CHAPTER 1

INTRODUCTION

“Men, it has been well said, think in herds, it will be seen that they go mad in herds, while they only recover their senses slowly, and one by one”. Charles Mackay

The present chapter highlights conceptual framework of the study. While discussing the Indian Financial System, need, types of investments and efficient market hypotheses, the chapter highlights the emergence of behavioral finance, theories of herding, meaning, causes and types of herding, need of the present study and objectives to carry out the research. The chapter wrap up with the organisation of the study.

1.1. Introduction

A financial system plays a vital role in the economic growth of a country. It intermediates between the flow of funds belonging to those who save a part of their income and those who invest in productive assets. It mobilizes and usefully allocates scarce resources of a country. “It is a complex, well-integrated set of sub-system of financial institutions, markets, instruments and services which facilitates the transfer and allocation of funds, efficiently and effectively”(Pathak, 2010).

Savings and investments are of great significance and assume an imperative part to carry on with an excellent and blissful life in light of the fact that the investment protects the “value of money” as the inflation crumbles it with the progression of time. “An investment is the current commitment of money or other resources in the expectation of reaping future benefits” (bodie, kane, marcus and mohanty). The economic definition of investment is “the proper utilization of resources to increase the income and production output in future.” As risk and financial returns from investments are always interconnected, thereby, Investment decisions are essential to achieve financial goals and success. As (Arrow, 1971) said that “even a small of investment can produce a considerable amount of earnings if it

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1 Investments: 2009 published by TataMcGrawhill.
would be done on regular basis.” So the investments should be done regularly and wisely to earn desirable returns. “To choose wisely, investors must be aware of the alternatives available and the risk attached to it.” (Admati et al. 1997). There are numerous alternatives available in the market, but where to invest, how to invest and how much to invest are purely dependent upon income, savings, returns and the risk appetite of the investor. Individual investors try to earn income out of the investments made from their savings whereas institutional investors mostly do investments from the extra funds. The investors must invest into those options which would give them more returns than the inflation rate. Therefore, it is necessary for the investors to evaluate each and every option available to them in the market very carefully.

To earn maximum income at minimum risk is the adage of every investor. To achieve this objective, investors evaluate the various instruments available in the market. The portfolio constructed must include different investments such as some real and some financial assets so that the optimum level of income can be achieved by the investors. The investments made in financial assets by investors is further used by the companies to buy real assets that helps in generating more profits or income to the company which in turn provides better returns to the investors. In this way, the investors can earn the optimum income by purchasing the securities of the companies or investing in financial assets. The financial assets are of three types:

1. Fixed income bearing securities
2. Equity and
3. Derivatives

Investing in fixed income securities or debt instruments provide the investors a fixed income based on certain percentage on the basis of current interest rates. Thereby, the investors have a fixed income with minimum risk attached to it.

Equity is a stock or share of the company. Investing in it provides the ownership rights in the company. The income generated from it purely depends upon the success of the firm. If the firms enjoy more profits, the equity gives the good returns otherwise investors have to bear the loss. So, investing in the share market has risk associated with it without any guarantee of returns. But on the other hand, it provides the maximum return from the investments. Therefore, if the investors can bear risk to earn more, equities are the better options available to the investors.
Derivative is a contract between two or more parties. When a security derived its price from one or more underlying assets in the market, it is said to be derivatives. Derivatives are used for hedging or transferring risk from one investor to others in market.

In India, the investors utilize their savings by constructing the portfolios which are consisted of currency, fixed income investments and securities or share market to earn the optimum profits.

**Table 1.1: Percentage of savings in household sector in India**

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*Source: RBI Annual Report 2017-18*

The table 1.1 provides the percentage of savings in the household sectors in India in various financial assets for the year 2013-14, 2014-15, 2015-16 and 2016-17. It can be seen that savings in currency and fixed income bearing securities has decreased over the years, while share market showed the significant growth to have sustained growth and beat inflation. All the investments made in financial assets are traded in an organized platform known as “Financial Markets”.

“Financial Markets are the “markets where the individual and institutions traded in financial assets and other items after taking into account their transaction costs, prices and their demand as well as supply”. The financial market provides the investor’s savings a proper channel to work and helps the companies to smoothly run their operations and earn profits. Financial markets provide a place where all borrowers and lenders of money come together for proper utilization of their funds. “The financial intermediaries like banks, insurance companies, mutual funds etc. helps in this process”. The investors put their money in to different financial assets and the intermediaries’ pool these resources to lend in the form of loans and mortgages” (Bhalla, 2008).
Securities or Stock market is a very important financial intermediary that helps in fostering the growth of an economy. Many companies have listed their shares on the stock exchange. Stock markets help in making the stocks more liquid and alluring to investors. Investors can generate more income on their funds through investing in the shares market. They buy or sell shares on the basis of their past performance in the market. Earlier, investors were hesitant to put their hard earned income in the shares market and were accustomed to invest their money in fixed income bearing security with less risk. But as the industries grow, there is a need for more funds in the economy. Investors also want to earn more income and liquidity out of their savings, so they choose the secondary market though they are risky investments.

**Figure 1.1: Structure of Indian Financial System**

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“With economic development, the scope for acquisition and ownership of capital by private individuals also grows, which increases the opportunity for stock exchange to render the services of stimulating private savings and channelizing such savings into productive investments. Therefore, stock exchange has become a necessity in modern industrialist society”. The large numbers of investors are now trading in the Indian stock market. To give them proper utilization of their resources, number of researchers has given the various models, tools and techniques to properly analyse the stock before trading like “Capital Asset Pricing Model (CAPM), Markowitz management Portfolio Theory, Arbitrage Pricing Theory, Fundamental Analysis, Technical analysis” etc. As “Fundamental Analysis basically provides the
investors about the financial soundness of the economy, industry and company, Technical Analysis helps in anticipating the prices of the stock based on its past and present trend”. The Portfolio theory “suggested the risk return relationship of the portfolio rather than focusing only on accounting information”. This theory helps the investors in creating proper portfolio of their investment in order to minimize the risk and maximize the returns. But the theory suffered from a serious limitation i.e. all the securities of the portfolio have similar type of risk and return; they are related to each other and their calculations are also quite complex. So, the simplified version has been introduced by Sharpe named “Single Index Model”. This model states that stock return can be linearly related with returns of market.

