

# A Brief Mapping of Theory and Evidence of Investors' Behavioural Biases

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## Abstract

Investment decision making focuses on how investors make decisions to buy or sell securities. What guides their choices among alternatives, what are their investment objectives, constraints, and risk profile; and ultimately, what influences their decision making during the stock selection process. Behavioural finance deals with the psychology of the investor. It tries to explain how an investor makes an investment decision and how behavioural and other factors influence the decision making of an investor. Behavioural factors primarily include behavioural biases and personal characteristics of an investor, that is, personality, attitude, risk tolerance, and demographic factors, while other factors include external contextual factors like accounting information, market situations, brand image, and so forth, which have a bearing on decision making. The present paper provides an in-depth review of literature of prominent studies in the area of behavioural finance. The first part of the paper explains the concept of behavioral finance, the second part gives a detailed discussion on the classification of behavioural biases, and the third part discusses the effect of behavioural biases on the trading behaviour of the investors and the feelings of investors after experiencing the outcomes of investment. Towards the end, a comprehensive framework has been formulated representing the influence of behavioural biases on investment behaviour of an investor. The paper concludes that behavioural biases play a significant role in the decision making of the investors, and these biases not only shape the current investment decisions, but also influence investors' future decision making.

**Keywords:** behavioural biases, heuristics, prospect theory, disposition effect, endowment effect, loss aversion, and regret aversion

**JEL Classification:** D03, G02, G11

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Behavioural finance has recently grabbed the attention of researchers in the area of finance. Investment decisions are a tradeoff between the investors' immediate consumption and their deferred consumption. They compare the benefits of consuming the money today against the benefits that they may derive in the future by investing the unconsumed money. Utility theory developed by Neumann and Morgenstern (Nagy & Obenberger, 1994) argues that investors are purely rational, are able to deal with complex choices, are risk averse, and wealth maximizing. Most of the research studies in finance are based on the premises that an investor is rational. Rationality, here, means that an investor does not possess any bias and critically processes all past, present, and potential information. However, some psychologists and financial experts refute the hypothesis of full rationality and recognize the influence of behavioural factors on the decision making of an individual investor.

There are many factors which inhibit the rational decision making of an investor. The explanation and discussion of the factors which lead to irrational decision making fall in the area of behavioural finance. It includes cognitive psychology (the way people tend to differ from one another) and the concept of market inefficiency, which arises because of limits to arbitrage. Ricciardi and Simon (2000) discussed some basic

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concepts of behavioural finance, including overconfidence, cognitive dissonance, theory of regret, and prospect theory. Behavioural finance mainly deals with the psychology of the investors. It investigates the behaviour which the investor exhibits in the security market. Olsen (1998) gave an overview of behavioral finance and its implications on stock price volatility. He stated that behavioral finance focuses on the implications of the psychological decision making process. He concluded that the new theory of chaos and adaptive decision making can help in explaining the circumstances of stock price volatility. The shortfalls of standard finance have led to the emergence of behavioural finance. Behavioural finance tries to explain how, why, and when the decision making of an investor becomes irrational and what factors influence the decision making of an investor. Ricciardi (2006) gave a brief overview of behavioural finance and mentioned the key areas in which a new scholar may pursue future research ; he also stated that behavioural finance is an interdisciplinary approach and has a wide scope for research. Ricciardi (2008) also provided an overview of the concept of perceived risk and notion of decision making from standard finance and behavioral finance point of view. He discussed the behavioural and emotional factors that influence the decision making of investors.

Behavioural finance includes cognitive biases and emotional aspects of the decision making process of the investors. Cognitive factors are concerned with the way people organize their information, while emotional factors deal with the way people feel as they register the information (Ricciardi, 2006). The players in the financial markets may be an organization, a group, or an individual. Behavioural finance provides models to understand the phenomenon and functioning of the stock markets. Investors' behaviour analysis is a study made on the psychographics and other contextual factors that attract investors towards a particular investment. Not only do the psychological factors influence the investors' behaviour, but various demographic factors also have their impact on investor psychology and ultimately, their investment decision making process. Shanmugsundaram and Balakrishnan (2011) also suggested that demographic factors influence investment decision making.

