendations, some of the basic words and sentences were revised to ensure that there are no ambiguous questions and respondents understand it in the way it must be. Then after, pilot study was conducted on thirty respondents having characteristics of sample selected for survey. Respondents were asked to comment on any difficulty or ambiguity they faced while giving response in questionnaire. Respondent’s comments and suggestions were incorporated while preparing final questionnaire.

1.12.2 Coding the Questionnaire:

Post data collection, next step is coding the questionnaire. It is the process of detecting and denoting a numeric value to the responses given by a respondent (Chawla et. al. 2011). Below table shows the coding of the questions used in this study
<table>
<thead>
<tr>
<th>Question Number</th>
<th>Variable</th>
<th>Coding pattern</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Gender</td>
<td>Male =1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Female =2</td>
</tr>
<tr>
<td>2</td>
<td>Age</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Educational Level</td>
<td>School =1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>College =2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Professional =3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Others =4</td>
</tr>
<tr>
<td>4</td>
<td>Employment status</td>
<td>Government =1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Private =2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Self =3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Others =4</td>
</tr>
<tr>
<td>5</td>
<td>Experience</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Monthly Income</td>
<td>Below 10,000 = 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10,000-20,000 = 2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>20,000-30,000 = 3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>30,000 and above = 4</td>
</tr>
<tr>
<td>7</td>
<td>Level of awareness about stock market</td>
<td>I have thorough knowledge = 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>I am aware = 2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>I just know and heard = 3</td>
</tr>
<tr>
<td>8</td>
<td>Frequency of trade</td>
<td>Daily = 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Once a week = 2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fortnightly = 3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Once a month = 5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Occasionally = 6</td>
</tr>
<tr>
<td>9</td>
<td>Amount invested</td>
<td>10,000 = 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10,000-20,000 = 2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>20,000-30,000 = 3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>30,000-40,000 = 4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>40,000-50,000 = 5</td>
</tr>
<tr>
<td>10</td>
<td>Volume on trade</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Decision on investment is based on</td>
<td>Peer Investor’s opinion &amp; advise = 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Self = 2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Social Media &amp; Internet = 3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Expert opinion = 4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>News channel = 5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Others if any = 6</td>
</tr>
<tr>
<td>12</td>
<td>Trading/Investing is learnt through</td>
<td>Trail &amp; Error Method = 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fun type of learning = 2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Knowledge &amp; Interest = 3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Extra Money = 4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Need for money = 5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Others = 6</td>
</tr>
<tr>
<td>13</td>
<td>Purpose of investment</td>
<td>Short term gain = 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Medium term gain = 2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Long term gain = 3</td>
</tr>
</tbody>
</table>
|   | Investors attitude towards investment | Strongly disagree=1  
Mildly disagree=2  
Undecided=3  
Agree=4  
Strongly agree=5 |
|---|--------------------------------------|----------------------|
| 15 | Investors attitude towards Macro economic factors | Not at all important =1  
Less important=2  
Important=3  
More important=4  
Extremely important =5 |
| 16 | Investors attitude on fundamental analysis & technical analysis | Not at all important =1  
Less important=2  
Important=3  
More important=4  
Extremely important =5 |
| 17 | Investors attitude towards global cues | Not at all important =1  
Less important=2  
Important=3  
More important=4  
Extremely important =5 |
| 18 | Investor’s attitude towards sentiments | Not at all important =1  
Less important=2  
Important=3  
More important=4  
Extremely important =5 |
| 19 | Investors attitude towards internet & social media | Not at all important =1  
Less important=2  
Important=3  
More important=4  
Extremely important =5 |
| 20 | Moods & sentiments towards investment decision | Buy=1  
Sell=2  
Hold=3 |

1.12.3 Time:

**Dimension of the Study**

The sample size was large. Number of persons involved in research was only one. By considering this constraint it had taken four years of time duration to complete the study.