CAPM helps in analyzing expected return of a share. The expected return is equal to return on risk-free security plus risk premium enjoyed by an investor. All these models took only one main point to analyse i.e. how to maximize the returns. By assessing all this available information the investors can consider the securities that may provide higher returns.

The other school of thought says that it is the information that reflects the prices of a security. Eugene Fama (1960) developed a model called “Efficient Market Hypothesis” to understand how the information about the share has reflected its price in the market.

1.2. Efficient Market Hypothesis

Efficient market hypothesis (EMH) is a theory of investment characterized by rationality. Rational investors always want to earn higher return from their investments. The ground breaker and pioneer of EMH, Eugene Fama in 1965 “states the efficient market, as a market where there are large numbers of rational profit-maximizers actively competing, with each trying to predict future market values of individual securities, and where important current information is almost freely available to all participants”. In 1970, Fama defined efficient market hypothesis as “A market is said to be efficient with respect to an information set if the price fully reflects that information set i.e. if the price would be unaffected by revealing the information set to all market participants (Malkiel, 1992).” A market in which firms can make production-investment decisions, and investor can choose among the
securities that represent ownership of firms’ activities under the assumption that security prices at any time ‘fully reflect’ all available information. Following the concept of “Random Walk Theory” efficient market hypothesis “states that all price changes represent that deviations are random and uncorrelated with previous price.” Shiller (2007) states that “stock prices approximately describe random walks through time, the price changes are unpredictable since they occur only in response to genuinely new information, which by the very fact that it is new, is unpredictable.” It means future news of the shares have no impact on the present prices.

Malkiel (1973) “advocates that, the market and stocks could be just as random as flipping a coin”. According to Kendall (1953), “stock price fluctuations are independent of each other and have the same probability distribution”. “Stock prices are commonly perceived as random and unpredictable (Lo and Hasanhodzic, 2010)”. Karz (2012) states that “Fama persuasively made the argument that in an active market that includes many well-informed and intelligent investors, securities will be appropriately priced and reflect all available information”.

There are three types of efficient market hypothesis.

1. **Weak form** states that markets are efficient, reflecting all market information and assumed that past returns have no effect on future prices. Therefore, it has been assumed that rate of return on the market should be independent.

2. **Semi-strong form** states that markets are efficient, reflecting all publicly available information. It has been assumed that stocks react immediately to the new information but it also followed the weak form of EMH. Therefore, this hypothesis assumed that prices of the stocks react to the publicly available information only for some limited time period. Over and above that time period, the prices have no effect of the public information.

3. **Strong form** of EMH states that markets are efficient reflecting all private and public information, no investor in the market would gain supernormal profits even if he has all the market information. The hypothesis assumes that investors have no competitive advantage in the market.
Fama (1965) “postulates that in an efficient market, on the average, competition will cause the full effects of new information on intrinsic values to be reflected instantaneously in actual prices” The types of EMH has been well defined the concept that all the investors in the market would earn only average profits, no one have the competitive advantage even if that investor is very active in trading in the share market. It has been assumed that all the investors have the same information available in the market.

“The fundamental and technical analysis is of no use in EMH state due to same information reflecting in the market and assumed they all have been very much aware about it. But Lucas (1978) defies the EMH and states that “in markets, in which all investors have ‘rational expectations’, prices fully reflect all available information and marginal-utility weighted prices follow martingales”. He explains that to earn above average or maximum profits, sometimes investor ignores public and private information, and follow others in market. They took irrational decisions to make easy and quick money which disturbs the equilibrium in the market and made the securities overpriced or underpriced. This disequilibrium may result due to no communication between the investors” (Saxena, 2015).

1.2.1. Criticism of Efficient Market Hypothesis

Due to various market anomalies present in the market, the EMH has been criticized by many researchers. These anomalies take the stock prices away from the fundamental values.

1. Information asymmetry: EMH states that investors have all the relevant information about the market. Each and every investor must be fully aware about the market news. So, new information should circulate in the market quite quickly. It has also been seen that as more and more investors get the information, that would lose its value. Therefore, the investors didn’t disclose the relevant information to get the benefits of it and sometimes spread the false information. In 1984 Patell and Wolfson suggested that “news is incorporated into price within ten minutes despite the substantial disparities in investor access to information exist”. Thus, asymmetric information and quick adjustments of prices provide the investors.
2. **Existence of irrationality:** The investors didn’t behave rationally all the time. Keynes has explained that “Markets can remain irrational longer than you can remain solvent”. To earn super normal profits, investors irrationally behave in the market. Sometimes they over react or under react to the information and create the disequilibrium in the market.

3. **Stock Market Crash:** Emotions and sentiments create bubbles in the stock market. “Stock market crashes are social phenomena where external economic events combine with herd behavior and psychology in a positive feedback loop where selling by some market participants drives more market participants to sell. Generally speaking, crashes usually occur under the following conditions: a prolonged period of rising stock prices and excessive economic optimism, a market where P/E ratios (Price-Earning ratio) exceed long-term averages, and extensive use of margin debt and leverage by market participants. Other aspects such as wars, large-corporation hacks, changes in federal laws and regulations, and natural disasters of highly economically productive areas may also influence a significant decline in the value of a wide range of stocks. All such stock drops may result in the rise of stock prices for corporations competing against the affected corporations”\(^2\).

