Chapter I: Introduction
1.1 Concept Evolution and Definition

“All understanding of human nature begins with understanding the way we are, and it begins with an honest understanding of ourselves. The key is self-knowledge and self-awareness”.

Parag Parikh (2009)

Investment decisions, financial economics and the interaction between financial markets and its agents have been studied differently by various researchers. Researchers have been observing the human behavior in order to understand the process of investment decisions. Over the last 20 years, there is an ongoing debate between conventional theorists and behavioral theorists about drivers of investment decisions. Predominantly, the discipline of conventional finance was characterized by the assumption that markets are efficient and investors are rational (Fromlet, 2001). This means that investors use all relevant information available to them while taking investment decisions. Established theories concerning conventional finance include the efficient market hypothesis (EMH), capital asset pricing model (CAPM), and Markowitz portfolio theory (MPT). As per these theories, the stock market tends to follow a random walk and investors wish to gain maximum utility at any given level of risk (Ricciardi & Simon, 2000). These theories were challenged by behavioral theorists who believed that markets are not efficient and investors are not rational (Statman, 2008). Some emerging theories concerning behavioral finance are- prospect theory, behavioral portfolio theory (BPT) and behavioral asset pricing model (BAPM).

The disciplines of Sociology, Economics, Psychology, and Finance have underpinned the discipline of behavioral finance, which seeks to answer ‘what’ and ‘how’ aspects of investment decisions in various contexts. These disciplines address many subjective and emotional factors as well as their impact on investment decision-making. These factors lead agents (individual investors/institutional investors) to depart from the rational theories of investment behavior deduced by conventional finance. The conventional theories have been tested and verified with vast economic data. What if these theories employed larger data sets based on the cognitive and emotional factors to develop decision models based on human behavior?

The behavioral elements in terms of *animal spirit*, instinct and feeling had originated from the seminal work of Keynes (1936), which challenged the concept of *homo economics* (rational man that acts in their self interest and maximization of profit). It is instinctively true
that decisions based on quantitative models and a series of mathematical modelling involves systematic errors in judgment which might lead to inefficiency in the markets and mispricing of securities across the world market. The pioneering work of Friedman & Savage (1948) presumed that an investor might purchase lottery tickets and insurance at one go. Thus, displaying two sets of behavior, one of a risk taker and another of risk averse. Simon(1972b) advocated bounded rationality which rejects the concept of full rationality. Investors put themselves under the constraint of rationality which is imposed by their limited search for information and mental calculation. They only rationalize their decisions instead of optimizing them when they have simpler alternatives. This explanation is a contradiction to the conventional finance theory of maximization.

Fathers of behavior finance-Daniel Kahneman and Amos Tversky have contributed to a ground-breaking research in the field of behavioral economics. Their contribution in the form of Prospect Theory puts forward another confirmation on the importance of psychology in decision-making. Prospect theory presents a model of decision-making which is an alternate to subjective expected utility theory with more realistic behavioral assumptions (Kahneman & Tversky, 1979). They exhibited the fact that heuristics play an important role in our decision-making. Using heuristics, one takes a problem-solving approach that may not be optimal or perfect.

As per Sewell (2007) behavioral finance is the study of the influence of psychology on the behavior of financial practitioners and its subsequent effects on the markets. It deals with ‘why’ and ‘how’ aspects of decision-making. Conventional theorists assume that investors are rational, but behavior finance theorists assume that investors are normal. The behavioral portfolio theory by Shefrin & Statman (2000) was developed as an alternative to the Markowitz’s mean variance portfolio theory. The Mean variance theory works on the premise of optimization of risk-return payoff. Whereas, the behavioral portfolio theory works on how the portfolio is designed and securities are fitted into different layers in the pyramid as per the attitude towards risk and objective. It is a prescriptive theory and focuses on the aspirations of investors, who have different attitudes towards risk.

During 1989-2000, the world markets had undergone a myriad of changes regarding volatility, bubble, anomaly, and inefficiency in the market. Researchers and practitioners, like Thaler, Barberis, Shiller, Odean, Hirshleifer, Camerer and Rabin have contributed towards the literature in the field of behavioral finance through their research work and experiments.
Stanovich & West (2000) shed light on the deviations in human response from the performance deemed normative models of decision-making which could be attributed to the gap between normative predictions and prescriptive behavior. This posits the irregularities in human cognition. Therefore, understanding the human based behavior in terms of investment decision-making would unquestionably bring lucidity about the decision-making process. It would aim to understand how should an individual invest and why in a particular asset category.