Behavioural finance is related to the psychology which involves the study of the mind of an investor. The investment environment is highly complex and is difficult to understand. Traditional theories of finance emphasize that an investor is rational, but behavioural finance deviates from this assumption and states that there are many psychological and environmental factors, which influence the decision making of an investor. Psychological factors include investment objectives, feelings, emotions, risk attitude, time, behavioural biases, mental capabilities of evaluating the alternatives, and personal characteristics, that is, personality, attitude, perception, motivation, and so forth. Shaikh and Kalkundrikar (2011) empirically found that risk is an important factor for an investor in taking an investment decision. The investment environment includes factors like accounting information, recommendations of others, investment alternatives available to the investors, information sources, market structure, and other relevant external factors. The Table 1 lists down the factors which influence the decision making of investors.

**Table 1. Factors Influencing Investors' Decision Making**

Psychological and Personal Factors		Investment Environmental Factors	
1.	Attitude	1.	Accounting Information
2.	Emotions	2.	Economic Factors
3.	Feelings	3.	Investment Alternatives
4.	Investment objective	4.	Industry Specific Factors
5.	Heuristics	5.	Investment Alternatives
6.	Motivation	6.	Recommendations from Family and Peers
7.	Personality & Demographics	7.	Recommendations of Brokers and Financial Advisors
8.	Perception	8.	Sources of Information, etc.
9.	Risk Tolerance		
10.	Time Horizon, etc.		

Of all the dimensions of behavioural finance, the present paper focuses on behavioural biases and their influence on the decision making of investors. The first part of the paper explains the concept of behavioural finance, followed by a detailed review of literature on behavioural biases and their classification, the impact of biases on trading of investors, and post investment decision psychology of the investors. At the end, the paper presents a comprehensive conceptual framework describing the effect of biases on investors' decision making.

## Behavioural Biases

Behavioral finance suggests that decision making process of an investor is subject to several behavioural errors or biases. Behavioural biases are the common mistakes that are made by an investor while making investment decisions. Due to the complexity of the investment environment, information overload, limited knowledge about investment alternatives, different prospects to see an investment option, past experiences and apprehensions about the future, the decision making process of an investor is subject to several biases. These biases vary from investor to investor and can be clubbed into three broad categories : Errors due to the use of heuristics during the decision making process, errors which influence decision making are grouped as prospect theory (Tversky & Kahneman, 1974), and overconfidence.

**(1) Heuristics:** The word heuristics was first used in psychology by Newell and Simon (1972) to describe it as a simple process that replaces the complex algorithms. Whenever investors make an investment decision, a number of investment alternatives are available to them. It is not possible for them to process all the information due to limited capacity of processing the information and constraints based on external environment, also known as bounded rationality (Simon, 1990). So, in order to reduce the efforts associated with analyzing the complex information related to all available alternatives, investors tend to use shortcuts to choose the best alternative. The mental shortcuts or “Rule of Thumb” are known as heuristics.

Heuristics methods are the methods people use to reduce the efforts associated with a task (Shah & Oppenheimer, 2008). People make use of heuristics due to bounded rationality, information overload, and investment complexity (Simon, 1990). Heuristics are means to reduce the search necessary to find a solution to a problem. These are mental shortcuts derived from past experiences, which help in simplifying investment decision making. Baker and Nofsinger (2002) stated that investors tend to employ shortcuts by using heuristics to decrease the amount of information. Shah and Oppenheimer (2008) reviewed the literature on heuristics in psychological and economic experiments and proposed an effort reduction framework and concluded that heuristics are methods that use the principle of effort reduction and simplification. However, reliance on heuristics under uncertainty may lead to several biases (Tversky & Kahneman, 1974). Tversky and Kahneman suggested that investors use intuitive predictions in assessing the future value of a stock. Heuristics are related to cognitive biases. Main heuristics defined by Kahneman, Slovic and Tversky (1982) are representativeness, availability, and anchoring & adjustment.

