CHAPTER - 3

REVIEW OF LITERATURE

3.1 Introduction:

After understanding the dimensions of Indian mutual fund industry, literature review has been done to understand the types of research carried out and also the research gap in it. To explain investors irrationality and their decision making process, behaviour finance draws on the experimental evidence of the cognitive psychology. The biases arises when people form beliefs, preferences and the way in which they make decisions, given their beliefs and preferences. (Barberies and Thaler, 2003) who bring this second milestone of behavioural finance theory. It is imperative to study in detail various empirical evidence of literature on behavioural finance and review the key literary words of Daniel Kahneman and Amos Tversky, the fathers of behavioural finance on this context:

3.2 Behavioural finance is all about knowledge of investors’ behaviour:

Behavioural finance literature gets into the very heart of the debate about rationality and irrationality of market participants. Thaler (1991) makes an interesting remark: “If most individuals tend to err in the same direction, then a theory which assumes that they are rational also makes mistakes in predicting their behaviour.”

Behavioural finance seeks to supplement the standard theories of finance by introducing behavioural aspects to decision making process. Contrary to Markowitz and Sharpe approach, behavioural finance deals with individuals and ways of gathering and using information. Behavioural finance seeks to understand and predict systematic financial market implications on psychological decision processes. Additionally, it focuses on the application of psychological and economic principles for improvement of financial decision making. (Olsen,1998)

Behavioural finance builds itself upon two blocks: (i) limit to arbitrage and (ii) psychology (Barberies and Thaler,2003). The Psychologists list number of possible deviations from rationality, whereas, limits to arbitrage argue that rational investors may not be able to exploit opportunities created by irrational investors.

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4Ibid.1
If irrational investors create dislocations in assets prices, rational investors should be able to correct this mispricing through the process of arbitrage. However, arbitrage can be too costly as well as too risky, or can also be impossible due to various constraints, so the inefficiencies may persists for longer period. Behavioural finance finds its implications on various levels of financial markets: on the aggregate market level, on the cross section of average returns, on individual investor behaviour and on corporate finance (Barberis and Thaler, 2003)\(^5\).

It has been recognised that source of judgment and decision biases, such as time, information processing capacity, limited knowledge, attention etc., are limited. Therefore there is a need for imperfect decision making procedures, or heuristics (Simon, 1955, Tversky and Kahneman, 1974)\(^6\). Hirshleifer (2001)\(^7\) argues that many or most familiar psychological biases can be viewed as outgrowths of heuristic simplification, self-deception, and emotion-based judgments. Study done by Kent, Hirshleifer and Subramanyan (2001) found the evidence for systematic cognitive errors made by investors and these biases affect prices.

According to economic theorists, investors behave ‘rationally’ while choosing financial security. In reality, however, according to Shiller (1999)\(^8\) investors do not think and behave rationally. To the contrary, it is driven by greed and fear. Investors mislead by extreme of emotions, subjective thinking and whims of crowd, consistently form irrational expectation for the future performance of values and follow a somewhat predictable path. Much of basic theories of behavioural finance concerns with a series of new concepts under the general heading of ‘bounded rationality’ (Herbert, Simon, 1947, 1983)\(^9\), this relates to cognitive limitations on decision making.

First landmark in this direction was by research paper called “Belief in law of small numbers” published in year 1971, in that Daniel at el. state that “People have erroneous intuitions about the laws of chance. In particular, they regard a sample randomly drawn from population as highly representative” (Kahneman and Tversky, 1971)\(^10\).

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\(^5\) Ibid.1


Next step in this direction was when their other research paper “Subjective probability: A judgment of Representativeness” published and other was “On the psychology of prediction”. In former study, they identified representativeness bias and in later they argued that representativeness plays key role in intuitive prediction made by individuals. (Kahneman and Tversky, 1972,1973)\(^{11}\)

In the year 1974 in research paper “Judgment under uncertainty: Heuristics and Biases”, they described three heuristics-Representativeness, Availability and Anchoring. They argued that “a better understanding of these heuristics and the biases they could improve judgment and decisions in situations of uncertainty(Kahneman and Tversky, 1974)\(^{12}\).

Their seminal work for which they were awarded Noble Prize in Economics in year 2002 was “prospect theory: An analysis of decision under risk” published in *Econometrica*. This study was ‘a critique of expected utility theory as a descriptive model of decision making under risk’ which is alternative model of decision making. (Kahneman,1979).\(^{13}\) Later, they introduced the effect famous framing or frame dependence. (Tversky and Kahneman, 1981)\(^{14}\)

So to explain the irrational investor behaviour in financial markets, behavioural economists draw on the knowledge of human cognitive behavioural theories from psychology, sociology, and finance. Major empirical studies of aspect of behavioural finance are discussed as under.

### 3.3 LITERATURE REVIEW ON BEHAVIOURAL FINANCE

Behavioural finance literature falls into two primary areas: (i) the identification of ‘anomalies’ in the efficient market hypothesis that behavioural model may explain (DeBondt and Thaler, 1985)\(^{15}\) and (ii) identification of individual investor behaviours or biases inconsistent with classical economic theories of rational behaviour (Odean,1999)\(^{16}\). This section provides a brief review of theoretical and empirical understanding of behavioural finance for identification of various factors that influence investor’s investment decision making behaviour. It includes the primary

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\(^{12}\)Ibid.1


features of theories drawn mainly from discipline of cognitive psychology. It includes discussion of research involving four theories: (I) prospect theory: (II) framing effect, (III) heuristics and biases, and (IV) affect theory.

3.3.1 FRAME DEPENDENCE:

3.3.1.1 Prospect theory:

As a reference point in developing prospect theory, Kahneman and Tversky employed the classic version of Expected Utility (EU) theory as proposed by Bernoulli in 1738. This is theoretical construct that forms the basis of the mean variance-based modern portfolio theory of Markowitz (1952). One of the most influential contributions to the theory of decision making under uncertainty and risk was made by Kahneman and Tversky with prospect theory. The robustness and pervasiveness of this cognitive-psychological research have bolstered its impact on the economic theory, as well as finance.

Expected Utility theory has dominated the analysis of decision making under risk. It has been generally accepted as a normative model of rational choice and widely applied as descriptive model of economic behaviour. Kahneman et al. proposed several classes of choice problem in which preferences systematically violate the axiom of expected utility theory. They proposed a model of alternative account of choice under risk.17

From their empirical work in cognitive psychology, Kahneman and Tversky (1979) argued that the evaluation of decision outcomes has to be reference-dependent i.e. current state of wealth, which against EU. The EU framework is reference-independent because the decision maker’s initial state of wealth does not either enter into the decision or valuation process. Instead EU signifies the effect of a decision’s outcome on investor’s final wealth. This is to say that utility directly derived from an outcome is of no interest to EU theorist. What really matters is the indirect utility contribution of outcome to the investor’s total utility derived from her final consumption or wealth. These goes against basic nature of human beings along with “bunch of emotions, prejudices....” as cited by Slovic (1972)18.

An important constituency in behavioural finance, of which prospect theory is a critical component, accepted the conventional wisdom’s perspective that behaviour is irrational or at least suboptimal if it deviates from the ideal behavioural norms

specified in the EMH and SEU theory. A basic premise of behavioural finance is that individual choice behaviour systematically deviates from the predictions of conventional wisdom (Fama, 1970\textsuperscript{19}, 1991; Shleifer, 2000)\textsuperscript{20}.

Prospect theory touches only a subset of the issues raised in the behavioural finance literature. But its point of focus is a critical one: how individuals evaluate risky gambles or prospects and engage in risky choice behaviour. Risky choice behaviour is core to participation in financial markets. Some scholars argue that the value of prospect theory is its capacity to better explain the puzzles of human behaviour in a world of uncertainty.

Prospect theory raises the question whether individuals in financial markets are irrational as posited by mainstream behaviourists. If so, this irrationality suggests the need to develop policies to induce individuals to behave in a fashion consistent with the conventional wisdom’s specification of rational behaviour. Such policies often involve tricking people to behave in the desired manner or changing the attitude and preferences of the individual. Prospect theory is proposed as an alternative to SEU theory as the most appropriate predictive and descriptive theory of choice behaviour under risk and uncertainty, with important implications for choice under uncertainty. Kahneman and Tversky (1979)\textsuperscript{21} make the point that their theory, as compared to SEU theory, is not normative and does not prescribe behaviour at any level. SEU remains the norm for rational choice behaviour. Thus, prospect theory does not replace SEU theory as a normative theory. With regard to SEU, Tversky and Kahneman (1974)\textsuperscript{22} write:

“Modern decision theory regards subjective probability as the quantified opinion of an idealized person. Specifically, the subjective probability of a given event is defined by the set of bets about this event that such a person is willing to accept. An internally consistent, or coherent, subjective probability measure can be derived for an individual if his choices among bets satisfy certain principles, that is, the axioms of the theory. The derived probability is subjective in the sense that different individuals are allowed to have different probabilities for the same event. The major contribution of this approach is that it provides a rigorous subjective interpretation of probability that is applicable to unique events and is embedded in a general theory of rational decision.”

Prospect theory is a representation of the statistical average of individual behaviours. Thus, there will be deviations from the mean. For example, a subsample of individuals behaving in a consistently deviant fashion can help and can explain important aspects of choice behaviour, whether or not such behaviour is consistent with the conventional wisdom or prospect theory. Nevertheless, the underlying empirics of prospect theory with regards to average choice behaviour have been well documented. As Tversky and Kahneman (1981)\(^{23}\) write:

"Prospect theory and the scales [used in this theory] should be viewed as an approximate, incomplete, and simplified description of the evaluation of risky prospects. Although the properties of \(v\) and \(n\) summarize a common pattern of choice, they are not universal: the preferences of some individuals are not well described by an S-shaped value function and a consistent set of decision weights."

Key features of prospect theory:

People in mean-variance (EU or portfolio) theory choose among alternatives based on the effect of outcome on the level of their wealth as \(u(W+x)\). Under prospect theory, people make choices based on the effect of outcomes on changes in their wealth, that is change relative to their reference point (current wealth) as in \(u(x)\). In short under prospect theory people choose based on gains and losses.

The value in prospect theory is defined in terms of expected gains and losses and not in terms of the expected level of final wealth. An essential feature of prospect theory is that value re changes in wealth rather than final level of wealth. Many sensory and perpetual dimensions share the property that the psychological response is concave function of the magnitude of physical change.

![Figure 3.1: Prospect theory Value Function (Kahneman and Tversky’s (1979) proposed value function)](Source: in his paper “The Framing of decision and the psychology of choice”.1981. Science)

They sum up the values function is (i) defined on deviation from reference point (ii) value function is concave for gains and convex for losses (iii) it is steeper for loss than for gain. Kahneman et al. stated that “the value function is multiplied by a decision weight, and decision weights are inferred from choices between prospects much as subjective probabilities are inferred from preferences”. Gains and losses were defined by amounts of money, reference point were taken to be status quo, i.e. current wealth, which is true for choice problem. And change of reference point alters the preference order of prospects that implies negative translation of choice. So, alternative theory of choice has developed. (Kahneman and Tversky, 1979)24

Under prospect theory, People are risk averse in the gains domain and risk seekers, in the losses domain. That loss cause more pain than the pleasure derived from a gain of the same magnitude, is referred as “loss aversion”. Under prospect theory people overweight low probabilities, as reflected in their behaviour of simultaneously choosing lottery and insurance option. In prospect theory, framing affects choices.

Shiller (1999)25, a leading behavioural finance scholar, points out the following:

Prospect theory has probably had more impact than any other behavioural theory on economic research. Prospect theory is very influential despite the fact that it is still viewed by much of the economics profession at large as of far less importance than expected utility theory. Among economists, prospect theory has a distinct, though still prominent, second place to expect utility theory for most research. . . . Expected utility theory still retains the position of highest honour in the pantheon of economic tools. It has dominated much economic theory so long because the theory offers a parsimonious representation of truly rational behaviour under uncertainty.

An important outcome of prospect theory is its description of choice behaviour where this behaviour is often shown to be inconsistent with SEU theory, especially in experimental environments. Thus, individuals are shown to deviate from the ideal normative choice behaviour. Prospect theory is therefore said to describe biases and cognitive illusions in human choice behaviour where biases are a function of the type of heuristics used.

Tversky and Kahneman (1981)26 employed prospect theory to better describe human decision making and to gauge what they consider to be the extent of errors in

judgment. Choice is determined by various constraints, both physiological and environmental. Therefore, choice behaviour can be intelligent while not adhering to neoclassical norms.

Kahneman (2003)\(^{27}\) argues that the core idea of prospect theory is: “. . . that the value function is kinked at the reference point and loss averse, this became useful to economics when Thaler used it to explain riskless choices. In particular, loss aversion explained a violation of consumer theory that Thaler identified and labelled the “endowment effect”: the selling price for consumption goods is much higher than the buying price, often by a factor of 2 or more. The value of a good to an individual appears to be higher when the good is viewed as something that could be lost or given up than when the same good is evaluated as a potential gain.

Prospect theory addresses an important subset of issues in behavioural finance, bringing forefront the importance of choice behaviour that deviates from the conventional norm. In particular, prospect theory is built upon stylized facts, which are based on evidence derived from economic and psychology-type experiments. These stylized facts are that the average individual: (1) weight losses more heavily than gains; (2) evaluates losses and gains relative to a subjectively determined benchmark; (3) is interested in changes at the margin as opposed to level affects; and (4) is affected by the framing of prospects even if the frames do not appear to have a substantive or real effect on the expected value of the prospects. These results are of particular importance in a world of uncertainty.

For many contemporary behavioural economists, such behaviours signify irrationality and/or biases in behaviour, where the norm for rationality and unbiased behaviour is predicated upon neoclassical behaviour derived from SEU theory. Consistent with the worldview presented by Simon (1978, 1987a\(^{28}\), 1987b)\(^{29}\) and more recently by Smith (2005)\(^{30}\), Todd and Gigerenzer (2003)\(^{31}\), and Gigerenzer(2007)\(^{32}\), prospect theory–type behaviour can be irrational even if inconsistent with SEU norms and therefore with wealth maximization when loss aversion and rationally based short-term time preferences are introduced to individuals’ preference functions.

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Prospect theory can be used to explain stock return and analysts forecast behaviour. Ding et al. Studied how analysts and investors react to positive and negative events. They found that positive earnings surprises are associated with increases in abnormal returns but negative earnings surprises have only limited negative impact on returns. They found that analysis display asymmetric behaviour towards positive and negative earnings growth. They conclude their study that utility of large gain is proportionately larger than the utility of small profit. This tendency makes the investors to realize their profits early (Ding, Charoenwong, and Seetoh, 2004)33

**Prospect theory implication:**

Individual investors are both risk seekers and risk averters at the same time. This is exhibited by their investing behaviour, where they buy not only bonds, mutual funds, and insurance policies, but they also buy individual stocks, options, and lotteries. Individual investor as well as institutional investor sell winners too early and hold losers too long, a phenomenon attributed to “loss aversion” behaviour. Because, losses cause more severe pains compared to the pleasure resulting from gains of same magnitude. This is known as “disposition effect” as designated by Shefrin and Statman (1985)34. Moreover, individual investors does not select well diversified portfolios.

### 3.3.1.2 Framing Effects:

Frames and mental accounting are part of the prospect theory. Individual investor who use the heuristics, depend on framing of the problem, and are prone to biases, which in turn may lead to various anomalies at market level- are subject of research in area of behavioural finance. Rooted in Kahneman and Tversky’s (1979)35 prospect theory, framing effects are other physiological factor that challenges rationality assumption of traditional finance theory. According to Kahneman and Tversky, framing effect in decision arise when different imaginary and descriptions of same problem highlight different aspects of outcomes. Kahneman and Tversky (1981)36, “the frame that decision maker adopt is controlled partly by the norms, habits and personal characteristics of decision maker.”

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35 ibid.24

36 ibid. 26
implausible assumption is necessary to explain it within the paradigm.” (Thaler, 1987). 37

Kahneman and Tversky (1981) noted that each decision choice has two distinct phases: (i) an initial phase where acts, related contingencies, and outcome for each decision choice are framed; and (ii) a second phase where acts, related contingencies, and outcome for each decision choice are evaluated. Varying the reference point can affect an outcome to be positive or negative, and consequently change the preference order between options. Individuals exhibit a tendency to frame decisions in narrow or specific contexts and ignore broader considerations (Tversky and Kahneman, 1981). Instead of evaluating the entire probability distribution of outcomes, investors with limited attention tend to simplify the decision problem to discrete choices, often dichotomous, using a reference point (Hirshleifer, 2001) 38. They are particularly more sensitive to losses relative to an arbitrary reference point than to gains (Kahneman and Tversky, 1979), perhaps because losses are more salient than gains.

Loss aversion also implies that decision making is sensitive to the description of the action choices i.e. to the way the alternative are framed (Kahneman and Tversky, 1990). People decide differently depending on whether the problem is framed as contemplated gains or as losses. This loss salience effect extends to the financial decision problem and implies that people care more about the financial losses than financial gains. The losses are amplified at the social level to the extent that conversation or media reporting are biased towards transmitting adverse and emotionally charged news (Heath, Bell, and Sternberg, 2001) 39.