“Fama evolution has provided a breakthrough in the field of finance. However, in the 1980s, several researchers claimed results which are not in line with efficient market hypothesis. Nicholson (1968) and Basu (1977) challenged the work of stock market efficiency by stating that stocks with high price-to-earnings ratios (PE) are overvalued and stocks with low PE ratios are undervalued (De Bondt, 2008). Keim (1983) found that daily abnormal return distributions in January have large means relative to the remaining eleven months; this is generally known as the January effect, providing evidence of calendar effect. Ball (1978) documented that the post-announcement earnings consist excessive returns. If the information is publicly good, then it is inconsistent with the market efficiency. Gibbons and Hess (1981) reported the US stock market from 1962 to 1978. They found that the Monday returns are much lower than the other days’ returns and the Friday returns are much higher than the other day’s returns. Ariel (1987) documented that the first half of the month had higher return than the rest of the days of the month by using CRSP data from 1963 to

\(^2\) https://en.wikipedia.org/wiki/Stock_market_crash
1981, and the difference was almost one percent high. The other major anomalies like Price to earnings ratios, Book to market ratios, Small firm in January effect, etc. also provide abnormal return” (Saxena, 2015).

The anomalies present in the stock market have contradicted the very foundation of rational theories like “CAPM, APT, MPT and the EMH”. Various researchers have found that investors have not always behaved rationally in the securities markets. Instead of using the public or private information about the stocks, they sometimes involved their psychology in to the finance which creates imbalance between demand and supply of stocks in the market. The investors who behave irrationally sometimes get better returns than those who followed the traditional financial models. Therefore, when investors not follow the market fundamentals but use their psychology in to the finance, a new field called Behavioral Finance came in to existence.

1.3. Emergence of Behavioral Finance

Traditional theories of finance have assumed the concept of rationality. It has been assumed that investors behave in a rational manner with an efficient share market. But psychologists have found that investors didn’t behave rationally rather they took irrational decisions based on certain behavioral aspects and biases. This viewpoint has challenged the existence of traditional financial theories. “Cognitive error and extreme emotional biases can cause the investors to make bad investments decisions, thereby meaning that they act in an irrational manner”.

Financial models have not accepted the view of psychologist who explained the irrationality of investors. But “In 2002, it was the first time when psychologist Daniel Kahneman and economist Vernon Smith, were awarded the Nobel Prize in Economic Sciences to study the rationality in economics.”

Behavioral finance is a new field that provides many explanations for the economic decisions taken by investors. The investors can earn only the average profits in the market according to the EMH. To maximize the expected utility of rational investors, various theories and researches have brought forward a new concept of finance i.e. Behavioral Finance.

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An underlying assumption of behavioral finance is that, the information structure and characteristics of market participants systematically influence the individual’s investment decisions as well as market outcomes. Investor, as a human being, processes information using shortcuts and emotional filters. Irrational decisions could be either because of having irrelevant information or blindly following others.

Behavioral finance put more emphasis to the investors’ behavior in decision making process i.e. how investors take and proceed on information to make informed investment decisions. According to Lintner (1998), “Behavioral finance is the study of how humans interpret and act on information to make informed investment decisions. It employs scientific research on human cognitive and emotional biases to the effect of market prices and returns on various economic decisions”. Olsen (1998) states that “behavioral finance does not try to define ‘rational’ behavior or label decision making as biased or faulty; it seeks to understand and predict systematic financial market implications of psychological decision processes.” Frankfurter and McGoun, (2002) explained, “Behavioral finance, as a part of behavioral economics, is that branch of finance that, with the help of theories from other behavioral sciences, particularly psychology and sociology, tries to discover and explain phenomena inconsistent with the paradigm of expected utility of wealth and narrowly defined rational behavior. Behavioral economics is mostly experimental, using research methods that are rarely applied in the traditional, mainstream finance literature”.

“Behavioral finance is a discipline that attempts to explain and increase understanding regarding how the cognitive errors (mental mistakes) and emotions of investors influence the decision making process. It integrates the field of psychology, sociology, and other behavioral sciences to explain individual behavior, to examine group behavior, and to predict financial markets”. “Behavioral Finance explained that

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investors are not always rational, it is impossible for them to make a profitable or diversified portfolio, and mostly seen that they follow others. They hold looser and sell winner shares in the market”.8

Thaler, R. (1999) states “Behavioral finance is no longer as controversial a subject as it once was. As financial economists become accustomed to thinking about the role of human behavior in driving stock prices, people will look back at the articles published in the past 15 years and wonder what the fuss was about. It was predicted that in the not-too-distant future, the term “behavioral finance” would correctly viewed as a redundant phrase. What other kind of finance is there? In their enlightenment, economists will routinely incorporate as much “behavior” into their models as they observe in the real world. After all, to do otherwise would be irrational.”

Now days, behavioral finance has gained the much importance due to the continuous research and proof that psychology and emotions have a great impact on the investment decisions. “Behavioral finance relaxes the traditional assumptions of financial economics by incorporating these observable, systematic and very human departures from rationality into standard models of financial markets. The tendency of human beings to be overconfident causes the first bias in investors, and the human desire to avoid regret prompt the second” (Barber and Odean, 1999)9 “Individual investor and their behavior had received lot of consideration and focus of interest of many scientists not only being confided only to economist, but, due to the inclusion of the findings and the methodology of psychology into financial studies. Despite many debates, this has slowly led to the establishment of behavioral economics and behavioral finance as widely recognized sub-disciplines”10. Behavioral Finance is developing very fast. It not only explains how people make financial decisions but also suggest the areas of improvement.