**(a) Representativeness:** Use of representative heuristics leads to representativeness bias. Representativeness bias means making the investment decision based on representative characteristics of an investment option rather than analyzing the underlying circumstances. For example, an investor normally thinks that investment in a familiar company would be better than investing the funds in an unknown company, which may be subjectively true. Shefrin and Statman (1995) (in a survey) found that investors believed that the companies which got high ranks in 'Fortune Magazines' would be a better investment for them due to their large business scale, low book-to-market ratio, and so forth, but in reality, investments in such companies result in poor long term investments.

Shefrin (2002) stated that investors tend to choose those stocks which have desirable qualities such high sales growth and strong earnings, which imply that investors are generally infected by representativeness bias. Cooper, Dimitrov, and Rau (2001) showed that a company's name generally leads to representativeness bias. They studied that 95 companies changed their name and added the word dotcom (.com) in their existing name during the period

from 1998 to 1999, and the results came out in the form of abnormal returns that did not appear to reverse in the following 120 days. This bias is not only confined to individual investors, but also influences the behaviour of other market practitioners like brokers, groups, agents, and so forth. Barber, Hath, and Odean (2003) investigated the investor decision of groups (stock clubs) and individuals. The study signified how much importance is given by group investors and individual investors to good reasons, that is, the most admired companies and financial variables while purchasing stocks. The data were collected from a large brokerage house of America. The ranking for the most admired companies was taken from Fortune magazine's Annual Survey of America's Most Admired Companies, and financial variables included probability stock return and growth in return. The results indicated that the group emphasized good reasons more than the individuals, and group investors always prefer glummer stocks because they appear to be prominent investment, and hence, are easy to justify to sponsors.

Masomi and Ghayekhloo (2011) surveyed fund managers of 40 institutional investors at the Tehran Stock Exchange by applying factor analysis. The results indicated that heuristics significantly influence the decision making of institutional investors and concluded that representativeness bias is not limited to individual investors, but also affects the decision making and behaviour of institutional investors. Barberis, Shleifer, and Visny (1998) stated that investors suffering from conservatism bias and representativeness bias often get attracted to a company's positive earnings announcements further into than is warranted in the future, thereby creating overreaction.

**(b) Availability Bias:** Investors, or people in general, are more inclined to act upon information which is easily available to them (Redelmeier, 2005). Availability heuristics operates on the notion that “if you can think of it, then it must be important”. For example, suppose a person goes to the market for shopping, he or she mostly visits those shops which are close to his/her home. In a similar way, investors who are influenced by this bias normally invest in domestic stocks due to easy availability of such stocks. Ahmed, Ahmad, and Khan (2011) surveyed 300 investors of the Lahore Stock Exchange and concluded that heuristics, that is, availability bias and representativeness bias have a significant effect on the decision making process of investors in Lahore.

Sadi, Asl, Rostami, Gholipour, and Gholipour (2011) studied the relationship between the personality type (conscientiousness, agreeability, neuroticism, and openness), availability bias, escalation of commitment, randomness bias, and hindsight bias in Tehran (Iran). Data was collected by using a questionnaire from 200 investors and experts of the Tehran Stock Exchange. The results stated that there is a direct correlation between extroversion and openness, between hindsight and overconfidence bias, between neuroticism and randomness bias, between commitment and availability biases, and there was a reverse relationship between conscientiousness and randomness biases.

**(c) Anchoring and Adjustment:** Anchoring means a tendency to attach our thoughts to a reference point like a specific price level for a stock or bond, whether it may be relevant to a decision or not. Kahneman and Tversky (1979) stated that loss averse individuals frame events as either gains or losses relative to a reference point. They weigh losses more heavily than gains. Heath, Huddarth, and Lang (1999) stated that the highest stock prices in the previous year are often selected as a reference point. Benartzi and Thaler (1995) concluded that investors use the stock price as a reference point to compare the different stocks. In this way, investors make their decisions to buy or sell on the basis of a particular reference point, which may be subjectively true. Chandra and Kumar (2011) found that behavioural biases, that is, heuristics (anchoring, availability bias, and regret aversion) and prospect theory are influential in the context of Indian investors for their investment decision-making process.