Framing effect implications:

A Frame is the form used to describe a decision problem, and frame dependence means that the form is relevant for behaviour (Shefrin, 2000). Related to investing behaviour, people change their views on their investments and markets based on information and data that may have nothing to do with related investment or market fundamentals. In effect, people ignore covariance between security returns and therefore choose stochastically dominated portfolios that lie below the efficient frontier. (Shefrin and Statman, 2003) 40

People generally evaluate acts based on the direct consequences of the act, such as the money lost or gained. That is, a mental account, which includes only the direct consequences of the act like, mental account associated with the decision to accept a gamble includes money won or lost in that gamble and excludes other assets or the outcome of previous gambles. People adopt mental accounts due to this mode of framing: (1) simplifies evaluation and reduces cognitive strain; (2) reflects the intuition that consequences should be causally linked to acts; and (3) matches the properties of hedonic experience, which is more sensitive to desirable and undesirable changes than to steady states.

3.3.1.3 Loss Aversion:

Loss Aversion is a pervasive phenomenon in human decision making under risk and uncertainty, according to which people are more sensitive to losses than gains. It plays a crucial role in prospect Theory (Tversky and Kahneman, 1974)41 (Tversky and Kahneman,1992)42. A Typical financial example is in investor’s difficulty to realize losses.

So Kahneman and Tversky (1979,1981,1986)43 suggested that people often respond differently to equivalent situations depending on whether it is presented in the context of loss or gain. Investors typically become distressed at the prospect of losses and are pleased by possible gains. Thus according to Kahneman, investors are ‘loss aversion’ means people are willing to take more risks to avoid losses than to realise gains. Loss aversion describes the basic concept that, although the average investors carry an optimism bias towards their forecast, they are less willing to lose money than they are to gain.

Kahneman and Tversky sought to provide a theory that describes how decision makers actually behave when confronted with choices under uncertainty. Value function given in prospect theory shows sharp asymmetry between the value that people put on gains and losses. This asymmetry is called loss aversion. Empirical test indicate that losses are weighted about twice as heavily as gains (Kahneman and Tversky, 1991)44. So in these phenomena people will tend to gamble in losses i.e. investors will hold on losing in hope of future recovery of its value. This is due to the

41 ibid. 22
43Ibid 18,19.20
fact that the utility function under the prospect theory is upward slopping for wealth levels under each individual’s reference point.

Myopic loss aversion is the combination of a greater sensitivity to losses than to gains and tendency to evaluate outcomes frequently. The myopic loss aversion explanation rest on two principles: Loss aversion and mental accounting. Thaler et al. studied myopia and loss aversion. They experiment with 80 subjects, designed to stimulate investment over time in two hypothetical funds. In the experiment, researcher presented information to the subject, and recording the subject’s allocation of shares to the investments. They found that provision of aggregated data and the restriction of opportunities to change decision help mitigate effects of myopia, and loss aversion is relevant to some current trend in the financial market. The investors who got the most frequent feedback took the least risk and earned the least money (Thaler, Tversky, Kahneman, and Schwartz, 1997).

Bodie et al. stated that investors’ behaviour is sometimes said to be myopic, short sighted, in that they ignore everything that might happen after the end of the single period horizon and therefore all investor plan for one identical holding period.

Loss aversion describes the investor attitude of holding losers, while selling winners too early. Shefrin and Statman (1985) called this occurrence of ‘selling winners too early and riding losers too long’ as the disposition effect. Shefrin calls this phenomenon “get-evenitis”, that is people hope that market will work in their advantage and that they will be able to terminate their investment without incurring any losses. (Shefrin, 2000)

This describe a scenario where greater utility is lost when losing x amount of money than the utility that is gained when obtaining the exact same amount. This circumstance can lead to sunk cost effects, where instead of considering only present and future gains and losses to an investment; past and non-recoverable cost effect decision making.


3.3.1.4 Mental Accounting:

Mental Accounting concept is developed by Thaler (1980, 1985) and Tversky and Kahneman (1981). Thaler describe it as, mental accounting is the set of cognitive activities that individuals and households to organise, evaluation and keep track of financial activities and engage in to serve the same function that regular accounting serves in organisation. It concern aggregation: how transactions are grouped both cross-sectional and inter-temporally. The main components of mental accounting are: (i) how outcome are perceived and experienced, how decisions are made and subsequently evaluated. (ii) assignment of activities to specific accounts and (iii) the frequency with which accounts are evaluated and what read. Study of mental accounting helps to understand the psychology of choice. They concluded their study by stating that “each of the components of mental accounting violates the economic principle of fungibility”, and as a result mental accounting influence choice, that is, it matters.

It describe people’s tendency to organise some sources and uses of money in different psychological accounts in their mind, like people may treat differently money received as salary versus money saved on purchase etc. This indicates that people tend to consider these mental accounts separately, and ignore overall wealth well-being. Shefrin and Statman (1985) argue that when investors buy a stock, they create new mental account for that stock.

The main idea underlying mental accounting is that decision –makers tend to separate the different type of gambles they face into separate accounts, and then apply prospect theoretic decisions rules to each account by ignoring possible interaction between the accounts. Mental accounts can be isolated not only by content, but also in respect of time. Frames and mental accounting are part of the prospect theory. Mental accounting describes the tendency of people to place particular events into different mental accounts based on superficial attributes (Shiller, 1998).

Thaler’s (1985) mental accounting describes a psychological phenomenon where individuals divide transactions into separate accounts and treat payoffs differently across these accounts, despite the fungibility of money. Benartzi et.al sorted firms into quintiles based on their stock performance over the prior 10 years and examined subsequent allocations to company stock. They stated that employees at

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50 ibid.34
the worst performing firms allocated 10% of their retirement contribution to company stock, whereas those at the best performing firms allocated 40% of their contribution to company stock. Benartzi also examined the subsequent stock performance and found no evidence that employees have any superior information regarding their firm’s future prospect (Benartzi and Thaler, 2001).^53

Other study of Benartzi provides evidence that supports for mental accounting on the company stock: when company stock is in the array of available investment options, the total exposure to equities is higher than when it is not available. It appears that employees view company stock as a unique asset class that is neither stocks nor bonds. Employee prefer to invest in plan had access to company stock invest 71% in equities. It seems that company stock is given a separate mental account different from the rest of equity classes which have significant exposure to the stock market. (Benartzi ,2001).^54

A division of investments between safety- first accounts or portfolios to meet basic needs and more aggressive ‘aspiration’ accounts to meet more speculative, less critical, or simply more distant objectives is one of the prediction of mental accounting framework of behavioural finance. This approach is not found anywhere in traditional finance framework but is common in everyday experience^55.

Statman (1994)^56 argued that private investors think naturally in terms of having a ‘safe’ part of their portfolio that is protected from downside risk and a risky part is designed for getting rich. Statman explained that the human tendency to split investment opportunities into separate down side insurance accounts and upside opportunism accounts result in an inefficient investment portfolio, an interaction between the mental accounts are ignored. People may act in this way to increase self-control, separating money investment into areas for spending and areas that must not be touched (Statman,1999)^57

Moreover, Shefrin and Statman (2000)\(^{58}\), illustrated how mental accounting affect investor’s perception of portfolio risk. To implement portfolio theory, the investor must consider three important characteristics of each potential investment- its expected return, level of risk, and its correlation with other investments. Since, correlation is how each investment interacts with the others and mental accounting is the tendency to overlook the interaction between investments, investors have difficulty relating to this form of diversification. As a result, investors assume higher risk than needed to achieve higher return.

A more general example of mental accounting is quoted by Meir Statman and Vincent Wood in ‘Investment Temperament’, when they described the pattern of responses to the following questions in the fidelity Investment Assets Allocation Planner: if you could increase your chances of improving your returns by taking more risk would you;

- Be willing to take a lot more risk with all your money
- Be willing to take a lot more risk with some of your money
- Be willing to take little more risk with all your money
- Be willing to take little more risk with some of your money

Responses indicated a willingness to take either a little more with some of their money. This indicates a preference to segment risk taking.\(^{59}\)

Mental accounting can result in “good money being thrown after bad money” by continuous operation of non-profitable ventures in the hope that recovery will somehow take place. It may also explain framing which is beneficial to investors with imperfect self-control. So mental accounting is tendency for people to separate assets into separate groups and assign different functions to each group, which may often have irrational and detrimental effect on their decisions and behaviours.

In the behavioural analysis of how financial affairs are managed, a tendency to subdivide the investment problem into small decision units is often observed. Rockenbach extended the concept of mental accounting to experiment on the pricing of financial options. Their study resorts to controlled laboratory experiment that was designed to study behaviour in investment decisions. Their experiment data shows that, even with considerable experience, unexploited arbitrage opportunities persist. Hence their research added evidence that support the importance of mental accounting in financial decision making. They found that arbitrage free option pricing has


significantly lower explanatory power for their data, than the pricing rules that are based on the idea of mental accounting. (Rockenback, 2002)\(^6\)

So, investors instead of looking at decision problem as a whole, the decision units, called as mental accounts are treated separately. Main idea underlying mental accounting is that decision makers tend to segregate the different type of gambles faced into separate accounts, and then apply prospect theoretic decision rules to each account by ignoring possible interaction. Mental accounting also serves to explain why an investor is likely to refrain from readjusting his reference point for a stock.

3.3.1.5 Disposition Effect:

The disposition effect is one implication of extending Kahneman and Tversky’s (1979) Prospect theory to investments. “Cut your losses and let your profits run” this adage has its origin in the early days of the stock market. But to follow this advice is difficult for investors. Instead they tempted to sell stocks that have appreciated in price since purchase and hold on to losing stocks. This kind of tendency to hold losers and too long and sell winners too soon, has been labelled by Shefrin and Statman (1985)\(^6\) as disposition effect. They stated that avoiding regret and seeking pride also have an effect on investor’s decisions. Specifically they stated that fearing regret and seeing pride cause investors to be pre-disposed to selling winners too early and riding losers too long. Research evidence suggest that disposition effect is one of the most significant behavioural phenomena documented in behavioural finance literature. This section provides review of empirical evidence related to the disposition effect in trading behaviour.

Behaviour of Decision makers do not behave in accordance with the axioms of EU theory. In his study Shefrin and Statman examined decision to realize gains and losses in market setting unlike experiment of Kahneman and Tversky. Research of Shefrin et al. is concerned with two aspects; first, they place behavioural pattern into wider theoretical framework of disposition effect, viz. mental accounting, regret aversion, self-control and tax consideration and put agreement that tendency to concentrate loss realisation in December is not normatively based, but consistent with descriptive theory. Second, they provide evidence, which suggests that this disposition shows up in real financial market.

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An investor's good return is due to their attitude of disposition effect or due to other reason that is important to understand behaviour of them. Schlarbaum, Lewellen, and Lease (1978)⁶² in their study they used transaction data of 2500 individual investor from brokerage firm during period of 1964 to 1970. They analysed realized return for these investors by calculating returns for the stock purchased and stock sold. Judging by these returns, the individual investors beat the market by 5% p.a., and about 60% of the trades resulted in a profit. This out performance is not due to market timing and seems not to be due to higher risk.

Since, this study many have shown that individual investors do not have a great stock picking skills, but significantly outperform. Schlarbaum et al. raised the possibility that their investors’ seemed good performance could be due to “disposition effect” to sell winners and ride the losers. (Odean, 1999)⁶³ said that there indeed a disposition effect. (Barber and Odean, 2000)⁶⁴ had study confirm disposition effect in study of trading decisions of investor discount brokerage. Several other studies documented behaviour consistent with disposition effect. (Heisler, 1994)

Sharpe (1966) Gruber(1996)⁶⁵ and Fama and French (2010)⁶⁶ found that average mutual fund manager outperform the market. Contrary conclusion has been given by Gruber et al. “those individual investors possess respectable stock selection skills” (Gruber, 1996)

Whether Investor carries unsuccessful stock in their portfolio or not that is always a point of discussion to understand behaviour of individual investors. Shefrin and Statman (1985)⁶⁷ used the study of Schlarbum and gave the first formal analysis to disposition effect in behavioural science. They challenged the above argument of outperformance of mutual fund manager. Shefrin and Statman conducted an analysis of aggregate mutual fund purchases and redemptions (sell). They find that sell by MF occurs when market is good and then the poor months. This is consistent with disposition effect. Shefrin and Statman study noted that “reject neither the rational model nor behavioural model in favour of the other.” Behavioural theory comes from the investigation of seasonal pattern in the disposition effect. The conclusion derived

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from this study is that investors should find getting rid of loss making stocks easier as the deadlines for the end of the tax year approaches. (Shefrin and Statman (1985)\textsuperscript{68}

The tendency to hold losers too long and sell winners too soon has been labelled the disposition effect. To study this tendency of investors Odean examined the behaviour of individual investor exhibit disposition effect. They had observed transaction data of 10000 accounts of broker client investors in U S. in 1990s. They conducted test of disposition effect hypothesis. He developed a method of measuring the disposition effect, by classifying the account by sold for a gain, sold for a loss, not sold and showing gain, and not sold and showing loss. He calculated realized gains or loss, and all four types of stock position are determinants of the actual development of investors’ wealth. He compared the realized gain and losses and found strong evidence in favour of disposition effect. He concluded his study that on average 14.8% of the gains available for realization are actually realized, while only 9.8% of losses are realized. So investors are more than 50% more likely to realized gains then losses. Author founds that investors under study demonstrate strong preference for realising winners rather than losers, provided evidence in favour of disposition effect. They add to their study that disposition effect disappear in December, when investor realize more losses and few gains. (Odean, 1998)\textsuperscript{69}

While Weber and Camerer (1998)\textsuperscript{70} carried a laboratory experiment of the disposition effect that involves buying and selling six hypothetical stocks in trading rounds. They found that investors are about 50% more likely to realize gains compared to losses. Their result is in confirmation result of obtained with field data.

Grinblatt and Keloharju (2000)\textsuperscript{71} founds that individual investor appear to follow a contrarian style. They are likely to buy stocks with below average past performance. Disposition effect is relevant to all type of investor or not, that is point of thinking at this level. Grinblatt and Keloharju (2001)\textsuperscript{72} had provided one of the key studies in disposition effect. They use regression method for assessing disposition effect. They control investor characteristics and market conditions. Different types of investors tend to react to past return in different ways. They run log it regression in which the sales is taken as dependent variable and past return, portfolio value, market condition

\begin{footnotesize}
\begin{enumerate}
\item \textsuperscript{68}Ibid 48
\item \textsuperscript{69}Odean, Terrance. 1998. Are investors reluctant to realize their losses? The Journal of Finance, 53:5, 1775-1798.
\end{enumerate}
\end{footnotesize}
etc. are taken as independent variable. They use calendar time as dummy variable. They used (data from Finland) household, non-financial corporation, government institutions, non-profit institutions and financial institutions i.e. data covers all stock market investors in Finland. Grinblatt and Keloharju (2001), by studying 293034 sell trades; found the disposition effect for all types of investors studied. They found a strong disposition effect while controlling for many other factors in the analysis. They observed that monthly new stock price highs and lows increase investor’s likelihood of selling. They found evidence that investors are reluctant to realize losses that they engage in tax-loss selling activity, and treat past returns and historical price patterns, such as being at a monthly high low, affect trading. Consistent with the behavioural prediction, their research found that individual investors are more likely to sell a stock if it experiences an increase in price than decrease in price. They found that if a stock outperformed market by 10%, the investor likelihood of selling the stock increased by 26%. On the other hand an underperformance of 10% decreased likelihood of selling by 14%. They concluded that investors do not like to sell losers, only winners. They also added that there is modest evidence that life cycle trading plays a role in the pattern of buys and sells. (Grinblatt and Keloharju, 2001)\(^{73}\).

In other study Grinblatt et al. found that, the differences in the economic magnitudes of the effect between the investor types are very small. They observe that monthly new stock price highs and low increase investor likelihood of selling. Many institutional investor follow a momentum style, they are more likely to buy stocks with good prior performance. The result has shown a strong disposition effect while controlling other factors in analysis (Grinblatt, Titman, and Wermers, 1995 \(^{74}\); Badrinath and Wahal, 2002)\(^{75}\).

When investors have motive to react against new information? Whether they do react positively or negatively, we required to understand basic underlying of disposition effect. Grinblatt and Han (2005)\(^{76}\) found that momentum effect may be connected to the disposition effect. They modelled with two types of investors, disposition investor and rational investors. They found that momentum arises from under reaction to new information, when many investors have gain on particular stock, some are eager to sell due to disposition effect. When positive news arrived in market, selling pressure flows from disposition investors. Statman, Thorley and Vorkink (2006) found that the

\(^{73}\)ibid. 72.
trading volume in a stock had a strong positive relation to past return on the stock. The findings of this study are consistent with disposition effect having an impact on overall trading volume.