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Behavioral Finance has contradicted the assumptions of traditional finance theories. These are called “Biases” and these biases would be the behavioral tendencies of the investors in finance. “According to Kahneman, D. and Riepe, M. (2003) behavioural biases can be categorized under three grounds:

1. Judgment Bias,
2. Preference errors and
3. Biases related with living with the consequences of decisions.

Judgment bias includes “Overconfidence, Optimism, Hindsight, and Overreaction to chance events”. Preference errors include “nonlinear weighting of probabilities; the tendency of people to value changes, not states; the value of gains and losses as a function; the shape and attractiveness of gambles; the use of purchase price as a reference point; narrow framing; tendencies related to repeated gambles and risk policies; and the adoption of short versus long views”. Living with the consequences of decision gives rise to “regret of omission and commissionbut also has implications regarding relationship between regret and risk taking.” These biases have mainly included in to two broad categories i.e. Cognitive Bias and Emotional Bias.

1. **Cognitive Bias:** These biases are basically concerned with ones thought process. The mistakes occurred in reasoning; remembering and evaluating one’s belief regardless of other’s information are known as cognitive bias. It includes “overconfidence, representativeness, anchoring and adjustment, cognitive dissonance, availability, self attribution, illusion of control, conservatism, ambiguity aversion, mental accounting, confirmation, hindsight, recency and framing biases”.

2. **Emotional Bias:** These types of mistakes or bias come with ones’ emotional instincts. These arise from the intuition rather than mental process of the investor. “Emotional biases include the endowment, self-control, optimism, loss aversion, regret aversion, status quo and herd biases”.

These are the different types of irrationalities that have an impact upon the investment strategies of investors in the stock market. Out of all these biases, the majority of researchers have found that investors have a tendency to mimic the actions of others called “Herding”.

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1.4. Theories of Herding

Herding occurs when individuals mimic others, ignoring their own substantive private information (Scharfstein and Stein 1990). There are many explanations for this impact of group influence on individuals’ decisions including rational learning explanations based around Bayesian updating assumptions, and explanations based on individual differences, drawing particularly on insights from sociology and psychology. The approaches can be unified to an extent by assuming bounded rationality: in a world of uncertainty cognitive and informational constraints mean that it is difficult quantitatively to identify a correct course of action and so, as Simon (1979) observes, people will be procedurally rational decision-making will be based on appropriate deliberation and so, ultimately, will be the product of a subjective judgement. In this case, social learning still occurs as people adopt herding as a heuristic, a decision-making short-cut. If preferences are lexicographic rather than compensative then the decision to follow the group will not be the outcome of a compensative, updating process as is seen in Bayesian models but rather social information about what the group is doing will substitute completely for private information and private information will be ignored. Psychological factors will be important if an individual’s propensity to use heuristics and rules of thumb is determined by their personal characteristics and personality traits.

Rational Learning: The most prominent microeconomic models of herding describe it as a rational learning process in which different people’s decisions are interdependent and reinforcing. Individuals may rationally judge that others’ actions
contain useful information (Keynes 1930, 1936, 1937) and, in a world of uncertainty, rational inferences can be made using Bayes's rule (Salop 1987): Bayesian updating of a priori probabilities will draw upon an extensive set of information - including social information about the observed actions of others. A key problem with Bayesian herding is that useful private information is discounted in favour of information about the actions of the herd (Scharfstein and Stein 1990). To illustrate the principles: Banerjee (1992) develops a herding model in which people look at what others are doing, e.g. when making fertility choices, in voting, and in financial decision making. Herding will be the outcome of a rational but potentially misguided information gathering process. Bikhanchandi, Hirshleifer and Welch (1992, 1998) develop a similar model of sequential decision-making in which informational cascades explain localised conformity which emerges when it is optimal for an individual to follow the actions of his/her predecessor and to disregard his private information. Just as is seen in Banerjee’s model each sequential decision conveys no real new evidence to subsequent members of the herd. In both models, herding is described as a boundedly rational response to imperfect information and will generate convergence onto an outcome determined by social information about herd actions rather than private information. Private information becomes inefficiently uninformative, sometimes leading to convergence of behaviour onto stable outcomes but often leading to convergence onto idiosyncratic and fragile outcomes (Chamley, 2003). A large number of economic experiments have been conducted to test Bayesian theories of rational herding, starting with Anderson and Holt (1996, 1997). Many of these experiments verify Bayesian hypotheses. Others have extended this experimental evidence to distinguish between herding as a broad descriptive category of copying behaviors and informational cascades as a specific form of learning that arises in uncertain situations (Sgroi 2002, Çelen and Kariv 2004, Alevy et al. 2007). The systematic patterns in herding identified in the experimental literature can be reconciled with a range of hypotheses about rationality. Following Avery and Zemsky (1998), Sgroi (2008) allow rational herding and rational contrarianism (behaviour contrary to herd choices) in a herding experiment that allows multiple states and multiple signals. They observe both rational and irrational contrarianism but generally 70% of their experimental subjects’ behavior is consistent with their benchmark for rationality. When they correct for those who don’t trade (i.e. the irrational non-traders) behavior becomes predictable. They conclude that policy makers should be
careful not to categories all herding as irrational, with rational herding, improved information and clearer signals would lead to a decrease in herding. Cipriani and Guarino (2005) adapt Bayesian models to incorporate flexible prices in a model in which cascades cannot occur. They find that some subjects do not use their private information, choosing either not to trade or to ignore private information by engaging in contrarian trading. Ivanov et al. (2009) also assess Bayesian modes of thinking and find that experimental subjects are not necessarily using probabilistic thinking and may be using boundedly rational, insight-based rules of thumb, instead of belief-based reasoning.