**(2) Prospect Theory :** It provides a psychological basis to behavioural approaches for portfolio selection. It was developed by two psychologists - Daniel Kahneman and Amos Tversky in 1979. This theory states that when investors face two or more investment alternatives, they are more concerned towards their respective gains or losses rather than the effect on overall wealth. In other words, as compared to an equivalent amount of profits, losses tend to have an increased emotional impact on the investor. Disposition effect is an important application of

the prospect theory. Loss aversion, regret aversion, and mental accounting are the underlying factors of the disposition effect. Chandra and Kumar (2011) and Masomi and Ghayekhloo (2011) have discussed the various aspects of the prospect theory.

**(a) Loss Aversion:** An important underlying factor of prospect theory is loss aversion. Loss aversion is the result of “value function” given by Kahneman and Tversky (1979). An investor is said to be loss averse if he/ she pays more attention to losses than to gains of equal size. Haigh and List (2005) examined the behavioural differences between professional and non-professional traders (students) of Chicago Board of Trade (CBOT) for the theory of myopic loss aversion (MLA). MLA is a theory that combines loss aversion and mental accounting bias. They found that traders are more myopic loss averse than students.

Coval and Shumway (2005) studied the trading behaviour of CBOT traders, biases influencing their trading behaviour, and impact of such biases on asset pricing. The results stated that CBOT traders were loss averse and were inclined to take more risks in the afternoon if they had losses in the morning. Their actions had a short term impact on the asset pricing. The authors found that the extent of loss aversion influences the frequency with which the investors evaluated their portfolio and also found that investors who are loss averse will either not participate in equity markets or will allocate a small portion of their wealth in equities. Energetic investors who evaluated their portfolio on a daily basis were found to be more risk averse. Mbaluka, Muthama, and Kalunda (2012) stated that the decision of investors varies according to the way the problem is presented to them, that is, in terms of gains or losses.

**(b) Regret Aversion:** Regret is the feeling associated with the ex-post knowledge that a different past decision would have fared better than the one chosen. Regret may be defined as a negative emotion that occurred after making a wrong decision. Shefrin and Statman (1985) stated regret as a factor of disposition effect because the pain of realizing a loss is much more than the pleasure of having a gain of an equal amount. The degree of regret may be affected by whether the decision is made by an agent or an investor himself. Gilovich and Medvec (1995) stated that in the short run, regret of selling the losing security would be higher, but in the long run, regret may be higher for not selling the losing stock. Ritov and Baron (1995) concluded that anticipated regret was more when an investor possessed complete information about outcomes as compared to when an investor had access to only available information.

Regret is comprised of an evaluation of realized outcomes compared to some alternatives and feeling of self-blame for making a bad investment decision (Connolly & Zeelenberg, 2002). Fogel and Berry (2006) surveyed 176 members of The American Association of Individual Investors and concluded that regret is not only the function of decision making made by an investor, but it is also influenced by the counterfactual results of the foregone alternatives. Trading makes an investor full of regret when decisions do not lead to positive results as investigated by Siddiqui (2008). He further explained that investors avoid the pain caused by regret by delaying the realization of losses. Masomi and Ghayekhloo (2011) stated that regret aversion bias also influences the decision making of institutional investors of Taiwan. Chin (2012) surveyed 250 individual investors of Malaysia and by applying one way ANOVA and *t*-test, they concluded that investors feel regret when buying at a higher price and selling at a lower price. Sometimes, they hold their losing stocks too long, which again results in regret. This again confirms the findings of Gilovich and Medvec (1995).