Frazzini (2006) used the data of all U.S. Mutual fund's stock holdings for every quarter for 1980 to 2003. They found that average 20% funds are more likely to realize the gains than losses. With respect to past return they found 50% of funds are more likely to realize gains than losses. Frazzini conducted test whether there are really under reaction to new information due to disposition effect. He found that the market takes longer to incorporate positive earnings news in price of stocks with unrealized capital gains. Due to post earnings announcement drift is greater when earning is either positive or negative. The magnitude of the drift is directly related to the amount of unrealized gains or losses. The market responses are asymmetric, as predicted by the disposition effect.

Barber et al. studied all trading activity on Taiwan Stock Exchanges for the year for 1994 to 1999. They found that investors are twice as likely to realize the gain rather than loss. They found that disposition effect is higher for individuals, corporations, and dealers, but less for MF and FIIs. “For some investors, the tendency to hold losers may be driven on a more basic level than probabilities of gains and losses. People live in a world in which most decisions are judged ex post and most people find it psychologically painful to acknowledge their mistakes” (Barber, Lee, Liu and Odean, 2007)

Disposition is related to which variable of investor’s decision is required to be understand. Stronger disposition effect is associated with lower returns, smaller trading volume, and less volatility at the stock level. This finding is consistent with existence of common disposition effect-related factor (Goetzmann and Massa, 2008). Choe and Eom (2009) used Korean data covering stock index futures transactions of all market participants. They find the disposition effect for all investor types studied, which includes individuals, institutional, and foreign investors. While, some research do not find any evidence of the disposition effect among large institutions in foreign exchange market.

Scherbina and Jin (2010)\textsuperscript{81} analysed the equity trades by mutual funds. They found that new manager tend to sell off loser stocks in the fund’s portfolio. This leads to better performance of mutual funds.

Calvet, Campbell, and Sodini (2009)\textsuperscript{82} used the data of Sweden household investors. They observed that about 30\% of all households have both individual equity stocks and equity mutual funds. They found that investors are more likely to exit from stock market after experiencing gains on their portfolio, and that is consistent with disposition effect. They also found that possibility of existing of investors form mutual funds is positively related to gains. Even sell of MF units by individual investors after experiencing loss, is higher. Apparently they did not find disposition effect of mutual funds investors. The Results of study done by Ivkovic and Weisbenner (2009) was also consistent with it.

Does controlling for investor characteristics require to understand disposition effect of mutual fund investor or not? Ivkovic, Poterba, and Weisbenner (2005)\textsuperscript{83} found that disposition effect for individual stock purchases that has worth. However disposition effect disappears as the capital gain tax start to dominate when holding period exceeding one year. Ivkovic and Weisbenner (2009)\textsuperscript{84} found that investor are reluctant to sell mutual funds that have appreciated in value, they are more likely to sell losers. They reported that 32400 household make at least one mutual fund purchase during sample period. Further results of their study were limited to mutual fund purchase in the month of January. (Ivkovic and Weisbenner, 2009).

Using the same data set Bailey, Kumar and Ng (2009) analysed several measure of behavioural biases for each investor and relate these to behaviour regarding mutual fund shares. They found that investors suffering from disposition effect are less likely to invest in equity mutual funds. Disposition investors select funds with higher expenses and time their purchases and sales poorly. Kumar and Lim (2008) found that investor tend to execute several trades during the same day suffer less from disposition effect. They argued that such investors are more likely to consider what is good for overall performance of their stock portfolio instead of focusing on each stock. Kumar investigated stock level determinants of the disposition effect. Individual investor trading exhibits the disposition effect in most stocks. He found that


disposition effect is stronger for the stock with higher volatility, lower capitalization, higher turnover, higher turnover, lower prices, and lower institutional ownership. Kumar argued that this is consistent with the disposition effect being stronger among stocks that are more difficult to value. (Kumar, 2009). 

Ben-David and Hirshleifer (2011) analysed how investor preferences and beliefs affect trading in relation to past gains and losses. They studied 77037 stock transaction data at large discount broker from Jan 1990 to 1996. They found weak evidence for realization preference and modest in individual investors. Their study suggested that cognitive direction deserves further exploration. They put it as the disposition effect is not primarily driven by a direct preference for realizing winners rather than losers. They argued that trading based on beliefs can potentially explain these findings.

So, it can be concluded some fact of disposition effect from evidence given in literature, like investors have consistent tendency to realize gains compared to losses, pattern of investment disappear in month of December (USA), and even tendency of realizing small gain as compared to small losses. So investors are focusing on realized return than overall portfolio performance. The disposition effect may explain investors are overly optimistic about future performance (Barber and Odean, 2001). In same direction result of mutual fund shares permits an interesting interpretation on self-justification and disposition effect. In the case of mutual funds, this may be more easily accomplished by blaming the mutual fund manager for the losses.

3.3.2 HEURISTICS AND BIASES FRAMEWORK:

Heuristics referred to rule of thumb, are means of reducing the search necessary to find solution to a problem. They are shortcuts that simplify the complex method of assessing probabilities and values ordinarily require making judgments, and eliminating the need for extensive calculations.

A heuristics and biases framework can be envisioned as a counterpart to standard finance theory’s asset pricing model. When decision maker faced with huge amounts of data and information and an array of decision problems, people are incapable of doing the complex optimization calculations that are fundamental assumption under standard finance theory. Instead, they rely on a limited number of cognitive strategies or heuristics that simplify the complex events in making decisions. Heuristics are

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information processing shortcuts that mainly result from one’s experiences. Of course, such simplifying shortcuts are productive and allow humans to function in daily life. By nature, heuristics are imperfect and consequently will result in biases and errors in decisions.

In traditional theory, unsystematic biases are expected to average out at the market level and consequently have no effect on asset prices. While behavioural economists argue, that both heuristics and biases are systematic, thereby potentially lasting for long periods and affecting prices accordingly. Tversky and Kahneman (1974) identify many systematic biases.

Much of the behavioural finance literature focused on individual investor psychology, particularly the use of heuristics and various biases in judgement. Heuristics referred to rule of thumb, means of reducing the search necessary to find solution to a problem. They are shortcuts that simplify the complex method of assessing probabilities and values ordinarily require making judgements, and eliminating the need for extensive calculations.

In their seminal work, Tversky and Kahneman (1974) investigated heuristics that people often employ when making decisions under uncertainty. Heuristics are useful because they make the difficult task of assessing the probabilities related to uncertain events much easier. However, these heuristic can also lead to systematic biases in judgement. As a result human behaviour is made on the basis of simplified procedures or heuristics.

Heuristics reflect the fact that people’s assessment of risk do not conform to law of probability. People relate probability not to events, but to description of events (Tversky and Kochler, 2002), people use heuristics to simplify preference of data sets, or as devices for simplifying the process of choosing between alternatives, particularly in uncertainty.

Work of cognitive psychologist, behavioural decision theorist in late 1960s and early 1970s, specifically studied of Tversky, Kahneman, Slovic (1982) and others has changed the focus of heuristics in decision making. In the same direction work has been added by studies of Gilovich, Griffin, and Kahneman, (2002) are referred to heuristics and biases program. Those studies deal with general rule of thumb and

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87 iid.22
deviation from rational expectation, referred to as biases. Initial analysis of Tversky and Kahneman focused on cognitive processes, but incorporating emotional factors (2000). This is evidence by their reference to intuitive judgment, which is different from rational model of choice. In breaking from those traditional models of rational choice, Kahneman and Tversky were not aiming rationality, but model of real world choice actually being made.

As the formulation of specific heuristics began to receive attention, Gigerenzer and some other researchers questioned the emphasis on biases. In the spirit of Simon’s bounded rationality (Simon 1957, 1982, 1986), Gigerenzer and associates maintained that judgments need to be only satisfying and should be evaluated to take in account of the fact that humans possess a limited search and computational capacity, which is accentuated by the usually prevailing time constraints. Out of necessity, people use approximate methods to handle most tasks, developing what they term “fast and frugal” heuristics (Gigerenzer and Selten, 2001; Gigerenzer, Czerlinski, and Martignon, 2002). 90

Glassman and Hassett (1999) 91 revealed the degree to which people have underestimated prevailing uncertainty. The authors argued that stocks earned much more than bonds during the last generation because of a risk premium associated with stocks.

The state of awareness of decision maker at the time of in question or the particular framing of the problem may pose issues. As Simon (1982) observed, the major challenge in decision making may arise in the search for all the feasible or most important alternatives. Even when decision makers discern all of these, they may not fully grasp, in advance, the consequences of all options. In that case, as Slovic (1987) 92 explained, the decision maker may need to construct the preferences required for decision making. For decisions based on evolving technologies, heuristics that aid in horizon scanning may be more useful than any calculations, as successful innovators insist. None of this is to deny that decision makers sometimes use overly simple or otherwise incorrect heuristics.

Shefrin (2000) stated heuristics as to the process by which people find thing out for themselves, usually by trial and error. Trial and error often leads people to develop ‘rules of thumb’, but this process often leads to other errors. Shefrin distinguished between heuristic-driven bias and frame dependence. He considered heuristics as rule of thumbs, usually generated through a trial and error process, which can also lead to systematic biases. Frame dependence refers to the distinction between substances and the form, and means that the way in which a decision problem is presented also matters. The author took so-called de-biasing view, by which costly mistakes can be avoided if practitioners learn how to recognize mistakes, understand the underlying reasons, and finally avoid them (Shefrin, 2000). Heuristics can also be defined as the “use of experience and practical efforts to answer questions or to improve performance”. Due to the fact that more and more information is spread faster and faster, life for decision maker in financial markets has become more complicated. This implies increased use of heuristics which is often a mostly inevitable approach, but not always beneficiary (Fromlet, 2001).

Heuristics may help to explain why the market act in irrational manner, which is inconsistent with model of perfectly, informed markets.

THE CATEGORIES OF HEURISTICS AND THEIR BIASES


Biases in processing information may begin with incorrect understanding and incorporation of information, for example, about profitability and dividends. There may be a tendency to overvalue certainty, even the appearance of certainty, in which
certainty characterizes only the second and conditional step in some two-stage sequences (Tversky and Kahneman, 2002).

In part, it described a tendency to fail to recognize true probabilities because of the use of data from too short a time period. The same propensity applies to continuing overly optimistic predictions of security analysts, who often base their predictions on financial data from only a few recent years. Tversky and Kahneman (1982b) and Kahneman and Tversky (2000b) emphasized tendencies to overestimate low probabilities but also note that people sometimes ignore low probabilities. In both cases, this reflects the difficulty in evaluating low probabilities correctly.

Research on heuristics emphasizes attributes, some attributes to which people may assign little importance, or about which they lack awareness, can still affect certain choices. This applies to some attitudes as well as attributes. The work on attributes has involved compensatory and non-compensatory decision rules. Kahneman and Frederick (2005) have written of attribute substitution, whereby people resolve difficult judgments by substituting conceptually or semantically related assessments that are simpler and more accessible. Nominal money estimates may figure in this category, insofar as they serve as a kind of heuristic, and can be reasonable measures in periods of low inflation. The other line of simplifying analyses has emphasized general heuristics such as: (i) Representativeness (ii) Availability (iii) Anchoring & adjustment, and (iv) Affect.

Ambiguity aversion refers to the preference for known risks over unknown risks (uncertainty). “The emotional aspect of the aversion to ambiguity is the fear of unknown” (Shefrin, 2000)98

3.3.2.1 Representativeness:

According to Tversky and Kahneman (1974)99, many of the probabilistic questions about which people are concerned can be characterized by “What is the probability that object A belongs to class B”? To answer these questions, people use the representative heuristics, where probabilities are evaluated by the degree to which A resembles B. For example, when A is highly representative of B, the probability that A originates from B is judged to be high.

The problem is that representativeness (similarity) should not affect the judgment of probability. What should be considered in the judgment to probability is “prior probability” or “base rate.” The latter is not the case in practice and violates Bayes’ rule.

The representativeness heuristic is a built-in feature of the brain for producing rapid probability judgments, rather than a consciously adopted procedure. Humans are unaware of substituting judgment of representativeness for judgment of probability. Representativeness heuristic can cause investors to overreact to new information. If the majority of investors are vulnerable to representativeness bias, they might naively extrapolate a recent negative earnings change for a company/industry far into future. In this case industry’s future profitability is biased downward.

3.3.2.2 Availability heuristic

Availability heuristic requires recognizing that people disproportionately recall the salient events, that is, those that are very recent and/or those that they are or were emotionally involved with, especially in the recent past. The more salient an event, the more likely is the probability that a person will recall that event. This bias prevents people from considering other potential and related outcomes.

Availability is a judgemental heuristics in which a frequency/probability of a class/event is assessed on how easy it is to recall its instances (retrievability), how easy it is to mentally construct its instances (imaginability), or how easy to associate two instances (illusionary correlation) (Tversky and Kahneman, 1974).  

In Tversky and Kahneman (1974), the authors analysed availability, a heuristic which uses the strength of association between instances to assess their probabilities. For example, in one study subjects were asked to compare the frequencies of words starting with letter ‘r’ and the words that have letter ‘r’ in third position. Even though the latter are more frequent, the participants opted for the first case, because it is much easier to mentally construct words by using their first letter. Availability bias is a form of adverse selection, where investors place large weight on the relevance of information that is simply the most easily available.

One type of recognition of the importance of availability can be observed from the behaviour of successful Mutual Fund manager, who is supposed to have reflected that he tended to avoid stocks that most analyst and manager were celebrating because they were convinced that such availability increase the likelihood that share of those

companies were overvalued. Perhaps the main bias of availability is due to its extreme, lack of sensitivity to sample size.

Availability biases may arise as a result of the ease with which people recall specifics from memory. The content of the specifics also may, influence assessments about their relative importance. Availability acquisition biases can lead to overestimation of the probability of well publicized or dramatic event especially recent ones.

3.3.2.3 Anchoring, Adjustment, and Contamination

According to Tversky and Kahneman (1974)\footnote{Ibid 100} when forming estimates and predictions, people usually start with some initial arbitrary value and adjust from it. People also make estimates by starting from an initial value that is adjusted to yield. The initial value may be suggested by the formulation of the problem, or it may be the result of a partial calculation. Regardless, Tversky and Kahneman argued that “adjustments are typically insufficient,” and “Different starting points yield different estimates which are biased toward the initial value.” This is called anchoring. Anchoring happens when the starting point is given to the subject, as well as when the subject bases her estimate on the result of some incomplete computation.

Adjustment and anchoring is a heuristic which starts from initial value (given by the problem formulation, or by some partial computation) and then adjusts it towards final value. The consequences of this heuristic is that people overestimate conjunction of events (with high individual probabilities), and underestimate a disjunction of events (with low individual probabilities). Anchoring effect is also present in the assessment of subjective probability distributions, resulting in overly narrow confidence intervals. Setting confidence interval overly narrow means that people get surprised more frequently than what they expect (Shefrin, 2000)\footnote{Shefrin, Hersh, and Meir Statman. 2000. Behavioural Portfolio Theory. \textit{Journal of Financial and quantitative Analysis} 35:2, 127-151.}

According to the anchoring heuristic, information that is visibly irrelevant still anchors judgments and contaminates guesses. When people start from information known to be irrelevant and adjust until they reach a plausible-sounding answer, they under-adjust. People under-adjust more severely in cognitively busy situations and other manipulations that make the problem harder. People deny they are anchored or contaminated, even when experiment shows that they are. These effects are not diminished or are only slightly diminished by financial incentives, explicit instruction to avoid contamination, and real-world situations.
Psychologist have documented that when people make quantitative estimates, their estimates may be heavily influenced by previous values of the item. Anchoring can cause investors to under-react to new information. Under-reaction means investors give too little weight to recent, new information.

 Anchoring refers to decision making process where quantitative assessment is required and where this assessment may be influenced by suggestions. People have in their mind some reference point (anchors) for e.g. previous price of investments. When they get new information they adjust this past reference insufficiently (under-reaction) to the new information acquired. Anchoring describes how individuals tend to focus on recent behaviour and give less weight to longer time trends. The tendency of investors to use this anchor enforces the similarity of stock prices from one day to the next (Shiller,2000).

So, the assumption of rationality states that our thought and opinions should always be based upon relevant and appropriate facts in order to be considered valid. In reality, however, this is not always so, rather, people have tendency to attach or ‘anchor’ their thought to reference point even though that have any logical association with decision at hand. Due to this investor sometime base their decision on irrelevant figures and statistics.

An anchoring and adjustment is a heuristics that involves adjustment from some starting point. The starting point may refer to recent data such as the current rate of inflation or economic growth, but often, the relevant starting point is much less known to those who make judgement.

3.3.2.4 Contamination Effects

Almost any information could work its way into a cognitive judgment (Chapman and Johnson, 2002). Anchoring or contamination effects cannot be decreased (Tversky and Kahneman, 1974;Wansink, Kent, and Hoch, 1998). For example that people typically have great confidence in judgments based upon overconfidence. For instance, events to which subjects assigned a probability of 2 percent happened 42.6 percent of the time (Alpert and Raiffa, 1982). Another example is hindsight bias, which occurs when subjects, after learning the eventual outcome, give a much higher estimate for the predictability of that outcome than subjects who predict the outcome without advance knowledge. Hindsight bias is sometimes called the “I-knew-it-all-along effect.”