**1.12.4 The Research Environment:**

The study was carried out in the field and not in the laboratory. The researcher met the respondents individually for collection of data, so it was field study.
12.5 Procedure of Research:

Measurement of Investor’s sentiment: Investor’s sentiment is defined as investor’s attitude and opinion towards investing. The researcher has used Shiller’s (1999) and Singhvi (2001) approach to measure investor’s sentiment. Researcher measured four aspects of investor’s sentiment. After analyzing the profile of individual investors / traders the researcher divided the prediction of sentiment analysis into four categories.

Initially the researcher measured investors’ awareness and investment pattern. The researcher measured the level of awareness, trading frequency, seed capital in trade, volume of trade, investment decision, learning mode of investment and purpose of investment.

Secondly investors attitude and perception towards investment can be known through the questionnaires like what would happen to stock price in the next twelve months Macro Economic factors, investors attitude on fundamental and technical analysis and global cues.

Finally, the researcher examined, to predict the stock market investors feelings, moods, emotions and sentiments are taken into consideration along with the investors attitude towards internet and social media and how the investment decisions changes when the behavioural patterns changes in taking the investment decision of buy, sell and hold.

The respondent was asked to give rating on statements by using 5 point Likert’s rating scale indicating the extent to which they agree with each statement and the same way the market specific and stock specific variables are considered which have influence on investor’s sentiment. Through the analysis the researcher had documented the relative importance of list of factors influencing investors’ sentiment.
1.12.4.1 Dependent Variables

Investors’ sentiment comprises three aspects (1) Investors’ awareness (2) Investor attitude and perception towards investment (3) Investors’ reaction towards sentiments and emotions. (4) Investors perception towards internet and social media (5) Investors reaction on different moods and sentiments. These things were measured though statements described in the questionnaire.

1.12.4.2 Independent Variables

Market specific variables such as buy, sell and hold and stock specific variables have been identified by the researcher based on the literature review and individual investors’ responses were taken on 5 point Likert’s scale to measure the importance of those variables on individual investors’ investment decision.

1.13 Data Analysis:

For data analysis, Descriptive Statistics, T – Test for equality, Levene test for equality variance, CHAID (Chi Square Association Interaction Detection Mechanism) with Decision tree along with the cross validation, ANOVA and Reliability Analysis statistical tools were used. Chi Square Automatic Interaction Detector is a technique which was invented by Gordon V. Kass in the year 1980. CHAID is a technique used for finding out the connection between and among the variables. CHAID analysis constructs a forecasting model, or tree, helps in determining how variables are merged and witnesses the result of the given dependent variables. In CHAID the information used may be nominal, ordinal and continuous in nature. Here the predictors which are continuous in its character are separated into different categories with almost equal amount of observations. CHAID creates cross tabulations in all directions for each categorical predictor till the best result is achieved and after that no further splitting is possible. In the CHAID analysis, one can view the
connection between split variables and the associated related factor within the tree. The construction of the decision, or tree classification, begins with recognizing the target variable or dependent variable, which is considered as root. CHAID technique further divides the target variable into two or more categories which is known as initials node or parent nodes and then sub divided using statistical algorithm into child nodes. In regression analysis the data is to be normally distributed, but the CHAID does not require the data is to be normally distributed.

**Merging:** In CHAID analysis, when dependent variable is continuous in nature then F test is used. Likewise, Chi square test is used when dependent variable is categorical. Every pair of predictor categories are decided based on minimum significant difference as far as dependent variable is considered. Since the steps are elaborate in merging, Bonferroni adjusted p-value is calculated for merged cross tabulation. Each pair of predictor categories is determined with minimal significant difference as far as dependent variable is considered.

**Decisions tree components in CHAID analysis:**

**In CHAID analysis, the following steps are taken for analysis.**

1. **Root Node:** Root nodes are otherwise known as the dependent, or target variable. For example, CHAID is appropriate when a bank wants to predict the credit card risk based on the information like age, income, number of credit cards etc. In this example, credit card is the target variable or dependent variable and the other factors such as age, income, number of credit cards are independent variables. In this research, how the investors react on buy, sell and hold which is a target variable depends on happy mood, sad mood and impulsive mood, and how the perception and mood and sentiments are changed with the time.
2. **Parent Node**: The algorithm divides the target variable into further two or more categories. Three categories are known as parent node or initial node. In this case, buy, sell and hold are parent nodes.