**Informational Cascades:** The role of individual difference Bayesian theories of rational updating of probabilistic judgements using social information describe individual decision-making emerging from the application of a mechanical algorithm in which information about group decisions is used to update individuals’ probabilistic judgements, thus generating informational cascades. Çelen and Kariv (2004) distinguish between the precise phenomenon of informational cascades, which is sequential herding generated by Bayesian reasoning, and the more general phenomenon of herding just as following a group. There is general evidence that decision-making is not the outcome of statistical inference alone; furthermore, people are not necessarily competent in applying principles of statistical inference in practice (Salop 1987; Tversky and Kahneman 1974; Baddeley and Wood, 2005). For example, cognitive biases may limit rational behavior in “reverse cascades” when incorrect decisions lead to information cascades down the wrong path (Sgroi, 2002). Also, if herding is a time-saving decision-making heuristic, then certain personality types will be more likely to use a herding heuristic as a decision-making shortcut. This would be consistent with Herbert Simon’s (1979) concept of procedural rationality, i.e. behavior is adapted to specific circumstances and will involve the application of commonsense rather than mathematical or statistical algorithms or rules (Baddeley, 2006). There is substantial evidence that economic and financial decisions are affected by individual differences and psychological factors; personality traits will affect decision making if they generate particular emotional predispositions (Elster 1996, Baddeley 2010). Kamstra et al. (2003) and Hirshleifer and Shumway (2003) analyse the impact of weather-related mood changes on financial markets to show that fluctuations in emotions and mood affect financial and economic decisions. Lo, Repin
and Steenbarger (2005) identified roles for personality traits and fear or greed in the behavior of day traders. Shiv, Loewenstein, Bechara, Damasio and Damasio (2005) using lesion patient studies have identified a relationship between impaired emotional response and risk-taking behavior. Kuhnen and Knutson (2005) identify deviations from rational behavior in financial decision-making and used functional magnetic resonance imaging (fMRI) evidence to identify a role for emotion and affect. These analyses, and others, suggest that emotions and moods have significant impacts on economic or financial decisions and there may be similar interactions between tendencies to herd and specific psychological characteristics. Evolutionary principles will also play a role.

**Social Learning:** Herding instincts are widely observed throughout the animal kingdom, in species as diverse as honey bees, ants, antelope, sheep and cows and whilst such instincts may have impulsive aspects, evolutionary pressure may have led to the evolution of these instincts to enable social learning. Animals better able to monitor the actions of others will acquire social information about resource availability and mating potential and these animals will be more likely to reproduce (Danchin et al. 2004). In a similar way, socially influenced herding instincts may have evolved as a learning heuristic enabling us easily to acquire important social information about the potential value of our acquisitions. Evolutionary forces may also encourage us to follow a group because there is safety in numbers. Social forces will also play a role and herding may be partly explained via principles of social psychology, particularly sociological analyses of crowd influence and group pressure e.g. as developed from le Bon’s (1986) analysis of mob psychology. Sociological studies emphasis’ the importance of situational factors including normative influences from wanting to conform versus informational influences emerging with learning from others actions. This distinction between normative and informational influences is a distinction that also surfaces in the economic literature on conformity (e.g. Bernheim 1994; Becker and Murphy 2003). Bayesian learning theories cannot account fully for the impact of normative influence, in part reflecting difficulties of effectively modelling and quantifying social factors (though these difficulties can be partly overcome by embedding social factors such as status and reputation into individuals’ preferences (Bernheim 1994; Scharfstein and Stein 1990). However, the emphasis in sociology on informational influence parallels more closely social
learning models in economics. Asch (1956) presented evidence from controlled
experiments which showed that, when asked to make simple judgements about the
lengths of lines, a substantial minority of experimental subjects were susceptible to
intracroup pressure and were persuaded to change their minds in the face of
deliberately misleading decisions from experimental confederates, with effects
increasing as group size and consensus increased. Wrong choices in Asch-style tasks
may reflect social learning if they are the result of the subjects’ perceptions of their
own visual limitations rather than an attempt to avoid conflict: for example, Shiller
(1995) argues that Asch’s findings are not inconsistent with a rational learning
process because experimental subjects tend to attribute their mistakes to their own
physical limitations, such as poor eyesight. There is also evidence that people will
follow decisions of a group of computers in much the same way that they will follow
a human herds decision suggesting that following the crowd is not just about peer
pressure; social influence even without human face-to-face interactions is consistent
with social learning from a group’s decisions (Bikhchandani et al. 1992). In a world
of bounded rationality, these different approaches from economics, psychology,
sociology and evolutionary biology can be reconciled as different ways of explaining
social learning.

Herding behavior may be the outcome of interplays between rational or
cognitive and instinctive or emotional processes as well as a reflection of economic,
sociological and psychological impacts emerging in different situations and individual
predispositions (Baddeley, 2010). Neuroeconomics can also offer useful lessons
because when people are influenced by social information then this may reflect an
interaction between a deliberative learning process and a more instinctive, affective
and emotional responses, these interactions can be quantified using neuroimaging
techniques”.