**(c) Mental Accounting:** Mental accounting means rather than focusing on overall portfolio return, investors usually make separate accounts for each investment in their mind. They treat each account individually in order to avoid risks, but this sometimes decreases the overall returns of the portfolio. According to Barberis and Thaler (2002), the process by which individuals formulate decision problems for themselves is known as mental accounting. Shefrin and Statman (1985) stated that mental accounting places the prospect theory treatment into a broader framework. They described mental accounting as an important underlying factor of disposition effect. Whenever an investor purchases a stock, a separate mental account is opened in his mind. The investor uses the

purchase price as a reference point for the trading of such stock. Thaler and Johnson (1990) stated that a decision maker faces a great difficulty to close a mental account at a loss.

**(3) Overconfidence:** Overconfidence means investors' tendency to overestimate their abilities and knowledge while making investment decisions. Many biases lead to overconfidence. One strain of overconfidence is an illusion of control (Langer, 1975). Illusion of control is the tendency of people to overestimate their ability to control events; investors infected from this bias tend to think that they have more control over events than can objectively be true, and bias that leads to overconfidence is self attribution bias (Miller & Ross, 1975). In this, people give credit for their successes to their personal or internal factors, while they give attributions of failure to circumstances or external factors.

Barber and Odean (1998) investigated the hypothesis that an overconfident investor trades too much than a rational investor. The study was conducted in the United States. The results stated that men were found to be more overconfident than women. Due to excess trading without making rational decisions, the returns earned by men reduced by 2.65 % a year as opposed to 1.72 % for women. Barber and Odean (1999) also highlighted the two common mistakes made by investors : Excessive trading and disproportionately holding on to the losing investments while selling the winner. The study was conducted by using 78,000 accounts of households from a large brokerage firm and the results indicated that overconfidence leads to excessive trading. The effect of online trading on the decision making of an investor and trading behaviour was also investigated by Barber and Odean (2001). They concluded that online investors make decisions in a very different environment than off-line investors. They (the online investors) have access to more data. They often act without intermediaries. All this leads to investors' overconfidence and results in active trading without analyzing the pros and cons of the deal. Barber and Odean (2002) investigated 37,664 household accounts of a large brokerage house of U.S. and by applying descriptive statistics on the collected information, the results indicated that men were found to be more overconfident than women. Due to overconfidence, men trade more excessively than women, which results in low annual returns.

Gervais and Odean (2001) developed a model to explain how traders learn about their ability and how the overconfidence bias occurred during this process. In assessing their ability, the traders give too much credit to themselves for their successes, which leads to overconfidence. Bhandari and Deaves (2006) surveyed 2000 defined plan members in order to explore the demographics of overconfidence. They concluded that highly educated males do not have higher levels of knowledge, so they are more subject to overconfidence. Recently, Lin (2011) surveyed 430 investors of Taiwan through the questionnaire method to investigate the relationship between rational decision making and three investment biases, that is, the disposition effect, overconfidence, and herding. By applying structural equation modeling on the collected data, the results indicated that two stages out of three, namely, demand identification and evaluation of alternatives are influenced by overconfidence bias.

## **Effect of Biases on Trading by Investors**

**(1) The Endowment Effect:** Thaler (1980) provided an explanation for investors' behaviour known as the endowment effect, which was further explained by Kahneman, Knetsch, and Thaler (1991). The endowment effect means the tendency of investors to become attached to the assets even when better investment opportunities emerge. They stated that whenever a person comes into the possession of a good, he or she gives it a higher value than before possessing it. Loss aversion bias leads to the endowment effect.

A loss averse investor gives much value to a loss rather than to a foregone gain. Zhu, Chen, and Dasgupta (2008) stated that an agent requires a premium for the psychic pain for selling the endowed asset. Kalunda and Mbaluka (2012) examined the behavioural effects in individual investor decision making processes and the existence of the endowment and disposition effect among the investors of the Nairobi Stock Exchange of Kenya. By using scenario analysis, the results stated that both endowment effect and disposition effect influence the decision making of individual investors. Gender, length of trading in the stock market, and consulting financial investment

advisors had no impact on the endowment effect, and the same was more influenced by regret of commission rather than regret of omission.