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A third example is the black swan phenomenon (Taleb, 2007)\textsuperscript{104}, which means that sometimes most of the variance in a process comes from exceptionally rare or large events. For instance, consider a financial instrument that earns $10 with 98 percent probability, but loses $1,000 with 2 percent probability. This investment is a poor net risk, but it looks like a steady winner.

**Heuristics and Biases: Implications and Examples**

Implication for performance-based management contracts: Managers generally prefer performance-based incentive schemes more often than standard theory predicts. This can be attributed to the overconfidence trait. Due to overconfidence, managers prefer riskier projects because they think that they can beat the odds. This goes against the standard finance theory. According to Camerer and Lovallo (1999), some evidence supports this phenomenon.

Implication for stock selections due to availability bias: People easily recall the information that has recently arrived, especially in the media and corporate releases, because their broker’s or advisor’s recommendations are fresh in their memory. As Barber and Odean (2008) found that stocks with very high level of press coverage underperform in the subsequent two years following the news.

Implication for asset valuation due to anchoring bias: Northcraft and Neale (1987)\textsuperscript{105} asked subjects to give their opinions on the appraisal value, the appropriate listing price, and the lowest price they would accept if they were the seller. The authors requested this information after giving the subjects detailed and identical information about the house they had been shown. The only information that the authors changed in this study was the asking price (the anchoring factor). The results indicated that individual valuations of houses directly related to the asking price given to them.

**3.3.3 THE EFFECT THEORY:**

According to Finucane, Alhakami, Slovic, and Johnson (2000)\textsuperscript{106}, the affect heuristic refers to the way in which subjective impressions of “goodness” or “badness” can act as a heuristic capable of producing fast perceptual judgments and also systematic biases. For e.g., as Ganzach (2001)\textsuperscript{107} stated, people judge stocks that they perceive


as “good” to have low risks and high returns and judge stocks that they perceive as “bad” to have low returns and high risks. For unfamiliar stocks, perceived risk and perceived return are negatively correlated, as predicted by the affect heuristic. For familiar stocks, perceived risk and perceived return are positively correlated; riskier stocks are expected to produce higher returns, as predicted by ordinary economic theory.

The Rationale for heuristics: There are many reasons for using heuristics as given below:

- Decision makers may not know optimal way of arriving at solution, even there may exist.
- The state of awareness of decision makers at the time in question or the particular framing of the problem may pose the problem.
- Decision maker may be either unable to obtain all information necessary for optimal decision or unable to process all information subjectively.
- When there are multiple objectives, unique solution is not possible.
- The use of rule of thumb that decision maker can apply help them to keep matter secret.
- They may be either not perceiving information correctly, or avoiding attempt to deal with variant of matter under consideration.
- Extraordinary amount of information overwhelm them, as they are not familiar with the techniques to process huge data.
- The use of heuristic shortcuts is most appropriate where they closely approximate the result of optimization calculations.

3.4 Detail review of each heuristic:

3.4.1 Representativeness:

Representativeness refers to way people make subjective probability judgments based on similarity to stereotypes. Gilovich (1991) defined it as “representativeness is a tendency to assess the similarity of outcomes, instances and categories on relatively salient and even superficial features, and then to use these assessment and similarity as a basis of judgment, people assume like goes with like”. This section summarises various studies that explore factors such as investor choice of Mutual Funds, whether good stocks are stock of good companies, growth and value stock, fund manager selection process etc. depicting representativeness heuristic.

Representativeness involves judgments of the likelihood of an event or identification, based on its similarity to a class of events or individuals. There are no uniform guidelines on the degree to which representativeness affects judgments of likelihood. Use of the representativeness heuristic sometimes reflects a failure to take into account relevant “base-rate” information before a judgment is made or demonstrates a statistically invalid reliance on small samples (the so-called law of small numbers). Representativeness deals with the subjective assessment of probabilities. In an early experiment (Kahneman and Tversky, 1982a, 1982b)\textsuperscript{109}, defines representativeness heuristics as the way in which probabilities are evaluated “..... by the degree to which A is representative of B, that is, the degree to which A resemble B”.It indicate that participants appear to have ignored base-rate data and focused on stereotyped characteristics in judging whether the profiles of those submitted were engineers or lawyers. There may be valid reasons for ignoring base-rate information, however. For example, stock selection depends much less on base-rate information of an industry than on other factors.

Tversky and Kahneman (1974) described various aspects where people violate law of statistics, and making probability judgment relying on representativeness heuristic: (i) insensitivity to prior information or base rate neglect (ii) insensitivity to sample size (iii) misconception of chance and randomness- law of small numbers (iv)-insensitivity to predictability (v) misconception of regression.

Financial example of representative is the winner-loser effect documented by DeBondt and Thaler. Investors who use the representativeness heuristic are too optimistic about past winners, and too pessimistic about past losers. This creates a temporary mispricing, which is eventually reversed, as the portfolio of past losers outperforms the market, while the winners’ portfolio underperforms. They found that investors overreact to both bad news and good news. Overreaction leads past losers to become under-priced and past winners to become overpriced. So DeBondt and Thaler proposed a strategy of buying recent losers and selling recent winners to optimise return. From study of two portfolios of 35 stocks they conclude that investors cause market prices to deviate from fundamental values creating inefficient markets: due to representativeness heuristic markets’ treatment of past winners and losers is not efficient. Other finding includes (i) overreaction effect is asymmetric; it is much larger for losers than winners. (ii) Most of excess return is realized in January. (16.6%\textsuperscript{109}Kahneman, Daniel, and Amos Tversky (eds.). 1982. Judgment under uncertainty: Heuristics and biases. New York: Cambridge University Press.
of the 24.6%) and (iii) the overreaction phenomenon mostly occurs during the second and third year of the test period (Debondt and Thaler, 1985).\textsuperscript{110}

Another example is misapplication of regression to the mean, which predicts that future returns will be closer to the historical average. However, practitioners often predict that after having a long period of high returns they are more likely to be below, which is a wrong prediction in positively auto-correlated financial markets (Shefrin, 2000).\textsuperscript{111}

Representativeness can cause illusory correlation, that is, overestimation of empirical relationships. Furthermore, empirical relationships are often turned into causal relationships, which may or may not be true. Representativeness is high when an observation fits the pattern (Goldberg and Von Nitzsch, 2001). Some most important application of this heuristic are in predicting market, picking stocks, choosing mutual funds, selecting money managers, and investing initial public offerings (IPOs) and seasoned offerings (Shefrin, 2000).\textsuperscript{112}

However, this source of bias appears to be less common in finance. Moreover, the past earnings of a company, though publicized as representative, may not provide much in the way of guidelines as the small print accompanying such earnings data usually states. Somewhat akin to the “law of small numbers” bias, the representativeness heuristic appears to underlie much reasoning by analogy.

Failure to allow for “regression toward the mean,” which is the reversion of outcomes toward computed averages, is another bias associated with representativeness. This has been revealed in a study by Gilovich, Vallone, and Tversky (2002),\textsuperscript{113} which stated that most observers and most participants mistakenly believe in the “hot hand” in basketball. Continued belief in the “hot hand” surfaced in the 2006 NCAA March Madness when the virtually unrated George Mason University (GMU) basketball team defeated several teams with higher national rankings. GMU eventually lost in the semi-finals as its shooting average declined, reverting toward the season’s mean.

Another major bias associated with representativeness is the conjunction bias, where someone or something is judged to be more probable than the larger group to which the person or matter belongs. Perhaps the most prominent example involves

\textsuperscript{112}Ibid 85
Kahneman and Tversky’s (1982a, 1982b, 2000b) experiment in which the participants identified Linda as a feminist bank teller even more than as a bank teller.

In the case of the representative and the availability heuristics, the weight of a stimulus or association is enhanced by response compatibility. The lack of response compatibility seems to be a major factor in explaining cases of preference. An example of this is in the expression of preference for one option when the outcome is determined by probabilities, but the alternative option when price rather than probability is involved in determining the outcome (Tversky, Sattath, and Slovic 2000)(Slovic, Griffin, and Tversky, 2002)\textsuperscript{114}.

The example refers to the Lichtenstein and Slovic (1971,1973)\textsuperscript{115} laboratory and real life experiments. Those experiments indicated that many individuals who preferred the low probability of a large sum of money to the high probability of a small amount, when given the opportunity to place a price on both options and sell the options, then assigned a lower price to the alternative that they had just indicated that they preferred. Heuristics dependent on probability do not always yield the same result as heuristics dependent on price.

In case of mutual fund investment, what do investors ask to the fund manager? Very obvious investors want him or her to make money. Yet, how can they infer from the fund manager’s track record the chances of this occurring in the future? According to Serwer, this psychology of investor is referred as “hot hand”. To what extent can the remarkable performance of the Legg Mason Value Trust be attributed to its lead manager’s skill? Whether this situation is general misconception of chance factor, known as “law of small numbers” an aspect of representativeness heuristics or is the exceptional fund manager track record suggest? (Serwer, 2006)\textsuperscript{116}

Representative heuristics refers to stereotypes. Gilovich (1991)\textsuperscript{117} described nature of the heuristics “Representativeness is a tendency to assess the similarity of outcomes, instances and categories on relatively salient and even superficial features, and then to use these assessments and similarity as a basis of judgement. People assume like goes with like.” It results in error in judgment.


\textsuperscript{116}Serwer, Andy. 2006. The greatest money manager of our time. Fortune November 28.

Tversky and Kahneman (1974)\textsuperscript{118} described different aspects of the way in which people act in violation of law of statistics, when making probability judgment relying on the representativeness heuristic. People ignore prior probability or base rate frequencies, and relying on the representativeness of the events alone. They made inferences on the basis of the representativeness of the sample statistic derived independent of sample size. They described that people view sequences of events such as fund manager performance each year or, more simplistically, a series of coin tosses, and read pattern into what is essentially series of random outcome. This kind of behaviour is explained as “law of small numbers” where too much weightage is placed on representativeness of a small number of observations. This is associated with the “Gambler’s fallacy”. When Investor/decision maker make a judgment based on representativeness, they ignore reliability of evidence and accuracy of prediction. They expect exceptional performance to be followed extreme outcome, rather than normal, which is referred as “regression towards the mean”. Tversky and Kahneman (1973) noted that people are prone to experience confidence in judgment, which might be termed as illusion of validity.

Shiller (1999)\textsuperscript{119} surveyed some of the key ideas in behavioural finance including prospect theory, Regret theory, Anchoring and overreaction. Behavioural finance has developed in response to the number of stock market anomalies that cannot be explained by traditional finance pricing models (Shiller, 2003).\textsuperscript{120} Chan, Frankel, and Kothari (2004) described as “potentially boundless set of psychological biases underlying the behavioural explanations for security price behaviour”.

Research in this area is abstract laboratory type of cognitive experiments (e.g. Kahneman, Slovic, and Tversky, 1982). In fact some studies attempt to test the validity of many behavioural finance propositions in real world financial markets. (Chan, 2004)\textsuperscript{121} attempted to test “prediction of market inefficiency theories (known as behavioural finance) based on investors’ biases in processing of pattern in firm’s Financial performance information.” Chan tested market consequences of two psychological biases- representativeness and conservatism, using measure of trends and consistency in financial performance. Chan et al. found that neither representativeness nor conservatism bias in the interpretation of earnings information

by investors appears to affect stock prices and future returns. This study evidence is inconsistent with markets behaving in the same way as individual investors whose judgment are bias in line with representativeness theory.

Conservatism refers as slow upgrading knowledge of investor’s beliefs in face of new information. Test of validity of theoretical behavioural financial model is given by other authors (Barbaries, Shleifer and Vishny, 1998)\(^{122}\). Barbarieset al. provided learning model explanation, that actual earning follow a random walk, but individuals believe that earning follow either a steady growth trend, or else earnings are mean reverting. They explained representativeness heuristic finds pattern in data too readily; tend to over react to information and conservatism cling to prior belief, under reacts to information. So, interaction of representativeness heuristic and conservatism explains short term reaction and long term overreaction.(Barbaries, Shleifer and Vishny,1998)\(^{123}\).

Investors systematically under-weight (conservative) to abstract, statistical and highly relevant information, while they over weight to (representativeness heuristic) salient, anecdotal and extreme information. Chan (2004) found that neither representativeness nor conservatism bias in interpretation of information by investor in market appear to affect stock prices and future returns. While Barbaries predicted it should. Chan evidence is inconsistent with market behaving in the same way as individual investor whose judgments are biased in line with the representative theory. Such empirical tests are important when comparing the predictive ability of behavioural hypotheses and rational asset pricing theories (Barberies and Thaler,2005)\(^{124}\).

Shiller (2003)\(^{125}\) made a distinction between “natural experiments” and “lab experiments”. According to Shiller natural experiments “occur in real time, with real money, with real social networks, and associated interpersonal support and emotions, with real and envy of friends’ investments, successes and with communication media presence” and are convincing. Market consists of highly skilled and experienced traders competing in complex information environment making decisions in different ways. Expected simple mis-specified subjective probability judgment is equally applied in real world situation.


\(^{125}\) ibid. 120
Cognitive psychological literature describes how individuals in narrowly framed situations may mis-specify probability using “automated” or “intuitive” judgemental processes, may be useful in financial market study and nature of decision taken by market participants. Several researches provide evidence consistent with market prices reflecting representativeness heuristic biased behaviour. Such as investor choice of mutual funds, whether good stocks are stock of good companies, how growth/ value stock market anomaly might be explained, analyst stock recommendation bias, fund manager selection processes, etc.

Impact of representativeness bias on how investor valued Internet-related firms during and after dot-com bubble is demonstrated by many studies. (Cooper, Dimitrov, and Rau, 2001)\textsuperscript{126} They documented average abnormal return of 53% associated with adding dot-com suffix to firm names during the Internet bubble between June 1998 and July 1999. It shows the effect was independent of the extent to which the firm was actually involved with the Internet. Investors seemed to be simply reacting to the firm name change announcements, viewing all such firms as representative of dot-com stocks and re-pricing them accordingly. Even such stock re-rating is consistent with investment decisions being made in line with representativeness heuristic. They also explored price impact of reverse name changes after the dot.com bubble burst (Cooper, Khorana, Osobov, Patel and Rau, 2005)\textsuperscript{127}

**Representativeness and Mutual Fund Investors**

Cooper, Gulen, and Rau (2005)\textsuperscript{128} demonstrated behaviour of mutual fund investors to fund style name changes such as from “value” to “growth” and “small” to “large.” Changes tend to be to the current “hot” (high return) style or away from the current “cold” (low return) style. These name change funds also suffer from prior negative fund flows and underperformance relative to other funds. If mutual fund investors are prone to representativeness bias, then they are likely to confuse the apparent style change with real change in investment strategy, and judge the likelihood of future returns on the basis of the particular style’s past returns.

These authors reported how, relative to a control group of non–name change funds, the name change funds experienced a 20 percent increase in fund inflows over the following year, concentrated in funds with name changes to the current “hot” style. Investors seemed to be “tricked” by the name change, particularly as the name change


\textsuperscript{128}Ibid 98.
funds subsequently performed no better than matched funds. In fact, funds changing their name to the current “hot” style performed significantly more negatively than before the name change. As average fund switching costs were 3.75 percent, the implications of the use of the representativeness heuristic by mutual fund investors in this context are substantial.

Jain and Wu (2000) analyzed the impact of mutual fund advertising on investor behaviour. The authors examine whether mutual funds advertised in Barron’s or Money magazine subsequently performed better. Is advertising used to signal superior investment skills, or simply to increase fund flows into the advertised funds with fund investors suffering from representativeness bias? In fact, although Jain and Wu’s average advertised fund outperformed in the pre-advertisement year by 6% compared with similar funds, in the post-advertising year the average return was 0.8% below equivalent funds, consistent with regression toward the mean. On the other hand, subsequent fund flows into the advertised funds were 20 percent higher than for similar non-advertised funds. Although past performance was not associated with future returns, investors seemed to believe it was.

More generally, as Sirri and Tufano (1998) stated, investors seem to extrapolate past price trends. There is a disproportionate flow into the top quintile performing mutual funds over the previous three years despite the lack of evidence of persistence in subsequent performance. This is an illustration of extrapolation bias, that is, forecast based on unwarranted extrapolation of past trends, and is an aspect of the representativeness heuristic consistent with the misperception of chance processes.

In a similar way, Bange (2000) found how individual investors increase their equity holdings aftermarket run-ups and decrease their holdings after market downturns believing recent market movements to be predictive of future market direction. Likewise, Benartzi (2001) found employees allocate their discretionary contributions to their 401(k) retirement savings accounts to their own firm’s stock based on how well the stock has done historically over the previous 10 years.

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Representativeness in other investment decisions:

“Good company (good management), good stock” bias is an aspect of the representativeness heuristic. The belief is that if a stock performs well, the firm must be well run. As a result, well-managed companies are taken to be those stocks will suggest outperform, rather than investors recognizing that if good management is price-relevant, the attribute will already be reflected in the market price.