1.5. Meaning and Definitions of Herding

Herding portrays how individuals in a group can proceed collectively without planned
direction. Herding refers to replicate the actions of others without considering their
own opinions, beliefs and information. “Herding behavior is the term used to describe
situations in which a group of individuals react coherently without there being any
coordination between them. Such a group is called a herd. The term is used to
describe the behavior of animals within herds and more controversially to describe
some kinds of human phenomena such as stock market bubbles, and behavior in
political demonstrations” (Renard, 2007). Investopedia explains “herding is a
mentality characterized by a lack of individual decision-making or thoughtfulness,
causing people to think and act in the same way as the majority of those around them.
A herd instinct would relate to instances in which individuals gravitate to the same or
similar investments, based almost solely on the fact that- many others are investing in
those stocks. The fear of regret of missing out on a good investment is often a driving
force behind herd instinct”. “In the behavioral finance literature, herding is often used
to describe the correlation in trades resulting from interactions between investors.
This behavior is considered to be rational for less sophisticated investors, who attempt
to mimic financial gurus or follow the activities of successful investors, since using
their own information/knowledge would incur a higher cost. To achieve the same
degree of diversification, investors need a larger selection of securities that constitute
a lower degree of correlation. In addition, if market participants tend to herd around
the market consensus, investors’ trading behavior can cause asset prices to deviate
from economic fundamentals. As a result, assets are not appropriately priced” (Chiang
and Zheng, 2010). “The sheer volume of information and the varying degrees of
sophistication of investors in financial markets suggest that there may be a tendency
for some investors to mimic the actions of other investors, especially during periods
when uncertainty in the markets increases. This tendency of investors to mimic the
actions of other investors is called herding” (Gleason et al., 2004). Herding include
“a group of investors trading in the same direction over a period of time” (Nofsinger
and Sias, 1999) and “(when) individuals alter their private beliefs to correspond more
closely with the publicly expressed opinions of others” (Cote and Sanders, 1997).

Herding is defined “as an investment strategy based on mimicking other investors’
actions or the market consensus.” Bikhchandani and Sharma (2001)

“In a market setting, herds are characterized by individuals who suppress their own
beliefs and base their investment decisions solely on the collective actions of the
market, even when they disagree with its predictions.” Christie and Huang (1995)
“With herding, people tend to crowd together with others, making identical investment decisions. This is especially common in markets having less publicly available information.” Zhou and Lai (2009)

Herd behavior – “everyone doing what everyone else is doing, even when their private information suggests doing something quite different.” Banerjee (1992)

“Herding or herd mentality is a common phenomenon in financial market generally-stock market particularly, regardless of developed or developing markets. Basically, herding helps in reducing the efficiency of financial market and in some circumstances appears to overreact, lose the market stability. The fear of reaching a wrong conclusion influences our decisions, and impels us to follow the herd, in the belief that a collective error may prove less damaging to an individual’s reputation than a personal mistake” (Caparrelli et al., 2010). As the saying goes, “a trouble shared is a trouble halved”. “Herding may lead to major shifts into or out of financial assets, and may lead to the formation of bubbles. Furthermore, the tendency to herd may be strongest during periods of abnormal information flows and volatility, i.e., periods of high market stress, when investors seek the comfort of the consensus opinion. They may perceive that during these periods they will, at the minimum, achieve the average market return if they follow the herd. Second, obtaining additional reliable information during periods of market stress may be perceived as prohibitively costly. Thus, following the lead of the presumably informed aggregate trading behavior may be viewed as a low cost solution to problems resulting from acquisition of high cost information” (Gleason et al., 2004). “In the stock market, when investors trade with similar stocks, “herding behavior” takes place. Besides, fund investors in the stock market, for instance, mutual funds, tends to have herding behavior easier than individual investors theoretically. The reason is fund investors are able to receive much high quality information than individual investors. They follow one another; eventually cause herding behavior” (Lakonisok et al., 1992). “The importance of investigating herding stems from the fact that investors following the actions of others tend to form a collective decision that in turn, drives stock prices away from their underlying fundamental values. The resulting divergence between market price and fundamental value offers arbitrageurs an opportunity to reap excess profits” (Chiang et al., 2010). “It leads to an inefficient market situation characterized by speculative bubbles” (Prosad et al., 2012). Herding in financial markets is of significant interest for both economists and practitioners. Economists are interested in
the behavioral effect on stock prices. The potential effect on their return and risk characteristics have consequences for asset pricing models. Practitioners instead are interested in herding among investors since it might create profitable trading opportunities. “The influence of investor herds has the power to drive prices away from their fundamental values” (Tan et al., 2010). The existence of herding challenges the validity of an EMH, which believes that all investors are rational and possess the same set of information and, therefore, form the expected stock price in the same way. As a result, the stock price should reflect the information available in the market and the securities true value (Fama, 1970). Nonetheless, as mentioned above, herding behavior suggests that investors are not necessarily rational and do not always derive the share price by rational analysis of firms, but by observing and following other investors’ actions, even though not all market participants are fully informed. Thus, herding may destabilize the market by moving securities away from their fundamental value, as share prices will not only reflect the investors’ rational expectations of the shares, but also investors’ irrational decisions in the market (Demirer and Kutan, 2006). Thus, an EMH may fail to account for the existence of herding behavior in a stock market. When an investor’s investment decision is based on collective information rather than private information, the fundamental value of the stock might be lower than its true value. Therefore, herding is a signal of market inefficiency. Consequently, the existence of herding suggests that the real world market is not as efficient as the rational asset pricing model would suggest. The accuracy of stock valuation using this model may be eroded by a market anomaly, such as herding behavior, which is not taken into account during the valuation process. In addition, investigating herding allows us to further understand investors’ thought processes and its effect on their investment decisions. For example, herding among money managers is believed to be a result of their fear of being poorly assessed or judged by others if they make the wrong decision (Scharfstein and Stein, 1990; Lao and Singh 2011). “When markets crash in the absence of any significant shifts in economic fundamentals, an explanation frequently heard is that investors behaved like a herd that stampeded without cause” (Bikhchandani and Sharma, 2001). “The recent global financial crisis clearly demonstrated that market prices may considerably deviate from fundamental values for prolonged periods” (Economou et al., 2011). While analyzing the stock market crash of 1987, Shiller (1987) concluded that human emotions instead of rational thinking by investors had driven the crash. It is known that investors may 'temporarily' move financial prices
away from their long term aggregate price 'trends'. Positive or up trends are referred to as bull markets; negative or down trends are referred to as bear markets. Herd behavior is an important reason and a factor which amplified the impact of the global financial crisis in 2008 (Huong, 2013). In the case of stock market bubbles, the optimal behavior for an individual may be to do what everyone else is doing, because even though everyone knows that they are in a bubble, until it bursts, most profit is to be made by staying in the market. In this case the term "herding behavior" is relatively appropriate, because the "collective" behavior emerges from uncoordinated individual choices. Interestingly, though the behavior of the group is evidently irrational, the behavior of the individuals that cause it is rational at least in the short term. However, it does show some abandonment of risk aversion as the crash usually occurs without much warning” (Renard, 2007). Liquidity constraints, asymmetric information, limits to arbitrage and other frictions are the commonly cited culprits for this phenomenon. These features pose a constant threat to financial stability exposing market participants and financial institutions to unhedgeable systemic risk. A well documented behavior encountered in such extreme market conditions is herding, defined as the mutual imitation leading to a convergence of action (Economou et al., 2011). Herding may be more pronounced across sectors rather than for individual stocks. It may be much easier for managers to both observe and mimic the strategies of others at an industry rather than at an individual stock level, thereby mimicking the views of other managers concerning the growth prospects of a particular industry. Intuitively, in the case of small illiquid stocks, herding in sectors would provide a better measure of the true level of herding. For example, if one manager purchases a large quantity of stock in a small firm, it may not be practically possible for other managers to mimic exactly this strategy, however, by purchasing another small firm, following managers are able to expose themselves to similar factors affecting the first manager” (Henker et al., 2006).