3. **Child node**: Independent variables such as age, income, moods, and sentiments are called child nodes. These nodes come below the parents' categories in CHAID analysis tree.

4. **Terminal nodes**: The last categories of CHAID analysis tree are called the terminal node. In the CHAID analysis tree, the category that is a major influence of the dependent variable comes first and less important comes last. This is called terminal node.

For present study factor analysis is used to reduce the number of variables of market specific factors and stock specific factors.

After identification of factors the reliability analysis was conducted to assess reliability of each factor, after that Levene test for Equality variance is done with cross validation process which is being taken care in CHAID itself.

1.13.1: **Software used for Data Analysis**

Statistical Package for Social Sciences (SPSS) version 19 was used for data preparation and data analysis. The present chapter has provided in-depth idea of research methodology adopted by the researcher for this study. To attain the objectives of the study and to test the hypothesis developed, researcher has found descriptive research design as the most appropriate method which enables researcher to identify and quantify key variables under study. For collection of primary data convenience sampling method was used as the population was very large and not known. The sample size has been determined considering 95 percent confidence level and 5 percent tolerable error. To achieve the objectives of the research CHAID analysis, Test for equality, Levene test for Equality variance, ANOVA were
found most appropriate techniques. Next chapter of the thesis would be dealt with data analysis.

1.14 Hypotheses:
Research hypotheses are presupposition of statements formulated by the researchers when they rely upon the outcome of a research or experiment. The research hypotheses are central to all research endeavors whether qualitative, quantitative exploratory or explanatory. The nomenclature for the problem identification and formulation process in the language of research is research hypothesis. Simply stated hypothesis represents notional statement of the relationships between two or more variables (Kerlinger 1986). As defined by Grinnell (1993), hypothesis can be written in a manner that it can be proven or disproven by valid and reliable information.

Hypothesis can be bifurcated in two categories (1) Descriptive hypothesis which speaks about happening of an event. Descriptive hypotheses describe about cause and effect feature of an event or phenomenon. (2) Relational hypothesis is such a hypothesis which tries to find out whether there exists a relationship between two variables. If researcher uses words such as increase decrease, less than or more than while formulating hypothesis, it is stated to be directional or one tailed hypothesis. A hypothesis must be formulated in plain, clear, and simple assertive form. The formulated hypothesis should be clear and measurable so that it can be tested by statistical measures for authentication. In current study hypothesis possesses the descriptive characteristics.

In present study, following hypotheses have been developed to achieve the objectives of the study.

All Null Hypotheses:
H0 1: The average age of all the respondents across the different investment decisions (Buy, Sell or Hold) are same.

H0 2: The average volume of transactions of all the respondents across the different investment decisions (Buy, Sell or Hold) is same.

H0 3: There is no association between the different investment decisions (Buy, Sell or Hold) and the highest educational level (School, College, Professional, Others).

H0 4: There is no association between the different investment decisions (Buy, Sell or Hold) and Purpose of Investment (Short Term Gain, Medium Term Gain & Long-Term Gain).

H0 5: There is no association between the different investment decisions (Buy, Sell or Hold) and Purpose of Investment (Short Term Gain, Medium Term Gain & Long-Term Gain).

H0 6: The average age of all the respondents across the different investment decisions (Buy, Sell or Hold) are same.

H0 7: There is a direct relationship between investors’ attitude and perception towards investment in stock market.

H0 8: There is a direct relationship between public mood and sentiment and the movements of index and stocks.

H0 9: It is possible to predict the movements of index and stocks in Nifty Fifty by monitoring public mood and sentiments through internet and social media network.

H0 10: There is a direct relationship between behavior pattern and investment decisions.

H0 11: The results of the prediction can be expected to be at least 80% accurate.

H0 12: It is possible to predict the movement of index and Nifty Fifty stocks at least a week in advance.
1.15 Significance and Potential Value:

The findings of this research are useful to the industry (Stock Broking firms), Retail Investors, market intermediaries, government and market regulators. Based on factors found to be influencing most the investor’s sentiment (stock picking behavior), the study provides the recommendations to the market regulators to strengthen the financial market and maintain the interest of small investors in the capital market. It will add some new knowledge in the field of behavioral finance.