To add more to the substance of human element, Kahneman explained two systems of our brain in his book “Thinking, Fast and Slow”. These systems influence the way we think and take decisions (Kahneman, 2011). System 1 is fast, operates automatically, is intuitive and emotional; decisions are made by a very small amount of effort and there is no self control. System 2 is slower, focuses on mental calculations, takes choices with concentration and is more logical. Based on these assumptions, he has mentioned several biases like-availability, representativeness, overconfidence etc. that drives our behavior.

Due to globalization and expansion of national economies, over the past 20 years or so financial integration has occurred at an unprecedented pace. The reforms that are happening in emerging economies are providing an untapped opportunity for the inflow of money to various destinations. With the advent of new technologies and information management systems, India has become an investment avenue for many multinationals. Demand is growing faster and the capital market is facilitating the growth of the economy. With a single click of a button, huge volumes of transactions are taking place. The Government of India and regulators like the Securities and Exchange Board of India (SEBI)¹ and Reserve Bank of India (RBI)² are bringing in measures to reform the Indian capital market and transform the Indian stock exchanges into a robust platform for investments across the globe.

Instances of general market overreaction have led to excess volatility in asset prices, were indicative of deviations from the long term market trend. These anomalies suggest that the principles of rational behavior underlying the efficient markets hypothesis are not entirely correct, and that we need to look at other models of human behavior, as have been studied in other social sciences. The deviations from the rational approach to investment decisions, have

¹It was set up in 1988 to regulate the functions of the securities market.
²It was set up in 1935 to control the growth and stability of Indian currency through its policy.
led to distortions in the financial markets in the shape of bubbles, busts and crashes, where the prevailing regulations failed to make timely corrections. Therefore, a comprehensive and systematic study of investors’ behavior would help in gaining meaningful insights on market dynamics, which could be meaningful input for strengthening the regulations related to financial markets. Information obtained from this research will be significant in understanding investor biases and creating awareness based on investor behavior. Knowledge of such biases will help companies obtain trading patterns and the finances of investors, which have a potential impact on stock prices and financial market. A paradigm shift towards understanding the investor behavior analytically is the need of the hour.

1.2 Background of the Research

The equity markets over the period of the past 20 years have gone through excessive volatility and uncertainty. The global economy has undergone financial shock and turmoil such as: Technology Bubble of 2000, Subprime Crisis of 2008, and Brexit shock in 2016. This has led to an increase in uncertainty and unpredictability for the investors, which confer to the fact that standard rules of principles do not work in extreme conditions. These uncertainties and market anomalies disrupt the flow of rational decision framework and have been on the mind of researchers. The global vulnerability has put a question about the feasibility of the robust economic models which works on the assumptions of rationality. These models have been unable to integrate the irrational part of human behavior into their normative theory.

The asset bubble in U.S in early 2000 and the subprime crisis of 2008 have taken a toll on the entire world economy. Had our markets been efficient and predictable, it would have been easier to control the fall and its implication on the economy as a whole. These instances confirm the presence of behavioral biases in decision-making. This brings to light the discrepancy between the existing theories and their practical applications. Alternatively, thinking from the more descriptive way to understand the deviation from rational behavior of investors is growing in the form of behavioral finance.

The capital market is the source of finance for an economy, an important constituent of the financial system. It is a market for long term funds, both equity and debt. One of the important functions of a financial market is to link the savers and investors. This linking helps in mobilizing and allocating money efficiently and effectively. It is the most extensive forms of a market. For a smooth functioning of an economy it is one of the important
indicators. Government and companies raise long term funds through the capital market. A capital market can be further classified into primary and secondary markets. In primary market new issues of securities are done and in secondary market outstanding issues are traded. Long term instruments for borrowings are created under primary market, whereas; liquidity of instruments is provided under secondary market.