1.5.1. Causes of Herding

There are many reasons found by researchers that investors follow each other decisions in the securities market, which are as follows:

1. Imperfect information: Sometimes, the investor has an intuition that the information possessed by him is incomplete. Thus, to take the advantage of complete information, he starts imitating others in the market.
2. **Reputational Concern**: There are many options available in the share market. Which type of stock to choose is a difficult task for the investors? To safeguard their reputation in the market, they follow the investment decisions taken by others in the market i.e. they start investing in the share on the basis of volume rather than considering the fundamentals of the stocks.

3. **Compensational concern**: To get the maximum benefits out of their investments in the market, investors follow the advice of financial guru’s or imitate others as they thought that they have less information about the market. “The agent has a reason to imitate the standard for optimal investment portfolio as it moves closer to the benchmark’s portfolio after agent studies the standards’ actions. As a result, the agent herds the standard” (Maug and Naik, 1996).

“Herding majorly explains the association of the behavior of investors due to imitation of trading pattern of other investors. This association can be due to cascading effect of information, as investors are willing to ignore their own information and consider the patterns of others. These results are moving prices of securities away from their fundamental value, because of which price fluctuations and volatility occurs” (Saxena, 2015).

1.5.2. **Types of Herding**

Herding can be of two types namely ‘intentional herding’ which includes both rational and irrational herding and ‘spurious herding’ given by Bikhehandani and Sharma (2001).

1. **Spurious herding**: When investors have same kind of problems and information sets make the same decisions is known as unintentional or spurious herding. It arises out of the necessity rather than choice. The economic scenario often forces investors to herd spuriously. Unintentional herding is observed due to similar reaction of the public on any unconfirmed information or indicators.

2. **Intentional herding**: Intentional herding occurs when investors believe that others have better information than they have, thereby ignore their own private information and intentionally follow the crowd. Intentional herding can be
rational or irrational. When investors think they have lesser information but others have better knowledge about the market, they start following them, is a rational herding. Herding can be irrational when investors blindly imitate their successor due to some psychological reasons. It is a conscious behavior that can be attributed to numerous factors.

1. When investors believe they have less information but others have superior information, Intentional herding arises.

2. When investors want fixed or confirmed returns on their investments.

3. To set up their reputation in the market, portfolio managers follow others.

Figure 1.3: Types of Herding

1.6. Need and Significance of the study

Herding is known as a psychological phenomenon which is used in the financial world to explain the scenarios in which investors irrationally follow each other’s decision. The presence of herding indicates incompetencies of market and anomalous market unpredicatbility. The presence of herding in developing markets has been more prominent than the developed markets due to less educated investors, incomplete security laws and their weak enforcement system, poor accounting reporting and disclosure systems and cultural differences.
Global investors tend to put their funds in emerging economies for higher and quicker return keeping in mind the growth associated with an emerging economy. This comes with the risk to their investments as emerging markets are assumed to be more volatile and not matured enough. Global investors are giving more weight to Indian market in their investment portfolio because of the persistent growth and development in the Indian Economy. However, Indian stock market, being the emerging stock market, is not considered to be mature enough and assumed to be riskier than other developed world stock market. Researching herding in Indian stock market may help grow new bits of knowledge with respect to the effectiveness and in addition risk profile of Indian market which may guide an investor to form a proper investment strategy. "The importance of investigating herding stems from the fact that investors following the actions of others tend to form a collective decision, which in turn, drives stock prices away from their underlying fundamental values. The resulting divergence between market price and fundamental value offers arbitragers an opportunity to reap excess profits" (Tan et al., 2010).

Studies of Scharfstein and Stein (1988), Banerjee (1992), Bikchandani et al. (1992) and Bikhchandani and Sharma (2001) have been provided us the theoretical foundation of the term herding in the stock markets. These studies have increased our understanding about the investor’s behavior of following the others to reap the excess profits and maintain their reputation in the market.

Despite an increasing interest in herding behavior of investors worldwide, little research has been done in the Indian Context. There were some studies like Jose, Varghese and Surendran (2018), Satish and K (2018), Banerjee and Padhan (2017), Kumar and Bharti (2017), Ganesh and Naresh (2016), Saxena (2015), Garg and Jindal (2014), Bhatt (2013), Prosad et al. (2012), Bhaduri and Mahapatra (2012), Lao and Singh (2011) have investigated market-wide herding, some researchers like Lakshman et al. (2013), Patro and kanagaraj (2012), Tayde and Rao (2011) and Sehgal and Tripathi (2009) studied the investment behavior of mutual funds and FIIs in the Indian stock market.