**(2) The Disposition Effect:** Shafrin and Statman (1985) were the first ones to provide behavioural explanation of investors' tendency to realize capital gains and losses. They studied numerous accounts of professional traders of mutual funds and individual investors. The behaviour of investors to sell the stock whose value had increased while holding those stocks whose value had declined, they termed this tendency of investors as the "disposition effect". Ferris, Haugen, and Makhija (1988) studied the disposition effect with respect to trading volume. They found that when prices are on a declining trend, trading volume also decreases and increases with respect to increase in security prices, which again confirms the disposition effect. These results confirm the disposition effect even in the month of December, where tax motivated selling prevails. Odean (1998) tested the disposition effect, that is, the tendency to hold losing stocks too long and selling the winner too soon. Trading records for 10,000 accounts at a large discount brokerage house were analyzed. The conclusion of the study revealed that individual investors demonstrate a significant preference for selling winners and holding losers except in December, when tax motivated selling prevails.

Kumar (2009) evaluated whether individual investors' biases are amplified when stocks are more difficult to value and whether the relatively informed investor attempts to exploit these biases. The results indicated that individual investors make larger investment mistakes and exhibit strong behavioural biases when stocks are more difficult to value. Both the disposition effect and overconfidence bias are found among investors while purchasing such stocks, which are difficult to value. Sun and Hsiao (2011) studied 300 students of University of Taipei to investigate the impact of psychological factors, that is, overconfidence, mental accounting, regret aversion, and self-control on the disposition effect. The results indicated that self-control had a negative relationship with the disposition effect, whereas the other had a positive relationship with the same.

## **Post-Decision Psychology of Investors**

Once a decision has been taken, an investor may exhibit a variety of reactions. Either he/she will be satisfied with his/her investment, or he/she may have a feeling of regret or dissatisfaction. The degree of regret depends upon whether the outcome is obtained through an act of omission or commission. In other words, investors feel more regret if a bad outcome is the result of actions taken for the investment by an investor than bad outcomes that occur due to failure to act (Kahneman & Tversky, 1982). Another aspect of regret is that the feeling of regret depends upon the way in which the decision was made by the investor and the number of alternatives available during the decision making process. The degree of regret is not confined to whether the decision was made by the investor himself/herself or not, it also depends on the final outcomes of the foregone alternatives, if the investor possesses complete information about the same (Ritov & Baron, 1995). Fogel and Berry (2006) also stated that regret is not only the function of decision making made by an investor, but it is also influenced by the counterfactual results of the foregone alternatives.

On the other hand, the outcome may satisfy the investors. Satisfaction refers to the pleasant feeling the investor feels after experiencing the outcomes of the decision made by him/her. Botti and Iyengar (2004) stated that individuals feel more satisfaction when they themselves take their own decisions. Decisions that are reversible are most desired and people are willing to pay a premium for the ability to reverse decisions, though reversibility may not lead to positive or satisfactory outcomes.

## **Behavioural Biases and Investors' Decision Making**

After reviewing the relevant literature, it can be clearly stated that behavioural biases significantly influence the decision making of investors. A comprehensive framework has been formulated in the Figure 1 exhibiting the circumstances which lead to behavioural biases and the effect of biases on trading behaviour of investors ; the