Shefrin and Statman (1995) reported that quality of management is highly correlated with value of associated stock as a long term investment. Belief about future investment performance is clearly associated with perception of how well managed the firm is. Shefrin(2007) reported high correlation between quality of management and financial soundness ratings, i.e. good companies are judged to be judged to be safe companies. This is consistent with representativeness heuristic. However this belief is contrary to traditional finance theory, that risk and return are positively correlated. As such safe stock should provide low return not high return. Evidence is that good management and subsequent stock performance are unrelated.(Shefrin and Statman, 2003). Good reputation may be value relevant as low cost of equity, but good management cannot predict stock returns.(Agarwal, Taffler, and Brown,2008) stated that good reputation may still be value relevant in the firms with good management have lower cost of equity than those with poor management, nonetheless, good management cannot predict stock returns.

Lakonishok, Shleifer, and Vishny (1994) and Chan and Lakonishok (2004) found how value stock (low market price/book value) outperform growth or “Glamour” stocks. They found anomaly may be partly due to investor being excessively optimistic about glamour stocks and excessively pessimistic towards value stocks as they extrapolate future growth rates from past growth rate, ignoring regression towards mean. This might can be explained apparent “book/market anomaly”. Lakonishok et al. find that the earnings, cash flows, and turnover of the growth stock firms grew faster over the previous years than in case of their value firms. They also pointed out “putting excessive weight on recent past history, as opposed to a rational

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135 Shefrin, Hersh, and Meir Statman. 2003. The style investor expectations.
prior is common error.....in the stock market.” He added “good company, good stock” explanation for the investor preference for glamour stocks”.

Shefrin (2007)\textsuperscript{139} found that stock/investment analysts are also prone to extrapolation bias or belief in hot hands. Jegadeesh, Kim, Krische, and Lee (2004)\textsuperscript{140} found how sell side analysts also generally prefer to glamour stocks to value stocks. After recommendation by analyst, however, such stocks which received stock recommendation (glamour stocks), tend to be overvalued by market. Stocks that receive stronger analyst buy recommendation, favourable recommendation, tend to have more positive price and earnings momentum, greater market to book ratio and trading volume, greater past sales growth, and are expected to grow faster in future. Jegadees et al. Found that analyst appears “over enamoured with growth and glamour stocks” is also consistent with representative heuristic.

Maloaleni- Mokoteli, Taffler, and Agarwal (2009)\textsuperscript{141} analysed whether sell side analyst are prone to behavioural bias/errors when making stock recommendation. They analyzed the stock returns earned over the year subsequent to new buy and sell recommendation by investment analyst. They concluded that analysts are prone to cognitive biases, including representative heuristic, including representativeness, as well as conflict of interest in their new buy but not sell stock recommendation. This all suggested that analysts appear to prefer stocks with “best” characteristics in line with good company, good stock bias of the representativeness heuristic, even it lead to poor stock recommendations.

Breton and Taffler (2001)\textsuperscript{142} found similar result when they analyse brokerage firms to find factor distinguishing buy from sell recommendation. They concluded that “consideration of a firm’s management and strategy although occupying a small part of the analyst’s report, is a key determinant”. They found that the key information cues associated with buy compared with sell recommendation are dominant of non-financial nature. Analyst under study was focused on the quality of firms. Result depicted that analysts appear to be prone to representativeness heuristic bias in form of good management good stock syndrome. They concluded their study as

\textsuperscript{139}Ibid 105.
“consideration of a firm’s management and strategy, although occupying a small part of analyst’s report, is key determinant”

**Fund Manager Selection and Law of Small Numbers:**

Retail investors are also prone to investment behaviour consistent with the operation of the representativeness heuristic in their mutual fund selection task, as resulted in analysis of stock recommendation. And professional investment manager are equally affected, or whether their training and skill help to take rational decision free from information processing biases. In same line Goyal, and Wahal (2008)\(^{143}\) tested hiring practices of investment management firms by investment plan sponsors. Those manager who had extra ordinary performance result in last three to five years, get hired by plan sponsors. In fact, post hiring abnormal returns does not differ from zero. It also suggests the process by which fund managers are often hired is prone to representative bias. In particular, plan sponsors may be making intuitive judgment about applicant fund manager, confusing liking with future returns similar to the “good management, good stock” biases.

Typically investment consultant provides short list of mutual firms for the various plans, among the other factors, basis of prior performance. Now process of selection from this list consist of a ‘beauty Pageant’ in sense that particular selected fund manager will outperform the market. Such situation is prone to cognitive biases. This is also applicable by which fund managers are often hired, that decision is prone to representativeness.

Emery and Li (2009)\(^{144}\) found the factors that determine institutional investor and wall street journal analyst superstar ranking. They concluded that the two rankings are essentially popularity contests prone to biases. This is so in case of second ranking, that reflects an analyst subjective reputation rather than the performance of his investment recommendations. In case of second ranking, where recognition is prime determination of superstar status, illusions of validity overrule the rating. It resulted are exactly what would be predicted from the operation of the representativeness heuristic. It followed by deterioration in subsequent star performance reflect regression towards the mean.


Nisbett, Krantz, Jepson, and Kundra (2002)\textsuperscript{145} noted, “The representative heuristic is best studied and most important of judgemental heuristic.” Representativeness is process, which describe how people make decision/judgement based on stereotypes. Representativeness describes the process based on degree of perceived similarity between events or classes. They test the degree of “fit” between objects and events and organize them along the line of “like goes with like”.

Kahneman and Frederick (2002)\textsuperscript{146} describe heuristic and biases approach and to study this biases, they survey 84 participants at the mathematical psychological Society and the American Psychological Association, result are reported in Tversky and Kahneman 1971. The survey posed a range of questions about statistical significance of samples drawn from population and replicability of research results. They argue that not only should these scientists have known better, but they did know better as they could have readily captured the correct answers.

Finally how investor can improve their decision making skills and avoid heuristic bias. Plous(1993)\textsuperscript{147} make recommendation on how investor can improve their judgment and decision making skills and avoid the errors of representative heuristic biases.(i) do not be misled by highly detailed scenario (ii) Whenever possible pay attention to base rate (iii) remember that chance is not self-correcting and (iv) do not misinterpret regression toward mean. Keeping these suggestions, investor can avoid many biases that result from reliance on the representativeness heuristic.

Whether financial market participant are prone to similar type of judgment consistent with representativeness theory, is most vital to focus here. This may be because enormous complexity of market environment in which investors have to operate and their need to make a sense of what is taking place.

\textbf{3.4.2 Familiarity Bias:}

A popular Wall streets’ adage is to “invest in what you know”. This revealed preference for familiar assets in the presence of higher return and lower risk from less familiar assets is known as familiarity bias. Displaying a bias towards the familiar suggests a lack of diversification.


Why do investors continue to hold portfolios heavily weighted in familiar assets despite gains from diversification? Rational explanation for familiarity bias can be explained by observed bias towards local assets. These covers such behavioural biases as investing in own company stock, overconfidence, regret aversion, social identification, etc which explain why investor preferences for familiar asset leads to leave those assets with good return prospects.

One method to measure familiarity bias is to compare the share of “local” assets held in investor portfolio in comparison of the assets unbiased portfolio. There are different ways how this is tested like proportion of domestic equity to world capitalization, domestic to global weightage. Information asymmetries also appear to affect performance.

One way to measure familiarity bias is to compare the share of “local” assets in investor’s portfolio to shares of unbiased portfolio. Comparing country’s holding of its own domestic equity compared to that held in the “global” portfolio. French and Poterba (1991) developed ICAPM. They documented, U S. Equity traders allocate nearly 94% of their funds to domestic securities, even though the U S equity market comprises less than 48% of global market. This phenomenon is referred as ‘home bias puzzle’ where investors appear to invest only in their home country.

Whether Investors display local bias, a preference for local assets with which they are more familiar, despite gains from unknown & diversification. Coval and Moskowitz (1999) surveyed U S Investment /mutual fund managers and find that these managers display strong preference for locally head quartered firms in their domestic portfolio. They found that mutual fund managers earn an excess return nearly 3% on investment located within hundred kilometres of the mutual funds headquarters and interpreted their results as evidence that information advantages motivate investors to favour nearby firms. They concluded that geographic proximities play an important role in determining investor portfolio choice. They also identified several characteristics of local equity preference.

Heath and Tversky (1991) lay out behavioural foundation for betting familiar, but do not explain why the nature of the bet is frequently ‘buy and hold’. They conduct a series of experiments showing that people prefer to bet and holding knowledgeableor

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competent than in a context where they consider ignorant or uninformed. Heath and Tversky concluded ‘competence hypotheses as it help to explain why investors are willing to forgo the advantages of diversification and concentrate on small number seems to be familiar to them.

Perhaps the most popular institutional explanation for familiarity bias is asymmetric information. Brennan et al. found that investors tend to buy foreign assets when returns are high and sell them when returns are low. This kind of return chasing behaviour is result of limited information. This is supported by study of investors where they tend to be more bullish about market following strong performance by that market. Investors are forecasting returns based solely on past returns. (Brennan, Cao, and Xu, 2005)\textsuperscript{151}

Portes and Rey (2005)\textsuperscript{152} found that home bias declines as the number of foreign branches rises. Keloharju (2001)\textsuperscript{153} found that Finish investors prefer to invest in firms that have finish manager both at home and abroad. Giofre (2008) found that information proxies such as language, distance and market transparency have stronger influence on foreign holding of house hold investors.

Whether Local bias may be a rational response to better information about familiar assets? Individual investor earned an excess return of 3.5% on local assets relative to non-local assets, taking advantage of local information/knowledge (Ivkovic and Weisbener, 2005)\textsuperscript{154}. Massa and Simonov (2006) found that familiarity bias has less of an effect on portfolios following a “familiarity Shock” which is in consistent with familiarity bias hypothesis. Further evidence of bias is provided by study of investors who move tend to sell shares of the firms they use to live near and buy shares of the firms near their new homes (Bodnauruk, 2009)\textsuperscript{155}.

Huberman offered a novel explanation of the home country bias. They put it as people simply prefer to invest in the familiar. They argued that geographic bias of investors is closely related to the general tendency of household’s portfolio to be concentrated, as well as employee’s tendency to invest into employer’s stocks. They add that familiarity bias is an intentional arena, as people invest in the familiar while often


\textsuperscript{155}Bodnauruk, Andiry. 2009 Proximity always matters: Local Bias when the set of local companies change. Review of Finance.
ignore the portfolio diversification principles. They suggested that investors do not optimize along objective risk return trade-offs. Their article’s asserted that ‘familiarity breeds investments’ (Huberman, 2001).  

Huberman & Jiang (2006) argued that “Familiarity breeds investment” and that a person is more likely to invest in the company that she thinks that he knows. Instances of this familiarity bias are investing in domestic market, in company stocks, in stocks that are visible in investors’ lives, and stocks that are discussed favourably in media. Information about foreign market is not limited, but rather that investors are constrained in their information. Due to this limited capacity, investors choose to invest more heavily in domestic assets. (Van Nieuwerburgh and Veldkamp, 2009)

3.4.3 Overconfidence:

Many regard overconfidence as one of the most significant bias in investor decision making. Various studies stated that overconfidence can lead to suboptimal decision amongst investors. In following section through various study of overconfidence be useful to understand the investor decision making and degree of overconfidence in their actions. According to Plous (1993, p. 217),

“no problem in judgement and decision making is more prevalent and more potentially catastrophic then over confidence.” So in following section document those overconfidence phenomena such as excessive trading, stock market anomalies etc.

Some study used the interval estimates to examine the overconfidence taking into consideration lower bound and higher bound of respondent estimates. Some studies that analyse such assessments of uncertain quantities using this method, find that people’s probability distribution are too tight. (Lichtenstein, Fischhoff, and Phillips, 1982)

Such confidence intervals are also used to elicit prediction of time series such as stock price charts. (Budescuand Du, 2007)(Glaser and Weber, 2007). Studies used questionnaire that obtain volatility estimate of investors by asking for confidence interval regarding return, value of index, or return/price of a stock in the future.

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found that interval are too tight. Thus Historical volatilities are underestimated (Hilton 2001) (Glaser and Weber, 2007).

DeBondt and Thaler (1985)\(^{161}\) put it as “research in experimental psychology has suggested that, in violation of Baye’s rule, most people ‘overreact’ to unexpected and dramatic news events”. They examined whether behaviour affects stock prices. They use monthly common stock data of NYSE for period of 1926 to 1982. They find their study result is consistent with overreaction hypothesis. They argued that market over or under reaction is the consequence of investor putting too much weight on recent news at the expense of other data. They tend to become more optimistic when market goes up and pessimistic when market goes down. Most investors think they can beat the market although evidence is overwhelming that they cannot. They found that people tend to overreact to unexpected and dramatic news events. This is in consistent with the predictions of the overreaction hypothesis portfolio of prior ‘losers’ are found to outperform prior ‘winners’. They stated that thirty six months after portfolio formation, the losing stocks have earned about 25% higher return than winners, even though latter are more significantly more risky. While other argued that overconfidence seems related seems to be related to some deep-set of psychological phenomena. Ross (1987) argues that much overconfidence is related to a broader difficulty in making adequate allowance for the uncertainty in one’s own viewpoints.

Other studies ask subjects to answer questions with two choices to measure the degree of mis-calibration, for e.g. “How sure are you (please state value between 50% to 100%)? Another facet of overconfidence is the better than average effect. For e.g. Consider your Driving skills as compared to others and rate it. (Svenson, 1981)\(^{162}\) Main Finding is that people think their skills are above average, as well as have unrealistically positive views of themselves in personality attributes. (Taylor and Brown, 1998). Moore and Healy (2008) note “excessive precision in one’s belief” and over-placement of one’s performance relative to others” as better than average effect.\(^{163}\)

Odean, 1998 provides explanation to overconfidence and optimisms, by stating that people believe that they are less likely to get hit by bus or be robbed than their neighbours. They conclude that new business owners believe their business has 70%
chance of success, but only 30% succeed. Even overconfidence leads to substantial losses when investors overestimate their ability to identify next Microsoft or Amazon. Most of the overconfident models predict high trading volume in market when there are overconfident traders. Moreover, at individual level higher the overconfidence higher the trading. Odean founds that overconfident traders have lower expected utility than rational traders as overconfident works device to aggressive trading. So when investors are overconfident in financial market, it will result in (i) high trading volume (ii) risky and undiversified portfolio of overconfident investors. They also concluded that men are more overconfident than women; trade more frequently (45% more) than women, men earn less return than women (1% less). Individuals’ investors who hold common stocks directly pay tremendous performance penalty for active trading. (Odean, 1998)\textsuperscript{164}

Gervais and Odean (1998, 2001)\textsuperscript{165} develop a model in which investor overconfidence results from self-serving attribution bias. Investors in this model infer their own abilities from successes and failures. Due to this tendency to take too much credit for their success, they become overconfident. They analyzed how overconfidence dynamically changes over time as function of past investment success due to self-attribution bias. Other study also find that high trading volume observe in financial market is most significant fact to the standard finance paradigm and that “the key behavioural factor needed to understand the trading puzzle is overconfidence. (De-Bondt and Thaler 1995)\textsuperscript{166}.

Benartzi, Kahneman and Thaler\textsuperscript{167} survey 1053 subscribers, in that 84% male, average age, annual income of 93000$ and average allocation to stocks is 79%. They asked optimism question about thinking about financial decision, and likelihood of outperforming stocks to bonds in long run.

Kyle and Wang (1997)\textsuperscript{168} find that overconfident traders might earn higher expected return than rational investor as overconfidence works like a device to aggressive trading. They also find that overconfident investor survive into the financial market.

Even they argue that over confident traders survive in security markets. They concluded their study by stating

“........our model maintains the assumption that markets are semi-strong efficient.’ Irrationality enters into the trading strategies of informed traders whose trading affects the information content of prices but does not lead to inefficient prices”.

They also stated, their model shows that overconfidence may strictly dominate rationality and survive in the long run. They said that this occurs because overconfidence act like a commitment device in standard duopoly, and study has strategic implication for delegated fund managers.

(Hirshleifer and Luo,2001)( Wang, 2001) Overconfidence in individual investors result in them trading too much, with them believing stocks that they hold will perform better than others. Little concern on the part of overconfident investor exists for the prediction of other investors/investment professionals regarding the potential performance of these stocks.

Benos (1998)\textsuperscript{169} paper explicitly models investor behaviour in financial markets allowing for traits linked to a notion of imperfect rationality. They studied an extreme form of overconfidence where some risk neutral investors overestimate the precision of their private information. The participation of overconfident traders in the market leads to higher transactions volume, larger depth, more volatile and more informative prices. They found that individual profits of overconfident traders may be positive and even higher than those of their rational opponents and even more then if they switched to rational behaviour. Since rational traders fear pushing the price too much in one or the other direction, they are forced to scale down their own demands, when confronted to aggressive traders. They conclude their study by stating

"Introducing explicit patterns in traders’ behaviour sheds some new light into market phenomena like ‘irrational’ traders’ persistence in the market and high price volatility. It also allows to compare directly the relative ‘fitness’ of strategies with, sometimes, surprising results. Overconfidence is, admittedly, only one of many deviations away from fully rational behaviour. But, such specific deviations can give interesting interpretations to events encountered in actual markets and offer an alternative approach to microstructure modelling”.