There are few studies that have investigated the presence of herding in respect of the stock markets of emerging economies such as India as most of the studies pertain to developed markets. The growing importance and scant literature calls for investigating presence of herding in the Indian Stock Market in different market conditions. Present study fills the research gaps by focusing not only the presence of herding in Indian Stock Market but also investigating the impact of turnover effect, firm size and industry type on herding using the 500 companies listed on the NSE CNX 500 index for the period of sixteen years i.e. 1999-2014. Indian economy may emerge as major super economic power, currently being part of ‘BRICs’ economies. Therefore, the present study is of academic relevance, since it adds to the body of literature and also provides more insight about whether herd behaviour has any effect on asset prices in the Indian stock market.
1.7. Objectives of the study

Behavioural finance has incorporated the concept of psychology in finance. It has given due attention to the concept of irrationality. Classical theories of finance explained that markets are efficient as it does not provide scope to investors to earn abnormal returns with the usage of information. It takes into consideration the absorption of information in the prices of securities.

According to Statman (1999), Stock market efficiency has two meanings. To some, market efficiency means that there is no systematic way to beat the market. To others, it means that security prices are rational – that is, reflect only fundamental or utilitarian characteristics, such as risk, but not psychological or value-expressive characteristics, such as sentiment.

Efficient Market Hypothesis was widely recognized and applied in many stock markets since 1960s. But, recently, practitioners or researchers highlighted the importance of psychology and presence of irrationality in the behaviour of investors while devising their investment strategy. Various cognitive and emotional biases were identified, which affects the way investors make their investment decisions. According to previous studies, herd behaviour has been observed as the most prominent behaviour of investors across the world in making investment decisions. It means following other investor financial decisions rather than making their own analysis from available information. Such kind of behaviour is more common in case of developing economies as against developed economies. In a developing economy, investors can be less educated. Less amount of information might be available to them because of infrastructural issues. With such kind of reasons, possibility of formation of herd increases in case of developing economies rather than developed economies. Such behaviour is also observed by researchers in case of volatile periods like financial crisis in 2008. Events surrounding the financial crisis of the 2008 have made analyzing the behaviour of investors in developing markets more interesting. This study is an attempt to provide empirical evidence about the behaviour of investors during crisis period by analyzing herding behavior in the Indian Stock Market with special reference to “National Stock Exchange”. The study has following objectives to achieve:

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1. To examine the presence of herding in the Indian stock Market under different market conditions.

2. To examine the impact of turnover rate effect on herding in the Indian Stock Market.

3. To examine the impact of firm size on herding in the Indian Stock Market.

4. To examine the impact of industry type on herding in the Indian Stock Market.

5. To suggest a comprehensive possible consequences of herding in the Indian Stock Market.

1.8. The Conceptual Framework

To achieve the objectives of the study i.e. to determine the herding in different market conditions (bull/bear), market periods (pre-crisis, during crisis and after crisis) and also as per turnover rate (trading volume), firm size (market capitalization) and industry type (manufacturing/non-manufacturing), the conceptual framework has been summarized as follows:

Figure 1.4: Conceptual Framework
1.9. Organization of the study

The present study is divided into eight chapters.

**Chapter one** discusses the issues of the investors, efficient market hypotheses, emergence of behavioral finance, theories of herding, meaning, definitions, causes and types of herding, need, objectives and limitations of the present study. It wrap up with the organization of the study.

**Chapter Two** provides the detailed analysis of development of Indian stock market for the study period (1999-2014). It also provides the regulatory framework related to investors’ protection in India.

**Chapter Three** provides the review of literature for different objectives of the study. The review of literature has also been provided in the global as well as in Indian context separately. Lastly the chapter provides summary of the studies has been provided in the tabular format.

**Chapter Four** explains the research methods used to attainobjectives of the study and discusses the population and sample selection criteria. Further, the sources from where the data is collected, time period for which study has been carried out and the framework of analysis has been discussed. Comprehensive information about the dependent and independent variables of the study has been explained. It provides a quick look on the research methodology used to attain the objectives of the study. It also shows the tools and techniques adopted to fulfill the stated objectives.

**Chapter Five** presents the empirical analysis of the companies listed on NSE 500 index for the period of sixteen years i.e. 1999-2014 using the “Christie and Huang, 1995 and Chang, Cheng and Khorana, 2000” models in different time frames and market conditons.

**Chapter Six** reports the analysis of the impact of turnover rate and firm size on herding in Indian stock market.

**Chapter seven** provides detailed analysis of herding in manufacturing and non-manufacturing sectors of the Indian stock market for different market periods and conditions using the methodologies of “CH (1995) and CCK (2000)”.

28
Chapter Eight comprehends the summary of all the chapters included in the study. The empirical findings as per different objectives of the study are also reported in this chapter. It also highlights the conclusions, limitations and implications of the present study. Finally, the chapter concludes by providing directions for future research.

1.10. Summary

The present chapter has provided the importance of savings and investment, different alternatives of investments and role of financial markets in the development of the economy. It has elaborated on the efficient market hypothesis given in the traditional finance theories and its types. While criticizing the EMH, the emergence of Behavioral Finance has also been explained in this chapter. The different biases like cognitive and emotional biases involved in decision making process of investors. “Herding” the most common form of bias involved in the investment process is explained thoroughly, with its meaning, definitions, causes, types and theories related with herding. The chapter has provided with the need and significance of the study and the objectives to carry out this research. The organization of the study has also been discussed at the end of this chapter.

The subsequent chapter depicts the development of Indian stock market for the study period i.e.1999-2014. This also provides the regulatory framework for investors’ protection in India.
REFERENCES