1.16 Limitations of the study:

1. The study is mainly based on primary data and secondary data. The primary data is collected from 500 respondents taken mainly from Bangalore city and also some from across India too. The inherent lacunas of sample size also likely reflect in the result of the study.

2. The reluctance of the respondent in sharing the information in relation to their income investment, and its type and other information made the researcher to tweak a little to get data in relating to income and savings level. Hence the questionnaire also indirectly tweaked a little. Moreover, some respondents were little bit adamant in exhibiting their income and investment pattern too.

3. Though the responses are mainly taken from stock broking agencies and retail investors some of the respondents are indecisive with respect to different investment related queries. They are not sure of their short term, medium term and long term goals in their savings and investment pattern. Hence this may result in variation between the actual market perspective and the perceived reaction based on public moods and sentiments.
4. There are various investments avenues like, bank deposit, gold, silver, government securities, mutual fund etc., in the capital market. But the study is confined to only stock market indices only.

5. The study confines only on moods and sentiment and emotions of the retail or individual investors and how they behave and react to happy, neutral and sad moods. So the target is only on moods and sentiments. Not on market fundamentals or technical price movements.

6. The Forwards and Options are important indicators of market. Investors mood is not been considered for the purpose of the study.

7. Lastly it covered only respondent and limited geographical like Bengaluru and a few from on line. Hence the findings may not be applicable to other markets like forward and future etc., and the negligible the investors only into stock market.

1.17. Organisation of thesis:

This thesis is chaptered into 6 parts. Chapter 1 deals with introduction of the topic under study, with preamble followed by research motivation. Later the background of the study was emphasised with research objectives and research tools. Further the ways date sand sample collection, methodology is spoken of. It is later spoken by throwing the importance of behaviour in the stock market. It also deals with the research design and describes the research methodology which contains introduction to research, origin of the problem, research objective, hypotheses and research design. Research design includes the population under study followed by sampling element, sampling frame, sampling technique, sample size, method of data collection, description of research instruments types of research approach used to present study, pilot testing of questionnaire, coding of questionnaire, time dimensions of the study, research environment, sources of data, data analysis method software used for data analysis and procedure of research.
Chapter 2 starts with the basic idea of investor, investment, objectives of investments, types of investment, difference between investment and speculation, different types of avenues of investments available in the financial world, along with the investment preferences and the characteristics of retail investors. It concluded with the importance capital formation, with secondary market called stock market and the major stock exchanges like BSE, NSE and its brief introduction, calculation of index, how stocks are preserved with depositories' etc are dealt in detail.

Chapter 3 deals with the behaviour approach to stock markets. It initially deals about the cyclic process about the psychology of human behaviour in the stock market. It is followed by Later the importance of behavioural fiancé in stock market with special reference to different types of moods and their reaction to those moods and how moods play important role in investment behaviour is dealt with. It also tells about why investors prefer mid cap compared to large cap and the drivers of stock market. The reasons for bad moods affecting the stock market more than good news and the implication in stock market. It also talks about the factors affecting the stock market.

Chapter 4 contains the review of literature related to the research area. Literature review covers the studies undertaken on financial behaviour of individual investors and more specifically on predicting the stock market by taking into consideration the investor's emotions, mood and sentiment towards Stock Market. It also provides the theoretical definition of key variables under discussion like investor's sentiment and moods in prediction of stock market. It contains different models for the measurement of investor's sentiment and the model of individual investor's sentiment selected for the present study. It deals with moods and sentiments which affect the stock market in short run. The prediction of the stock market will be a boom to the financial community especially the stock brokers and individual retail investors and traders.
Chapter 5 shows data analysis and interpretation, following the objectives under study. Different statistical tools are used based on requirement like descriptive statistics. Rules Based Algorithm is conducted on decision tree using Chi Square Association Interaction Detection Mechanism with cross validation as assessment criteria.

Chapter 6 highlights the summary of finding, conclusion implications and limitations of the study. Finally concludes with providing scope for further research study.