Their unconscious commitment to aggressive trading offers them a ‘first mover advantage’. Caballe (2003), Sakovics and Odean (1998) all agreed that presence of overconfident traders helps to understand excess volatility in market. Scheinkman and xiong (2003) found that overconfidence can explain the financial bubbles in security markets. Daniel, Hirshleifer, and Subrahmanyam (1998) explained that how overconfidence might provide explanation to momentum effect, that winning stock in the recent past remains winner in next period, and loosing stock in recent past loose in value in market.

Daniel et al. Proposed a theory of under reaction and overreaction, which is one of the most important bias resulted from overconfidence. They described this phenomenon as, investor overconfidence and biased self-attribution. They argued that variation in investor confidence which is an over estimation of ability to value stocks and predict future prices arising from biased self-attribution, which is conforming information in the public arena encourages but disconfirming information does not discourage leads to market over and under reaction to information. They concluded that shift in investor’s confidence cause negative long lag auto-correlation, excess volatility and predictability about future price. According to them shift in investor self-attribution cause short auto-correlation, short run earning drifts and abnormal stock performance in opposite direction of long terms earnings changes. (Daniel, Hirshleifer and Subrahmanyam, 1998)

Daniel and Titman’s, (1990) research rejected the notion of efficient market in favour of alternative theory which suggests that assets price are influenced by investor overconfidence. They studied mutual funds to examine propensity to overconfidence. They found that momentum effect is a result of trading activity of overconfident traders. They found that, momentum effect are stronger for growth stock with hard than to value option and portfolio strategies that might be suggested by overconfidence theory realize extremely higher and persistent abnormal returns.(Daniel and Titman, 1999). Lee and Swaminathan (2000) agreed on this and found that momentum is higher among high turnover stocks. This is confirmed by study of turnover (Glaser Weber, 2003).

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171 Ibid. 135
Preference for overinvestment in company stock suggests that in absence of asymmetric information, investor may feel more confident in their ability of judgment and estimation of return potentials. Kilka and Weber (2000)\textsuperscript{174} used experimental data, to study, that German investor display higher confidence in German assets return forecasting than American assets return.

Gender differences in investor decision making have mainly been studied within the context of overconfidence rather than self-attribution biases. Some theoretical models predict that overconfident investor trade excessively. Barber and Odean (2001)\textsuperscript{175} studied actual trading data of 35000 households from large discount brokerage firm. They analyzed the common stock investments of men and women from February 1991 to January 1997. Their basic study was focused on, first, overconfidence and trading in financial markets and second, gender and overconfidence. They found that overconfident investor tend to invest more in familiar assets than others, represent familiarity bias of investor’s decision making. They also find that male investors are more overconfident than women; men will trade more and perform worse than women. They put it as proxy for overconfidence is gender. They concluded from their 35000 trading account with broker by gender, that higher degree of overconfidence among men than among women is evident and support the model of overconfident. They further added that differences in overconfidence are most pronounced between single men and single women. Finally, they concluded their research by stating “our empirical tests provide strong support for the behavioural finance model”.

People overestimate the degree to which they are responsible for their own success. In finance literature, overconfidence and biased self-attribution bias are regarded as counterparts. In overconfidence model with self-biased attribution, the degree of overconfidence is function of past investment success. (Hirshleiferand David,2001)\textsuperscript{176}

Strong and XU (2003)\textsuperscript{177} surveyed mutual fund manager in Europe, Japan, and United states. They find that managers are more optimistic about the performance of market in their own countries, which is consistent with home bias syndrome.

Overconfidence model of investor behaviour help to measure the degree of overconfidence. Glaser, Markus, North, and Martin Weber (2004) measured the degree of overconfidence, and correlate measure with behaviour. They modelled overconfidence as overestimation of precision of private information. In their investor trading models, the uncertain liquidation value of risky assets is modelled as a realization of random variable. As a result their confidence interval is too tight. Glaser at al. (2004) also design questionnaire that obtain a volatility estimate of investors by asking interval regarding return/value of an index or return/price of stock in future. They concluded from this study that volatility is underestimated.

Whether there is any link between the personality type, gender and behavioural bias. Michael et. al. studied sample of ‘100 individual’ investor to examine behavioural biases for each one of 16 personality types delineate by the MBTI(Myers- Briggs Type Indicators). They found that many personality types and both genders are differently disposed to numerous behavioural finance biases. They observed that different personality type exhibit different overconfidence and optimism.(Michel and John,2004).

Here we require to check,whether psychological traits and cognitive biases affect trading. Bias et al. analyzed students whether psychological traits and cognitive biases affect trading, degree of overconfidence via calibration. They find that overconfident individual have greater tendency to place unprofitable orders. (Biais, Hilton, Mazurier, and Pouget, 2005)

Karlsson and Norden (2007) explained gender difference and overconfidence bias among investors. They study Swedish pension data to show that higher familiarity bias is for older single men with low levels of education. However Barber and Odean study explain that investor sophistication is negatively correlated to home bias.

Goetzmann and Kumar (2008) study individual brokerage firms accounts for 40000 US Investor and find that familiarity bias is highest in young, Male, Low income, less

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179 Ibid.
180
educated, and less sophisticated investors. Similar result of mutual funds study depicted less familiarity bias as compared to retail individual investor. They concluded that average home domestic equity share in the United States is 87%, but it is only 68% for mutual funds. This comparative data explain that, unsophisticated investor are prone to overconfident in estimating return on domestic equity (Hau and Rey, 2008).\textsuperscript{184}

Glaser and Weber (2007)\textsuperscript{185} tested the hypothesis by relating individual confidence scores and trading volume of individual investor. They surveyed 3000 broker to measure the overconfidence test. They found that investors who think that they are above average in terms of investment skill or past performance trade more. They also found that investors who underestimate the volatility of stock returns have higher stock portfolio turnover values. However, better than average effect on trading activity were stronger in individual investor. In stock market prediction, overconfidence is stronger as the forecast horizon increases. Glaser et al. Found that, strength of the overconfidence effect in stock market forecast significantly depends on whether subject provide price or return forecast. They found that overconfidence bias is higher in return forecast compared to price forecast (Glaser, Langer, Reynders and Weber, 2008). Glaser et al. stated that overconfidence is stronger as the forecast horizon increases and slight over confidence for short forecast horizons of one week. (Glaser, Marcus, Weber, 2008)\textsuperscript{186}

Alen et al. experimentally analysed the existence of overreaction, by questionnaire filled by 104 students in 2007, and its relation to psychological biases, as well as its financial consequences. Their measure of overreaction is simply the ration of forecasting error to innovation in signal. They found evidence for strong overreaction, and documented that majority of subject is overconfidence to overreaction, more overconfident subject tend to overreact more heavily. They also found that positively overreacting subjects take higher risk than rational one. They concluded that subject overreact on average i.e. forecast re too optimistic after positive signals and too pessimistic after negative signals. There is greater overreaction when subjects are more overconfident. (Alen, Weber and Glaser, 2011)\textsuperscript{187}

Apparently many investors feel that they do have speculative reasons to trade often, and apparently this must have to do with a tendency for each individual to have beliefs that he or she perceive better than other’s beliefs (Shiller, 1998).\textsuperscript{188} It is as if most people think that they are above average. Shiller(1987) observed in a surveyed of the 1987 market crash, a surprisingly high confidence among investors in intuitive feelings about direction the market would take after crash. Therefore, overconfidence may help to explain possible general market overreaction as well as excess volatility and speculative asset prices. It may also explain why investment professionals hold actively managed portfolio with the intention of being able to choose winners and why pension funds hire active equity managers. High trading volumes and the pursuit of active investment strategies thus seem inconsistent with knowledge of rationality.

Most important study and finding is that people think their skills are above average. Taylor and Brown (1988)\textsuperscript{189} found that people have unrealistically positive views of themselves. Svenson experimented with 161 subjects through questionnaire to judge their skills. Researcher group of students asked to rank themselves among others in terms of their competence as drivers’ skill and safety, to understand their judgment about their skill and personality attributes. Most of them rank them above average in terms of their skill which is consistent to overconfidence biases in judgment. Author finds that most of subject regarded themselves as more skilful less risky than the average driver in each group respectively (Svenson, 1981)\textsuperscript{190}. 

Overconfidence investors believing that they can predict the market better than they actually can. In this direction Moore and Healy (2008) found that excessive precision in one’s belief also called mis-calibration and over placement of one’s performance relative to others, better than average effect are result of overconfidence bias.\textsuperscript{191} 

Lewellen, Lease, and Schlarbaum (1977)\textsuperscript{192} had carried out analysis of survey answers and brokerage records of 972 individual investors. They reported that men spend more time and money on security analysis, rely less on their brokers, make more transactions, believe that returns are more highly predictable, and anticipate higher possible returns than do women. In all these ways, men behave more like


\textsuperscript{190} Svenson, Ola. 1981. Are we all less risky and more skillful than our fellow drivers? ActaPsychologica 47:, 143-148.


overconfident investors than women. Other studies of such gender and overconfidence are like Merkle et al. Explained this biases in better than average effect and rationality. (Merkle and Weber, 2009). Several studies analysed the influence of gender on the degree of overconfidence. Lundeberg, fox, and Puncochar (1994) found that while both men and women are overconfident, men are generally more overconfident than women. Pulford and Colman (1997) also found that males are significantly more overconfident than females. Similar finding has been derived by Wu, Johnson, and Sung (2008) and Barber and Odean (2001). Psychologist found that in areas such as finance men are more overconfident than women. This difference in overconfidence yields two predictions: Men will trade more than women, and the performance of men will be hurt more by excessive trading than the performance of women.

Goetzmann and Kumar (2008) examined the diversification of investors with respect to demographic variable of age, income, and employment. They found that low income group and non-professional categories hold the least diversified portfolio. They also found that young investors are over-focused and inclined towards concentrated, undiversified portfolios, which might be a manifestation of overconfidence. Some study exhibit that culture also influences an individual’s cognitive processes which may affect and judgment and information processes. (WU, Et al. 2008)

Several different concepts, such as the better-than-average effect or mis-calibration, are often subsumed as overconfidence. This discussion shows that mis-calibration is the facet of overconfidence most closely related to the way finance models characterize overconfidence. The above-mentioned studies indicated that a reasonable modelling assumption is that investors are mis-calibrated by underestimating stock variances or equivalently by overestimating the precision of their knowledge. In last we can conclude that empirical evidence and experimental studies document that overconfidence explains biases such as excessive trading volume of investors, stock market anomalies, and overinvestment of firms. This describes phenomena that can be explained by behavioural finance models incorporating overconfidence in investor behaviour.

Finally, it can be concluded that the overconfidence as phenomenon of human response, presenting itself even in assumption about data such as the basic facts that

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constitute elements of the decision problem. Overconfidence is sometime attributable to an illusion of control and exaggerating what can be expected from admittedly better than average capability and performance.

3.4.4 Regret Aversion:

Another familiarity bias explanation is regret. Regret aversion is primarily concern with how prior regret can influence decision making. Investor would be elated if their foreign stock delivered higher return than domestic stocks, but estimates of regret theory as in Loomes and Sugden (1982)\textsuperscript{195} is alternative to regret theory of Kahneman and Tversky. Loomes et al. suggested that one significant factor is an individual’s capacity to anticipate feeling of regret and rejoicing. They provided alternative theory model of positive side of regret theory, which yield a range of prediction, and other choice phenomena, which the conventional theory fails to explain. They also argued that, their approach has strong normative implications, describing a form of behaviour, which was controversial to EUT, is rational. They concluded their study, by stating “behaving according to those conventional axiom is irrational, those axioms constitute an excessively restrictive definition of rational behaviour.”

Bell in (1983)\textsuperscript{196} put regret aversion as people may be willing to pay premium to avoid consequences that produce the decision regret, because under condition of uncertainty, people have fear of ‘wrong decision’. They study in continuum analysis of the potential of regret of influencing decisions or earlier investigation of normative implication of decision regret. They argued that the outcomes produced by alternatives not chosen are never resolved. Their study results in model of preference in two components; decreasing marginal value and regret aversion. They found that investors weight potential losses relative to a benchmark in their utility than in gains.

Simonson (1992)\textsuperscript{197} found that people under influence of anticipated regret are reluctant to assume higher risk that lessens the potential for poor outcomes. One of the most studies emotions that can follow a decision is the feeling of regret. Gilovich and Medvec (1995)\textsuperscript{198} showed that in the short run people experience more regret for action rather than inaction.


Regret or anticipated regret, appears to influence decision. Simonson (1992)\textsuperscript{199} found that an aversion to regret not only play role in reducing the risk people take, but also encourage to assume higher risk. They main finding is that people under the influence of anticipated regret are motivated to take less risk because this lessens the potential poor outcome. However, an aversion to regret not only can play role in reducing the risk that people take, but also encourage them to take risks.

Familiarity bias suggests that investor hold suboptimal portfolios. Diversification of portfolio could result in both higher return and lower risk. Lewis (1999)\textsuperscript{200} estimated that efficient portfolios could increase investor wealth. Reducing familiarity bias could result in greater financial integration.

Shefrin and Statman (1985)\textsuperscript{201} argued that regret is an important factor explaining the disposition effect. They studied regret aversion to explain why investors do not like to sell “loosing stocks” as it is giving them indication that they mad bad decision or to admit a mistake. The theory may be interpreted as implying that investors avoid selling stocks that have gone down in order not to finalize the error they make and in that way avoid feeling regret. They showed that regret aversion result in a ‘Disposition effect’ where investors sell well performing stocks too soon and ride poorly performing stocks for too long . The fear of regret leads to postpone the losses whereas, symmetrically, the desire for pride leads to the realization of gains. Individual experience regret when closing with loss as it reflects their poor decision. This is in consistent with study of Odean (1998), they found that the investors do not like to sell losing investments. This is not only applicable to sell decision but also to initial investment decision as well.

Larrick, Boles(1995)\textsuperscript{202} said that regret theory deals with people’s emotional reaction to having made an error of judgment. Investor may avoid selling stocks that have decreased in value to avoid the regret of having made bad investment or embarrassment of reporting loss. Some researchers theories that investors follow crowd to avoid regret of not part of groups.

\textsuperscript{199} Ibid. 159
\textsuperscript{202} Larrick, R., and Boles, T. 1995. Avoiding regret in Decisions with Feedback: A Negotiation example; Organizational behaviour and Human Decision Processes, 63, 87-97.
Dodonova and Khoroshilov (2005) developed a model of how regret aversion influence individual investor decision and aggregate stock prices. They argument was on premises that investor select past good performer in regret anticipation i.e. they missed the bus in early rally. The author found that this occurs because investors will feel regret at having missed out opportunity on this stock, even they feel more regret if this stock will perform well in future, still they have not invested in that.

Solnik (2006) developed a model describing investor taking return, risk and regret into consideration when designing weight of foreign security in portfolio. They find that investors are ready to hold foreign assets if they pay a “regret premium” which is increasing regret aversion across investors. They argued that with symmetric regret aversion across countries, investors may still observe familiarity bias.

Brabazon (2000) explained that being adverse to regret result in people fearing the feeling that they are responsible for bad decisions. People aim to achieve feats that make them feel proud and avoid those that will make feel shame or regret.

So regret theory is another general heuristic, (Loomes and Sudgen, 1982) but more with mixed empirical support. This theory involves contrafactual and introspective thinking. It used the strategies to avoid the intense negative emotions that can arise from imaging a situation that would have been better had one decided differently. To the extent that regret theory guides the investors, they are inclined to be more passive.

3.4.5 Cognitive Dissonance:

Cognitive Dissonance is mental conflict that people experience when they are presented with evidence that their beliefs or assumptions are wrong (Montier, 2002). Cognitive Dissonance may be classified as a sort of pain of regret, regret over mistaken belief. Festinger’s theory (1957) asserted that there is a tendency for people to take actions to reduce cognitive dissonance that would not normally be considered rational, such as avoiding new information or developing contorted arguments to maintain beliefs or assumption. The theory of regret may attribute to

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money flowing more rapidly into mutual funds or stocks that have performed well than flowing out of stocks of funds that have performed extremely poorly.

3.5 Other Behavioural Biases:

Other behavioural biases can be divided in three groups of biases:

   Inertia
   Self-deception
   Affect.