Looking at the Indian capital market scenario, it has remained one of the vigorous and dynamic markets for domestic and international investors. Endowment funds from top American Universities (Harvard University, MIT, University of Notre Dame, and Washington University) are betting eye on Indian stocks and preferring the primary market (Shyam, 2017). Despite the ups/downs and huge volatility, India has managed to rebound and progress with the efficient capital market mechanism. The Indian capital market has seen increase in Foreign Institutional Investors (FIIs) inflow over a number of years. As a rule of thumb, when market capitalisation to GDP ratio is close to 100 percent it is a sign of developed economy; ratio near to 80 percent signifies a developing economy as said by Mr. D.K. Aggarwal, CMD, SMC Investments and Advisors Ltd. According to experts, market capitalisation is a function of two variables; valuation of listed stocks and valuation of new stocks listed on the exchange. India’s market capitalisation to GDP ratio was 68.4% by the end of Dec, 2015 compared to 75.9% in 2014 (livemint, 2015).

Behavioral finance relies on cognitive and emotional factors that drive investment decisions and one ends up making perplexed decisions (Chira et al., 2008). Behavioral finance is an interaction between psychology and investor behavior. It deals with the behavior of investors, corporate managers and various participants in the financial market and precedes the interaction with them. There are always two participants in the financial market- the gainer and the loser. Hence, one should be very careful while taking a decision which involves judgmental bias and errors. Information plays an important role in the market and different individuals perceive information differently as per their psychology or mental frame (Redhead, 2008). Every investor has different objectives and time horizon for his/her investment. One can look for either growth or preservation of capital, can invest in equity or mutual fund, and may have long term or a short term horizon. All of these objectives are based on the individuals’ characteristics and their ability to take decisions under risk and uncertainty. To supplement the above statement, the individual characteristics are based on some demographic factors which are: gender, marital status, age, level of education, financial knowledge, experience, and disposable income.
The emergence of behavioral finance is due to the limitations of conventional finance. Indeed, many investors tend to use portfolio strategies based on the behavioral approach which helps in building a risk-return profile. Even if rational investors update their belief as per the information, often they come across beliefs regulated by behavior. The aim of behavioral finance is not to disprove the theories of conventional finance, rather integrate the irrational part of decision-making. The aim is to make a concoction of psychology based on emotions to make a human behavior based approach towards decision-making. Affected by behavioral bias, individual takes sub-optimal decisions which are deviations from the rational decision-making framework. They are affected by numerous biases which affect the ideology of profit maximisers. Different dimensions of behavioral drivers have been tested empirically over the years and have supported the idea of departure from the investment decision framework based on a rational approach.

Understanding investor behavior in the stock market is very complicated as emotions, expressions, sentiments and behavior of the investors are not constant. Sometimes, crowd behavior of the members of the financial market controls the overall decision-making in the market. Instances of market crashes have precipitated the fall in the stock market indices. “Does that mean the stock prices are reflective of both the fundamental value and speculative value”? Stewart (2006) mentioned behavioral finance as a ‘portfolio selection approach’, a flexible model that suits the changing scenario of investors having different objectives. Funds that are designed on behavioral approach suits different risk-return requirements. Behavioral finance is about how investor actually behaves rather how they should behave. The investors’ survey reflects the actual behavior and attitude of the respondents towards various decision-making. The capital market has seen variation in terms of asset bubbles, financial crisis, and decrease in investor’s sentiments. Behavioral finance focuses on microdata which is the investor behavior and not macro data. There are different anomalies in the market which bring uncertain and uncontrolled events. These anomalies were ignored by conventional theories. Anomalies like- day of the week effect (Balaban, 1995), January effect (Thaler, 1987), low book value, neglected stocks, reversals and asset bubbles brings the inefficiencies in the market. Because of mispricing of security, the market comes under an inefficient pattern. Based on these evidences, the portfolio managers have been designing customized portfolios and trading strategies. A paradigm shift of looking at the investors should be in effect. Profiling the right kind of customers, understanding their horizon of investment, classification of investors into categories like- high, medium and low investors and
understanding their level of perception could be the possible steps to understand the intricacy of behavior based finance.