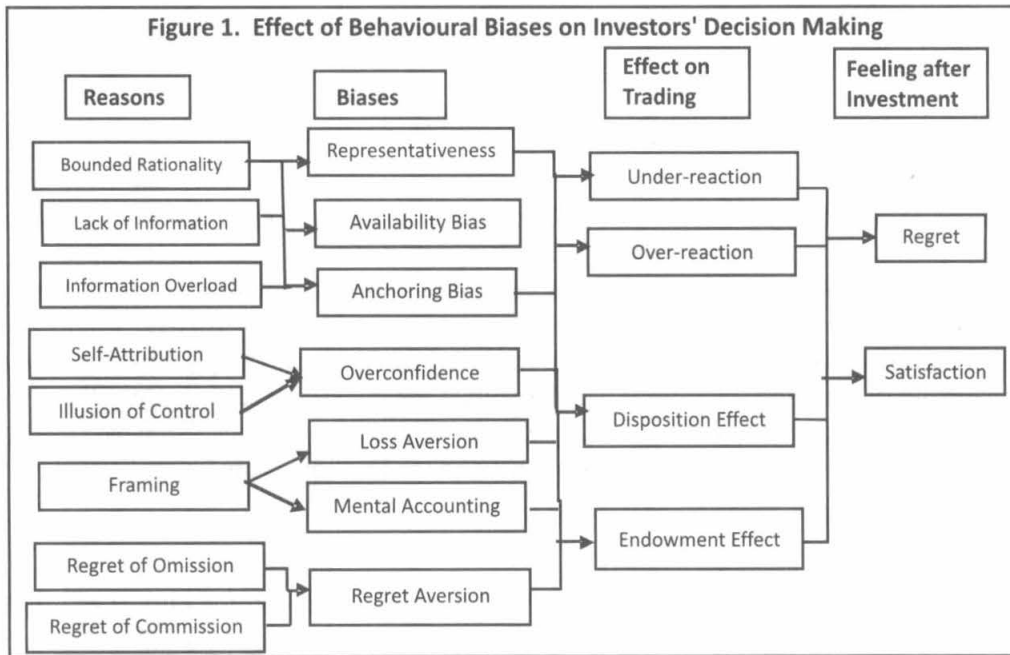


Figure 1 also depicts the feelings that investors have after experiencing the outcomes of their investments.

This framework shows the basic reasons which lead to behavioural biases. The main biases due to use of heuristics occur due to limited capacity of processing information, investment complexity, information overload, and so forth. These factors are both personal as well environmental. For example, if an investment alternative is complex and a lot of information is available to an investor, then in order to reduce the efforts associated with analyzing the complex information, an investor generally tends to choose that investment alternative which is easily available to him/her (availability bias), or that alternative whose past performance is well known to him/her (representativeness bias), or any other mental shortcut. A person's unique personal characteristics make him different from others. Personal characteristics also lead to many biases such as self attribution bias, illusion of control, overconfidence, and so forth. The reviewed studies have shown that self-attribution and illusion of control bias leads to overconfidence bias.

Each investor sees an investment option in a different prospect from other investors. Some investors may value losses highly, whereas others may not do so. Their way of analyzing an investment option would also be different from each other. So, the way in which investment alternatives are presented to them (framing) is a very important reason which makes an investor emotionally biased. Framing determines the mental setup of an investor towards a particular investment in terms of loss and gain and makes an investor loss averse.

Similarly, studies have shown that as the degree of influence of biases increases, the trading of investors becomes more irrational. All the biases are related to each other. The degree of influence of loss aversion and mental accounting biases depends upon the way the investment alternative is presented (framing) to the investors in terms of their respective gains or losses. If an investor is loss averse while making a separate mental account relating to an investment alternative, he/she may use price as an anchor. For example, while making a selling decision of a stock, he/she may use buying price as an anchor of such an investment. Thus, a proposition can be framed that:

➔ **Proposition 1:** A loss averse investor may use price as an anchor for making a mental account relating to an investment.

In the same way, studies have shown that overconfident investors tend to overestimate their capabilities to control events, which may be subjectively true. So, there may be a negative relationship between confidence and extent of influence of behavioural biases. A confident investor does not trade too much without analyzing the



related circumstances. Confident investors show high levels of confidence and control on themselves and are found to be active traders. So, another proposition can be:

→ **Proposition 2:** A confident investor may be less behaviourally biased.