3.5.1 Inertia:

Inertia is the influence of belief of investors’ decision making. Inertia biases can be described as where economic factor fails to update their economic condition despite there being potential gains. They stick to position like fail to sell a stock. There are three main biases result due to inertia are:

   Conservatism
   Status quo bias
   And endowment effect

3.5.2 Conservatism:

People respond too conservatively to new information. In a narrow sense conservatism means that people are not perfect Bayesian updaters. People are slow in updating of their beliefs. Conservatism bias describes how people underweight base rates such as extrapolating trends from patterns in small data set. (Kahneman and Tversky, 1973)\(^{209}\)

Among the key psychological phenomena that may cause market under reaction are anchoring to the existing price levels (Tversky and Kahneman, 1974), Cognitive conservatism toward new explicit information signals (Edwards, 1968), and a confirmation effect. The confirmation effect is a subconscious search for information to confirm the hypothesis previously assumed while at the same time avoiding any confrontation of facts that could be contrary to the opinion so far expressed. Edwards (1968)\(^{210}\) states that under conservatism, people overweight base rat and underweight


new information, which leads to slow base rate adjustment when new information arises.

To understand investors’ decision making, it is required to capture the conservatism bias, which is important as a short term decision making heuristic. The more contrary the new information is to earlier expectations and beliefs of investors, the greater the market under reaction. Lord et al. found that people are slow to change their belief even it is evident that they should do. This partly stems from the cognitive, time, and potential financial cost of assessing financial information to update probability assessments. (Lord, Ross, and Lepper, 1979). \(^{211}\) This kind of reluctance to update belief is attributed as a cause of various financial anomalies, referred as under-reaction anomalies in financial literature.

Griffin and Tversky (1992) \(^{212}\) analysed conflict between conservatism and representativeness. They said that information has strength or weight. The investors making heuristic based decisions will give less attention to high weight information because it will tend to be statistical and thus has low salience, leads to conservatism. The decision makers pay too much attention to high strength information because of its salience, which leads to base rate neglect.

Fama (1998) \(^{213}\) studied overreaction (overconfidence) and under reaction (conservatism) to market information or new arrived in market to explain behavioural finance. Such short term reluctance to update beliefs is attributed as a cause of various financial planning anomalies. The Bernard and Thomas (1990) studied post earnings announcement drift, where equity prices react to earnings announcement. Desai and Jain (1997) analysed stock splits. Agrawal, Jaffe, and Mandelker (1992) also provided evidence of slow updating of information arising from these events.

Barberis, Shleifer, and Vishny (1998) \(^{214}\) modelled that investor assume that market fluctuates between two states mean reverting or trending state. Mean reverting state arises due to investor conservatism. And trending state arise due to extrapolation of past from multiple positive (or negative) surprises to earnings.


3.5.3 Status Quo Bias: Financial research that emerges from the status quo bias focuses on three issues like pension, person financial planning and health decision. Much reasoning not involving complete calculation is referred by a status quo biased decisions(Kahneman, Knetsch, and Thaler 1991)\(^{215}\). Independent of the amount of calculation involved, same also holds for much reasoning about decisions in which there is substantial uncertainty. This bias favouring the status quo appears to be important in finance. Investors sometimes leave portfolios unmodified even after major changes in financial trends.

Some investor trade too much and often change their strategies, others may exhibit the tendency of “doing nothing or maintaining one’s current or previous decision” This is how Samuelson and Zeckhauser (1998)\(^{216}\) defined the status quo bias. Explanation for the status quo bias fall into three main categories: (i) rational decision making in the presence of transition costs and/or uncertainty; (ii) cognitive mis-perception and (iii) psychological commitment stemming from misperceived sunk costs, regret avoidance, or a drive for consistency. The status quo is related to loss aversion.

Most important is Kempf and Ruenzi (2006)\(^{217}\) who studied mutual fund industry and generalized economic choice situations. Fox, Bizman, and Huberman (2009)\(^{218}\) stated that the status quo bias can result in “escalation of commitment” known as “good money after bad”

3.5.4 Self-Deception:

Self-deception bias arises from how people desire for positive self-image, describe as ‘feeling good about oneself’, which affect their decisions. Most common self-deception bias is overconfidence; excessive belief and judgment of positive self-attribute to own skills. There are two main results from self-deception, self-attribute bias and over optimism. These biases explain either side of overconfidence, i.e. self-attribute bias leads to overconfidence and overconfidence result into over optimism.


3.5.4.1 Self-attribution bias:

Self-attribution theory was originally developed by Heider in 1958\textsuperscript{219}, who observed how people tend to attribute success to their own decision and bad outcome to external factors. Many studies apply self-attribution bias theory in financial context, specifically focused to individual investor or other financial market participant behaviour. This kind of self-attribution bias is emerged from two traits of human being: self-protecting and self enhancement.

Miller and Ross\textsuperscript{220} provided support for the presence of self-attribution bias. They experimented with subjects by asking them to choose and assign ‘win & lose’. Then subject ask to give explanation about why they had won or lost. They found that respondent, when they are in winning position, they describe their actions, when they are in loosing position they focus on external factor for explanation.

How this self-bias attribution applies to financial decision making is our focus area. In this direction Odean (2001)\textsuperscript{221} developed model based on SAB of how investor become overconfident.

Daniel, Hirshleifer, and Subrahmanyam (1998)\textsuperscript{222} studied some investor to find effect of SAB. They modelled with some investor predicting dividend pay-out for the next period. They found that investor attribute their success to own personal skills and ignore external reasons such as luck, which leads them to be overconfident in their judgment. They also concluded that investor make more decision to learn.

Gervais and Odean (2001)\textsuperscript{223} found that, young traders in financial market are leading the market to bull condition, as overconfidence is higher due to SAB. They modelled who have yet not learned to overcome their SAB. They argued that during high volatility, managers attribute positive outcome to own actions and negative return to external factors, evidence the overconfidence on part of mangers. Choi and Lou (2007)\textsuperscript{224} studied fund manager and find that poor manager shows evidence of self-attribution bias. They found that these managers have increased the active part of portfolio as volatility increases, which are in consistent to model given by Odean.

\textsuperscript{219}Heider, 1958
\textsuperscript{224}Choi, Drawin, and Dong Lou. 2007. A test of self-serving attribution bias: Evidence from mutual funds. Working paper, Yale School of Management.
Hilary and Menzly (2006)\textsuperscript{225} found that stock analysts, who are the most successful at predicting returns in one year, had performed poor in subsequent years. Author said it at consistent to self-attribution bias and leads to overconfidence.

Analysing individual investor is most critical to understand the heuristic in decision making process. Barber et al. found that online investor who had good previous performance when trading over phone, subsequently trade more and underperform. This provided evidence of self-attribution bias arising out of past good performance. Investors with self-attribution bias subsequently overtrade and underperform. They also concluded that successful investors are more likely to increase their trading than unsuccessful traders. Barber and Odean (2002)\textsuperscript{226}

Hsu and Shiu (2007)\textsuperscript{227} analysed individual and institutional investor who bid in IPO. They observed that who initially outperform others bidders tend to bid more at higher prices than other bidders, so underperform subsequently. The financial studies have focused on role of prior experience and performance rather than self-attribution bias. It helps to explain role biases self-attribution in influencing investor decision making more difficult. They concluded that successful investors are more likely to increase their trading than unsuccessful traders.

There are also certain studies which are focusing on psychological link between culture and self-attribution bias. In this direction main finance study is by Chui, Titman, and Wei (2009)\textsuperscript{228} examined the differences in investor behaviour between collectivist cultures. They hypothesized that if attribution bias is more prevalent in individualist culture, this will lead to greater overconfidence and thus greater trading in individualistic countries. They found the trading and volatility are positively related to being in a country that is more individualistic. They concluded that momentum trading is more prevalent in individualistic societies.

### 3.5.4.2 Over optimism:

Investors tend to display unrealistic optimism (Olsen, 1997; Montgomery, 1997;Barberis and Thaler, 2003)\textsuperscript{229} and wishful thinking (Buehler, Griffin, and Ross, \textsuperscript{221}Hilary, Giles, and LiorMenzly. 2006. Does the past success lead analysts to become overconfident? Management Science 52:4, 489-500.
\textsuperscript{227}Hsu, Yenshan,  and Cheng-Yi Shiu. 2007. The over-confidence and self-attribution bias of investors in the primary market. Working paper, National Chengchi University and Taiwan National Central University.
Additionally, there is a strong loss aversion among investors resulting in reluctance to close out positions at a loss (Kahneman and Tversky, 1979). These behavioural heuristics suggest that market under-reaction may occur particularly in the face of negative information.

Over optimism is one of the psychological biases. It leads to develop a belief that future events are more likely to be positive than is realistic. Gervais, Heaton, and Odean (2002)\textsuperscript{230} examined the influence of excessive optimism and overconfidence on the decision of managers. They found that overconfidence is having positive influence and risk aversion has negative influence on manager’s decision. Lin, Hu, and Chen (2005) found that over optimistic managers tend to run cash constrained firms and reluctant to raise additional equity.

### 3.5.5 Herding:

Investor herding is the concerted movement of large group of investors into or out of stock or industry group at the same point in time. Studies stated that investors like the validation given by many other making the same buy and sell decisions. When things go wrong and the investors lose money, there is comfort in knowing that others are in the same predicament.(Hirschey and Nofsinger).\textsuperscript{231}

There are innumerable social and economic situations in which we are influenced our decision making by what others are doing. Banerjee (1992)\textsuperscript{232} analysed the sequential decision model in which each decision maker looks at the decision made by previous decision makers in taking their own decision. The author stated that decision rule are chosen by investors was labelled as herding i.e. people will be doing what others are doing even when their private information suggests doing something quite different, which lead to inefficiency. He also stated that same kind of influence is also at work, for e.g. Academic researchers choose to work on a topic that is currently ‘hot’.

Whether herd bias is significant to consider investment decision or not, as investor are concerned to whom they belongs, is considerable matter while evaluating investors decision behaviour. Scharfstein et al. examined the some of the forces that can lead to herd behaviour in investments. They found that under certain circumstances, managers simply mimic the investment decisions of other managers, ignoring substantive private information. They stated that, this behaviour is inefficient from

\textsuperscript{230}Gervais, Simon, J B Heaton, and Terrance Odean. 2002. The positive role of overconfidence and optimism in investment policy. Available at Centre for financial Research.

\textsuperscript{231}Hirschey, Mark., and John Nofsinger. In Investments: Analysis and Behaviour. p.227. Published by TMH.

social standpoint, but rational from the manager's point of view, who is concerned about their reputations. Even, this is consistent to group psychology. There is one unpredictable component of investment outcome, lead to ‘sharing the blame’ effect that drives the investors to herd.233

There is literature which suggests that investors are herd biased, or tend to make investment decisions on the basis of information provided the market participants. Sheer volume of information and varying degree of sophistication of investors suggests that, there may be tendency for some investors to mimic the other investors. To understand this social psychology of investors, Gleason et al. examined the intraday traders’ data during the period of extreme market movements, through ETFs. Their findings support that investors do notherd during the period of extreme market movements using ETFs. They also added that the market reaction to news is not symmetric for up markets and down markets. Study provided the evidence that when investors respond to bad news, leading to periods of stress in down markets, they do so quickly and thus have indication of mimic the aggregate market.234

Herding is defined to include any behaviour similarity/dissimilarity brought about by the interaction of individuals. Through the examining behaviour of investors, it can assess whether they may ‘herd’ in deciding whether to participate in the market, what security to trade, and whether to buy or sell. An individual’s thought and actions can be influenced by other individuals by several ways. The process of social influence can promote convergence or divergence in behaviour.

Herding behaviour is adjustment of decision maker’s behaviour, opinion, or expectations due to real or illusionary social pressure is a phenomenon in financial markets that has caused considerable research activity in the field of behavioural finance. Oehler et al. Studied and examined the buying and selling activity of German mutual funds that primarily invest in equity over period of five years, covering 70% of database about MFs. The research provided evidence of herding and revealed that there is considerable herding behaviour when mutual fund managers face market wide cash inflows or cash outflows. They also state that mutual funds that only invest in German equity display stock picking herding behaviour when selecting which stocks to invest in. So herding in financial market can be explained with the help of fund

manager’s information acquisition, cascade model, so called beauty contests (Oehler and Wendt, 2008)  

Kutchukian et al studied the mutual fund investor in Brazil to infer the herd bias in investment decision. They analysed the data of stock, money market, fixed income mutual funds transaction of Brazil. They found evidence that suggests, that the validity of the behavioural finance assumption that the investor’ information and expectations are not homogeneous. And investors are influenced by others decisions. They also found that fund managers get overconfident after good past performance, also consistent to self-attribute bias. This bias leads or deviate the performance of mutual funds managers in next period. (Kutchukian, William, and Dana)  

3.5.6 Affect:  

Affect can be explained in two ways, regret aversion and affect heuristic. Regret aversion, not wanting to experience losses, not wanting to lose out on gains. While affect heuristic explain how liking or disliking something influences the way people analyse the risk and benefits associated with decisions. Regret aversion has already been explained in previous section.  

3.5.7 Affect Heuristic:  

Study of how emotion and affect investor’s decision making is significant to analyse in finance. Hirshleifer et al. examined the measure of mood that is hypnotized to influence all investors in a reasonably uniform manner. They tested whether there is a relationship with aggregate stock price. It is necessary to understand whether a priori emotions and emotional process have influence on investor decision making. The prior emotion describe as regret aversion, while affect heuristic link the liking and disliking that influence the people how they weight risk and benefits.  

Slovic, Peters, and Macgregor (2000,2005) developed affect heuristic theory of how people allow their initial emotional reactions or feelings towards a decision to influence their subsequent decisions. Slovic founds that people feared unknown. Slovic, et al. (2005) explained relationship between risk and return. They found that affect appears to direct both perceived risk and return. They studied why the people’s perception of high risk form low risk. They observed that public feared the unknown  

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236Kutchukian, Eric., William Eid Jr., and Samy Dana. ..Herding Behaviour on mutual fund investors in Brazil.  
risk, and risk assessment differences between the public and expert. Slovic argued that there is consistency in people’s deviation from objective risk assessment. It was stated that unknown risk is where people view risks as being ‘unobservable, unknown, new and delayed in their manifestation of harm.”

In other work they found the relationship between risk and benefits. Finucane et al. (2000)\(^\text{239}\) observed that affect appears to direct both the perceived benefits and perceived risk. Through the experiments, they also found that “if an activity was liked people tend to judge risk as low and return as high, but if activity is “disliked” they judge higher risk and low return. They stated that this finding is opposite of normative theory. So, affect heuristic is a significant implication from mood and decision making relationship. This explains how moods or affect play vital role in decision making involving risk and uncertainty. Further evidence suggests that unknown risk is determinants of the level of the affective influence as well as investment decision involving greater uncertainty show greater level of mood influence.

Slovic et al indicated an affect heuristic incorporates images marked by positive or negative feelings that provide cues for judgment and decision making. They stated that imagery of affect heuristics manifests itself in an inclination for investing in new versus old companies, and in ‘growth’ stocks. The precision of an affective impression influenced judgment. (Slovic, 2005)\(^\text{240}\)

Macgregor (2002)\(^\text{241}\) studied whether image influence investor’s decision. The author argued that stock market investor face a multitude of images from data collected of image rating of various industries. This includes corporate images in market, advertisement, brokers’ advertisements etc. and how they correlate to market performance. They obtained rating of images from sample of 57 participants to study this. They found liked get good rating by investors. Fehle, tsyplakovand Zdorovtsov (2005) studied that how advertising influenced investing in stocks.

Barber, Heath and Odean (2003)\(^\text{242}\) observed that investors actually invest based on affect. They analysed 78000 brokerage accounts, to assess that investor tend to invest disproportionately in admired companies. They study individual investor and found that investors tend to invest disproportionately in admired firms as given their ranking


\(^{240}\)Ibid.207


in fortune magazine. They concluded that investor concentrate their portfolio in top 30 stocks, which provide poor return in subsequent period.

So, affect heuristic provides a first and almost automatic reaction to stimuli, often without consciousness, and tends to orient information processing and judgment. It is characteristic of what psychologist term the experiential system, which draws past experiences.

3.6 Others:

On the other hand, market overreaction can stem from such behavioural heuristics as the availability bias (Tversky and Kahneman, 1973; Taylor, 1982), overconfidence accompanied with the calibration effect (Lichtenstein, Fischhoff, and Phillips, 1982; Yates, 1990; DeBondt, 1998), and also the illusion of truth (Reber and Schwarz, 1999). When judging the probability of an event, people often search their memories for relevant information. However, not all memories are equally “available.”

Although Odean (1999) and Barber and Odean (2001) linked certain biases with gender, trading behaviour, and investor type. Their study examined link between gender and behavioural finance biases. The study concluded that men are more subject than women to the overconfidence bias reflected in trading behaviour. The researcher found that, over a six year period, men on average traded 45% more than women. And single men on average traded 67% more than single women.

Naveed Ahmed et al. surveyed 300 small investors of Lahore Stock Exchange and stated that their respondent behaviour if confirming the realities put forward by the Prospect theory and regret aversion theory, while heuristics also seems to play important role indecision making process of the small investors in Lahore.

Whether behavioural finance concept is applicable to every financial decision or not? In this direction Kishore put forward his paper, where author analysed the development of behavioural finance, and identifies the issues in the property market using behavioural finance model. Funfgled studied 1282 investors to analyse the attitude and behaviour in everyday finance. The Author found through factor analysis that, investors attitude is affected by decision style, spending tendency etc.