1.3 Research Question

The concept evolution of behavioral finance and how it contradicts the assumptions of conventional finance in different ways is discussed in the previous segments. The investment decision-making framework is a function of many emotional and cognitive factors. Market inefficiency and anomaly have raised many doubts in the mind of the researcher such as-what factors drive the decision framework and whether investors deviate from the standard rational framework. There must be some factors behind the fallaciousness of rational economic models. Presence of various biases and empirical work done by various authors substantiate the degree of influence of behavioral biases on decision-making framework. To be more specific, following question reflects the problem more precisely.

- Do individual investors exhibit deviation from rational investment decision-making based on conventional finance approaches?

1.4 Research Gap

After going through an extensive review of literature from different arrays of existing publications, few gaps could be identified which are relevant to the present study and is justified in the context of the Indian capital market.

First gap- most past empirical studies reviewed, have used one psychological bias to explain one type of investor behavior using proxies. Although they provide useful insights, they do not provide combined and relative impact of biases on investment decisions. This thesis entails measuring of the underlying psychological biases instead of using the proxy variables. A deeply embedded psychological bias has to explain multiple aspects of investment decision. Overconfidence bias is the most documented bias in behavioral finance, whereas herd behavior is a collective phenomenon and the Indians have a tendency to follow group norms and societal values. Risk tolerance is an essential factor for any type of investments. Keeping these arguments in mind, the present study covers three biases that influence investors’ behavior, a) Overconfidence bias, b) Herd behavior bias, and c) Risk Tolerance bias. Although there exists extensive literature on each of these types, they have always been treated separately and individually.
Second gap - most of the past work reviewed, reflects on the investment decisions of institutional investors. Very little work was found on the investment decisions concerning individual investors, beyond reflections on their low level of competency on investment decisions as compared to institutional investors. Hence, knowing about the behavior of individual investors would help in analyzing their decision-making patterns.

Third gap - most of the published work reviewed relate to national level and a few covered small geographic regions and larger cities. In India, studies were mostly found to be conducted in Mumbai, Delhi, Chandigarh, Indore, Bangalore, Ahmedabad, Kolkata and Chennai. Most of these studies reflect new geographic regions as the future scope of research to gain richer insights into the investment decisions. The rationale behind selecting Eastern India is that the proportion of households’ investors’ in Eastern India is 27.54% as compared to households’ savers’ 55.41% as per the SEBI-NCAER report (Sethi, Pradhan, Mukherjee, & Singh, 2011). This shows the narrowness in the market despite the strengthening of nationwide network of investment platforms and the channels of investment in Eastern India. Moreover, literatures in this field in the Indian context are sparse in nature too. The objective is to determine the level of involvement of individual investors and their behavioral pattern which has a major scope of development. Therefore, any kind of study based on the investors of Eastern India will explore the untapped potential in terms of measuring the behavioral aspects of investors.

1.5 Objectives of the Study

The objective of the study is to gain insights into the impact of behavioral biases and how the biases affect the investment decision in the Indian capital market. To be more specific, the following two objectives have been framed that justifies the study:

• To gain insights into the impact of behavioral biases on the extent of investment decision.

• To study the impact of overconfidence bias, herd bias and risk tolerance bias on investment decision-making in the capital market.
1.6 Hypotheses of the Study

The study includes three hypotheses in relation to the above stated objectives. On the basis of the reasoning provided in the thesis, the propositions would be tested to validate the expectations of the study.

• H1: Investors with a high overconfidence bias will have a high investment in the capital market.

• H2: Investors with a high herd behavior bias will have a high investment in the capital market.

• H3: Investors with a high level of risk tolerance bias will have a high investment in the capital market.

1.7 Justification of Research

In the backdrop of the background presented, it becomes essential to find out the rationale behind the emergence of behavioral finance. Diverse theories of behavioral finance work on the assumption of rationality. However, in practice there are numerous instances that validate the deviation from the rational decision-making framework. The financial market has seen various anomalies and inefficiencies caused by asset bubble, market crash and uncertain events. If these events did not exist, the investor behavior would have been effectively rational. This brings into mind the drivers of behavioral finance.