However, the use of heuristics, different prospects to see an investment option, and overconfidence makes investment decisions easy and quick, but the outcomes of the investment, would these be profitable or not; that is not guaranteed. Behavioural biases lead to many irrational behaviours. For example, representativeness bias makes an investor overreact. Attraction towards positive earnings announcement is one such example. Similarly, studies have shown that overconfident investors tend to think that they have control over events; decisions made by them are right and for the sake of having higher returns, they trade too much by selling the winning stocks too early without analyzing the investment options which result in the disposition effect. Once the decision has been made, the investors have a variety of psychological reactions. The study of post decision psychology is important because these reactions would also influence the future investment decisions of investors.

## Conclusion

Research in the area of behavioural finance has gained momentum due to the pitfalls of traditional finance theories. These theories have failed to justify the anomalous behaviour depicted by stock returns across the world and instances where investors' decisions deviate from rationality. Behavioural finance tries to provide a rationale to the overall judgment process of an investor. There is a plethora of work documenting time series behaviour of stock prices and volumes that contradict the efficient market hypothesis (EMH). The basic assumption of rational behaviour of an investor has been proved erroneous by researchers the world over. Behavioural finance provides a psychology based justification to market imperfections. The present paper provides a bird's eye view of investors' behavioural biases and the reasons or circumstances which lead to these biases. It also covers the effect of these biases on trading behaviour of investors, and the feelings that investors have after experiencing the outcomes of their investments.

Based on the review of literature, a comprehensive conceptual framework of behavioural biases and their influence on trading behaviour of investors has been designed. Behavioural biases significantly influence the financial decision making of investors. The factors which lead to different biases can be related to personal characteristics of an investor or to the investment environment. The paper also concludes that these biases lead to different types of irrational behaviour such as the disposition effect, endowment effect, over and underreaction. Behavioural factors are investor specific. It is not necessary that an investor would get influenced by a single bias as more than one bias may simultaneously influence an investor. For example, a loss averse investor mostly uses price as an anchor while making an investment decision. The extent of influence of a bias varies among investors. A behavioural bias can be silent for one investor, which at the same time can be active for another investor. Whether a specific bias would influence the investor or not totally depends upon his/her personal characteristics, cognitive factors, and investment environment factors. The paper concludes that behavioural biases play a significant role in decision making of investors. These biases not only shape the investment decision once, but also influence the future decision making of an investor.

## Implications, Limitations of the Study, and Scope for Further Research

Behavioural finance contributes to one's understanding of the actual investment behaviour of various market participants. A better understanding of investors' psychology may provide an explanation to seasonal market anomalies, which have drawn the attention of academia since decades. Mangala and Lohia (2013) commented that anomalies are patterns and empirical regularities in stock returns, which indicate market inefficiency and indicate inability of asset pricing models to explain the stock price behaviour. It may be said that the area of behavioural finance is in its infancy. Much more rigorous research and empirical testing are needed before it develops into a

fully grown discipline. This would help in modeling the financial asset pricing models more realistically.

The present paper reviews the literature available on investors' behavioural biases. The study includes only selected prominent biases. There are other biases and effects like the self-attribution bias, hindsight bias, bandwagon effect, and so forth, which can be studied and investigated by aspiring scholars. Studies on individual investors' behavioural processes can also be conducted. Furthermore, the behavioural and mental processes involved in decision making of institutional investors may be investigated.

A few studies on investment behaviour of individual, corporate, and professional investors have been carried out in India. Most of the existing studies focus on a particular factor like risk tolerance, investors' personality, or behavioural biases of the investment community. Future studies encompassing a combination of different factors would add to the existing pool of knowledge. Also, in-depth research based on data generated from brokerage houses regarding the volume of trades, frequency of trading, and so on would make the behavioural studies more meaningful. These studies may prove useful to investment advisors in profiling the investors, designing appropriate investment strategies based on their behavioural traits like personality, emotional intelligence, and risk tolerance. Vyas and Moonat (2012) opined that the professional investors must understand the fund selection and switching behaviour of investors and design the schemes accordingly.

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