Conventional finance theories emphasize on the market and how to price risk, whereas behavioral finance theories state about how investor behaves. It also studies the overall market sentiments. Empirical results that stem from behavioral finance take a shape of a greater perspective than that of the conventional finance. The pricing puzzle deviates the arguments of market efficiency to the behavioral approach. Most of the literature concentrate on assigning weightage to different events separately, creating separate mental accounts for investment, relying on past reference price or following the group behavior. These inconsistencies in terms of biases are the withdrawal from rational choices.

Under conventional finance, the investors utilize all the information properly and maximize profit, take a risk averse approach and choose the best efficient portfolio, whereas decision based on behavioral finance approach is suboptimal as compared to conventional finance. The third party like- media, financial intermediaries, and other sources of
information, etc. create narrow framing in the mind of investors, influences the interpretation process and act as a contradiction to the rational preference. Hence, on contrary to the assumptions of rationality, individuals rely on heuristics leading to sub-optimal outcomes and errors in decision-making. This brings the need to look at the paradigm shift towards a behavioral approach from a different perspective.

1.8 Methodology

The proposed research is based on primary data and exploratory approach. The data regarding the key variables including: the independent variables (Overconfidence bias, Herd Behavior bias, Risk Tolerance bias) and dependent variable (Extent of investment in Capital Market) are collected through a self administered questionnaire. The study was conducted in four states of Eastern India: Odisha, West Bengal, Jharkhand and Bihar. The sample size was determined using the formula defined by (Sarangi, 2010a) and it summed up to 400 in total. The non probability sampling technique was followed. In non-probability sampling, the technique of convenience sampling was used for the selection of the sample. It involves researcher’s own judgment while selecting the sample. The samples were selected through the reference list provided by the brokerage houses like- Kotak Securities Ltd., Tata Securities and India Infoline Ltd. Again, references were drawn from the list of investors procured from different broking houses. Samples were also selected from banks that also had desks for selling capital market products.

Based on the objectives of the study, three research hypotheses were formulated and data was collected to check the validity and reliability of the sample. For more detailed investigation, this research is employed to explore the impact of behavioral dimensions on investment decision-making in capital market pertaining to Eastern India. The entire period of the study was from July 2014 to July 2017. The data analysis was done using the SPSS 17.0 version and tools used for the analysis were: descriptive statistics using frequency tables, factor analysis, correlation and regression analysis.

1.9 Scope and Limitations of the Study

The proposed study is confined to four states of Eastern India, namely: Odisha, West Bengal, Jharkhand and Bihar. In Eastern India, investors’ activity in the capital market is low as compared to western and northern India. Hence, selecting the four major states of East give a useful insight into the deviation of investors from the rational thinking framework. Going
beyond the geography of Eastern India or doing a comparative analysis with different country and region would bring a different dimension to the study. This could be the scope for further study. Further, this study only takes into account the behavior of individual investors. An in-depth coverage of institutional investors would probably bring another scope of the study. The exploration into the other behavioral dimensions would also provide a meaningful insight into the investment behavior. The study also has methodological limitation in relation to the generalizability of the sample by using the convenience sampling method. The study put forth the importance of education and awareness program in order to protect the interest of investors.

1.10 Outline of the Thesis

This thesis will be organized in five chapters. Chapter one deals with the introduction of the study. This includes concept evolution and definition, background of the study, objective, hypothesis and justification of the study.

Chapter two deals with the relevant literature pertaining to the proposed study. This chapter is basically composed of three parts which are- deviation from rational investment decisions, drivers of behavioral biases, and establishing a relationship between drivers of behavioral biases and investment decision. Research gap is derived on the basis of inference from the review of literature. Lastly, a conceptual framework is designed as an outline of the study, which is indicative of the relationship among the variables of the study.

Chapter three is an overview of the research methodology used in the study. Various tools, techniques and methods of analysis have been discussed in this section. Sampling technique, sample size and sampling method has been covered in this chapter. This chapter also covers the pilot study and reports reliability.

Chapter four is the description of data collection and analysis. How the respondents of this study have mentioned their preference is put in the form of an analysis. Based on the results, interpretations have been drawn.

The last chapter is findings, conclusions and recommendations of the study. This includes the major findings and their linkage to the objectives and hypotheses. Conclusions and recommendations have been provided based on the findings.
The next chapter is on a detailed review of the literature and conceptual framework of the study.