Kenneth et al. explained importance of behavioural finance in Asia, address certain development, challenges and issues to behavioural finance. They argue that Asia is an interesting place to study behavioural finance because of the different levels of capitalism and financial market experience of this participant. Their aim was to bring behavioural finance theory to Asian markets, and to provide with review of behavioural finance.

3.7 Conclusion of LR on BF

One of the comprehensive studies of individual investors who manage their own equity portfolios, DeBondt (1998) identified four classes’ anomalies on the level of individual investor behaviour: firstly, investors are prone to biases in the perception of assets price movements. In 1987-1992 DeBondt conducted a mail survey among 125 investors affiliated with American Association of individual investors, where he documented an extrapolation bias, expected continuation of past prices. Furthermore, investors predict too narrow confidence interval in the subjective probability distribution of prices (Tversky and Kahneman, 1974). Secondly: the perception of assets value is largely dependent on popular models (Shiller, 1990), that is socially shared tips from peers, financial advisors, news in the media. DeBondt and Thaler (1985) found evidence that stock market overreacts i.e. violates Bayes’ Rule, as portfolios of prior losers outperform portfolios of prior winners. Thirdly, when managing risk and return, many investors do not diversify their portfolios. Finally, although traders are often pre-committed to certain rules and techniques, even professionals seem to fail to maintain discipline and consistency (Slovic, 1972).

In sum, the evidence indicate that support behavioural Finance theory of decision making of investors as supported and proved by major studies viz. Kahneman and Tversky (1974, 1979) provided explanation to investor decision and heuristics biases through Prospect theory, heuristic & biases. Shefrin and Statman (1984a) documented a disposition effect. This is consistent with the notion that realising profit allows investors to maintain self-pride, but realising losses causes to admit wrong investment decision, and hence avoided by investors. Odean (1999) proved that individuals, who trade more are bad performers. Grinblatt & Keloharju (2001) provided evidence consistent to disposition effect. Barberies et al. (2001) provided evidence of loss aversion into utility function. Grinblatt and Han (2005) argued that loss aversion can also help to explain momentum. Daniel et al. (1998, 2001) and Barberies et al. (1998) provided explanation to overconfidence and self-attribute bias. Gervias and Odean (2001) modelled self-attribute bias in dynamic setting with learning. Barberies

et al. (1998) provided explanation that extrapolation from random sequences, creates overreactions, whereas conservatism creates momentum through under-reaction. Barber and Odean (2001) provided evidence that women outperform men in their individual stock investment, due to bias of overconfidence. Barber and Odean (2002) stated that online investors are better performer, and when they trade offline they are worst in performance, which is again consistent with overconfident bias. Barber et al. (2005) provided evidence that individual investor trading has significant systematic component, suggesting bias in aggregate do not cancel in aggregate.

Benartzi and Thaler (2001) provided evidence of clearly irrational investor behaviour where investor follow a 1/n allocation rule across investment choices regardless of the stock bond mix of the available choices. Benartzi (2004) suggested that reducing investor autonomy, increase their saving rate. Further evidence on portfolio choice/MFs choice of investors is rather inadequate at this point. Goetzman and Kumar (2003) provided evidence that, portfolio of young individual investors is less diversified, exhibit stronger behavioural biases. Coval and Moskowitz (1999) provided the evidence that mutual fund managers have preference for local stocks, domestic bias. Huberman (2001) provided the evidence of familiarity bias, preference of investors towards the local and known company stocks. Subrahmanyam (2005) presented evidence that individual investors prefer stocks of high brand recognition; this is consistent with familiarity bias. Grinblatt and Keloharju (2001b) provided evidence local bias. Hong et al. (2005) argued those mutual fund managers are prone to herding biases. Hirshleifer and Shumway (2003) provided the evidence of affect theory, suggested that investors mood affect stock market. Hirshleifer and Teoh (2003) modelled the notion that individual investors may have limited attention spans. 247

247 In review of literature all included.
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<td>DrPunitasoni</td>
<td>Behavioural Finance-diversion from Traditional method of risk Analysis</td>
<td>International Journal of Applied Research and Studies, ISSN:2278-9480, 2:4, 1-7. <a href="http://www.ijars.in">www.ijars.in</a></td>
<td>Through establishing relationship between risk and return on trade, they conclude that at the time of investment, various factors influence investment decisions, and investor make their decision according to risk appetite not as per modern portfolio theory.</td>
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<td>DrVikramBisen, and Madhulikapandey</td>
<td>Applying behavioural finance by analysing investor behaviour in Lucknow City</td>
<td>Indian Journal of Applied Research, 2013. ISSN 2249-555X, 3:6, 353-355.</td>
<td>Their study identified the psychological factor that plays an important role in investor's decisions, they also state that, the investor’s perception about market trend is influenced by past performance.</td>
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<td>Dr D. Harikanth and B. Pragathi</td>
<td>Role of Behavioural finance in investment decision making - a study of selected district of Andhra Pradesh, India</td>
<td>International Journal of Multidisciplinary and Academic Research (SSIJMAR), ISSN 2278-5973, 1:4, 1-15. <a href="http://www.ssjimar.in">www.ssjimar.in</a></td>
<td>They found that there is significant relationship between incomes, occupation on investment avenues. They suggested that financial advice should be designed by considering the geographical horizon of investor, their age, occupation etc.</td>
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<td>Dr Deepak Sahani</td>
<td>Behavioural Finance: Testing applicability on Indian Investors</td>
<td>International Journal of Multidisciplinary and Academic Research (SSIJMAR), ISSN 2278-5973, 1:2, 1-12. <a href="http://www.ssjimar.in">www.ssjimar.in</a></td>
<td>They found that there is difference in investor's perception when the trend of a stock market has consequently increased or decreased for three years, which shows that anchoring theory is relevant in case of Indian investors.</td>
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<td>Dranilsuresh</td>
<td>Understanding Behavioural Finance through Biases and traits of trader viz-a-viz Investor</td>
<td>2013, journal of finance, Accounting and Management, 11:25</td>
<td>Their concluding observation is that understanding various behavioral biases and traits can help individual take sound decisions and in turn, make him a better trader/investor.</td>
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<td>Ms. Archanapatro and A Kanagraj</td>
<td>Exploring the herding behaviour in Indian Mutual Fund Industry</td>
<td>2012, Asian journal of Finance and accounting, ISSN 1946-052X, 4:1, 189-204</td>
<td>The study provided the evidence of the tendency of mutual funds investment to form herds while trading the stocks and there are different types of investorshaving different trading pattern. They also state that herding in Indian Mutual funds would help researcher, investors &amp; traders.</td>
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There are more studies in India on behavioural Finance, but it is observed that most of the studies in India are general and shallow, in terms of knowledge and analysis.

There is a huge psychology literature documenting that people make systematic errors in the way they think: they always make decision easier (heuristics), overconfidence, put too much weight on recent past experience (representativeness), separate decisions that should be combined (mental Accounting), wrong presenting the individual matters (framing), tend to slow to pick up changes (conservatism), and their preferences may also create distortion when they avoid realizing paper losses and seek to realize paper gains (disposition effect).

So Behavioural finance uses models in which some agents are not fully rational, either because of preference or because of false beliefs. Heuristic are shortcuts that facilitate problem solving. They simplify calculations and substitute for more formal and complex measures that require knowledge of probabilities. Heuristics describe the decision making process that people actually undertake, incorporating emotional factors as well as cognitive processes.

Most of heuristic received attention is representativeness, availability, anchoring & adjustment, and affect heuristic. Even day to day activity involves application of heuristics and still people use it to resolve many decisions.

3.8 Researcher’s Views:

Perspective on how the financial market function has been in shift from the notional assumption about rationality of the investor and holistic explanation provided by EMH to new dimension i.e. behavioural finance that provide new models to understand the functioning of the market in case some participants in the market are not fully rational. I have attempted to explain the behaviour and mental attitude of the people in general that may affect decision making process of investment. The main concept however behind the behavioural finance is that investors are not rational figure as they are supposed to be under traditional finance. This irrational behaviour could be; taking more risk due to being over confident (Alpert and Raiffa, 1982) chasing past trends (Andreassen and Kraus, 1988) and over reacting to the new information while avoiding base rates (Tvrsky and Kahneman, 1982).248

Investment performance and financial wellbeing of investors is relayed on interaction among the market and individual level factors. The real test of investor’s attitude and

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intention is whether, when combined with other relevant economic/financial data, help towards the better understating of investors at large.

From the above literature review, in India it is evident that majority of studies for investors are focused on general behaviour or perception of them, either from marketing perspective or perception perspective. Moreover, certain studies focus on demographics of investors and investment preferences etc.

Hence, it was necessary to incorporate a study which is more focused, to understand the behaviour of investors more precisely. For this, variable/ attributes of behavioural finance theory viz. Frame dependence, prospect theory, mental accounting, disposition effect, heuristics and biases, like representativeness, overconfidence, familiarity bias, and other psychological biases were included in the study. This is needed to understand the behaviour of individual investors within framework provided by behavioural finance as opposed to traditional financial theories.

3.9 Research Gap:

3.9.1 Motivation for the present study:

The following three factors provided the major motivations for the present study:

1. In field of Finance, major research was focusing on standard finance theory, but comparatively less research focused on behavioural finance, which is alternative theory of finance.
2. Most of researches in Mutual Funds are on performance of Mutual funds and financial performance analysis, and absence of previous research examining the investors’ investment behaviour with specific focus of behavioural finance model.
3. Absence of research on Mutual Fund investors’ investment behaviour in the Indian context especially in the state of Gujarat.
4. Growth of Indian Capital market, stock market in general, and Mutual funds in specific leads to specific thrust on investor’s psychology.

Factor # 1

Traditional or Standard finance assumes that investor at large viz. participants, institutions and markets are rational. They make unbiased decisions to maximise their self-interest. Meir Statman, notable proponent of behavioural finance, pleaded for “accepting market efficiency in the sense of beating the markets” however, rejecting the definition in the sense of rationality, by which “rational prices reflect only
utilitarian characteristics, such as risk, not value expressive characteristics, such as sentiments" (Statman, 1999)

Since the publication of the two seminal work of Kahneman and Tversky (1971, 1979) and that of (1972) Slovic, there has been a major challenge to the rationality assumption that has served as the foundation for modern finance theories such challenges from behavioural finance scholars argue against traditional finance’s theoretical and empirical construct fail to explain occurrences in financial market. Further, researcher continues to publish rigorous theoretical and empirical arguments against the notion of expected utility (EU) and EMH in mainstream finance journals.

Since last three decades, prediction of investors rational behaviour has been challenged, leading to emergence of alternative schools of thought; behavioural finance is one such school, which relax the assumption that investor consistently use expected utility theory. It draws motivation from psychology and behavioural economics, in an attempt to identify the behavioural determinants of investment choice.

Behavioural finance is alternative model of investors’ behaviour in financial markets, which relax the assumption that investors are fully rational utility maximises. It draws from findings in experimental economics and psychology on how people behave in condition of uncertainty, and develops models and hypotheses that examine whether the investors at large in financial market are rational?

Being aware of the many considerations and needs beyond risk and return that influence investor’s behaviour, it is surprising that finance journals are mostly confined to the utilitarian benefits of low risk and high expected returns (Statman2004). Just as surprising is that until now there are no reports in the literature of empirical investigations on the multiple needs investors may try to satisfy by investing, and whether there are significant differences in these needs between male and female investors, young and old investors, with higher versus lower levels of investment related knowledge and experience.

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Factors #2

For many investors investing constitute more than simply weighing the risk and expected return of various investment options. As Shefrin & Statman (2000)\(^{252}\) has stated “... some- most investors have preference that go beyond expected returns and risk.” preference for some investment like familiar companies, like growth funds etc.

During the last decade, we have experienced high volatility, down-word, and highest peak of Indian capital market. As financial market are getting integrated, exposed to macro socks at global level as well.

Individual investor and their behaviour had received lot of consideration and focus of interest of many scientists not only being confided only to economist. However, the particular shift with the inclusion of the findings and the methodology of psychology into financial studies. Despite many debates, this has slowly led to the establishment of behavioural economics and behavioural finance as widely recognised sub-disciplines. (Statman, 1999)

From the investor’s point of view, the vulnerability of markets has led to increased uncertainty and unpredictability, as the market condition cannot be judged with the help of standard financial measures and tools. Market participant have for long time relied on the notion of efficient market and rational investor behaviour when making financial decisions. However the idea of fully rational investors who always maximise their utility and demonstrate perfect self-control is becoming inadequate. During the recent years, evidence of market inefficiency in the form of anomalies and irrational investors’ behaviour has been observed more frequently.

We experienced large volatility and highs as in year 2005-2007 and down fall in 2007-08 in Indian capital market, reflected in equity as well as mutual funds market trends. This phenomenon can be in part attributed to less than rational aspect of investor’s behaviour and human judgment.

Approach based on perfect prediction, completely flexible prices, and complete knowledge of investment decisions of players in market is unrealistic in today’s financial market. Behavioural finance is a new paradigm of finance theory, which seeks to understand and predict systematic financial market implications of psychological decision making. By understanding the human behaviour, psychological mechanisms involved in financial decision making, and a heuristic bias

which has improved to better reflect and explain the reality in today’s evolving market.

In fact that even the most prominent and well educated institutional investors, as well as individual investors, were affected by high wave and collapse of markets, which demonstrate that something might well be fundamentally wrong in our current model of rational market behaviour. Instinctively one can presume that the behaviour of individual investors and institutional investors differs, or individual investors following the behaviour of institutional investors and their recommendation, are they unable to discern the reality of market, or make their own conclusions? Is there any irrationality in behaviour on part of individual investors, what possible factor contributing to it?

So for investors, decision making is complex process which can be defined as a process of choosing a particular alternative among a number of possible courses of actions after careful evaluation of each. Most crucial challenges to investor is to make investment decision, having a difference in their profile, like demographic factors, socio economic factors, educational levels, age, gender, and race.

Given the run up in stock capital market in 2004 to the end of 2007 and subsequent downturn of financial market, understanding irrational investor behaviour is as important as it has ever been. In present scenario behavioural finance becomes integral part of decision making process due to its influence on performance of investment stock market as well as mutual funds.

So as the pervasiveness of behavioural finance is still young field. The academic finance community has only recently accepted it as a feasible paradigm to explain how financial market participant make decisions and in turn how these decision affects financial market.

Factors # 3

The most crucial challenge faced by investors can be attributed mainly to his decision making abilities. The fact that even the most prominent and well educated investors were affected by the crash of the stock market and failure of mutual funds schemes as resulted in crash of Indian market at 2008, which doubt on fundamental market movements.

Although, the psychology literature suggests that people of Asian cultures may suffer more from behavioural biases then people of western cultures, the literature is still sparse. Weber and Hsee, (2000) noted, “the bottom line is that the topic of culture and
decision making has not received a lot of attention from either decision researcher or cross-cultural psychologists\textsuperscript{253}.

In this study, the aim is to establish the existence of such fundamental issues, driven by various psychological factors influence investment decisions. They argue that today’s investment decision demand a better understanding of individual investors’ behavioural biases. However, many economists believe completely in the application of traditional theories in the decision making process and hence do not consider the concept of irrational behaviour. In this context, it seems relevant to study whether the behavioural factors have an influence on the decision making process of mutual fund investors.

**Factor # 4.**

The motivation for studying Mutual funds investors’ investment behaviour arose from the following points:

- Indian Mutual funds is growing very fast in last decade, and it is significant part of overall development of Indian Stock market, Capital market, as it is the major investors in that indirectly. Even though mutual funds have a history of more than 30 years, it is not established as stable market players.

- As Indian demographic reflects two major changes in last two decades that, major population is in age bracket of 35-40, and per capital income had increased due to economic development of country leads increased in saving rate. Which result in the growing need of financial expenditure, higher return, as well as investment avenues at individual levels which serve to fulfil their financial needs?

- Success of mutual funds schemes as well as investors own portfolio depends on the choices made by the investors, which is affected by various behavioural attributes.

Thus mutual fund market is one of most significant part of equity market as well as Indian capital market. However their limited amount of research focusing on investors of Indian Mutual Fund Industry.

Moreover existing research on mutual fund, are of either financial performance of various schemes, or awareness and perception of mutual funds investors. Even if we consider all investors in Indian stock market study was only to focus on preference of

particular investment and volatility of various segment of market. But no research has focused on how the fundamental factors at investors levels which leads to either volatility, or highs (bullishness) or crash in Indian equity market, or why Indian mutual funds are not in position to achieve that maturity, to provide good return to investors.

Finally, most critical issue is market participant cannot behave rationally always, they deviate from rationality and expected utility assumption while really making investment decisions. So, behavioural finance helps investors as well as market participant to understand biases and other psychological constraint in their interplay in market

3.10 The Knowledge Gap:

The Literature scan and the researchers’ personal experience brought out in sharp focus the knowledge gap which can be summarized as under:

1. There is great debate on fundamental assumption of standard finance theory and behavioural finance theory of rational or irrational behaviour, which is new paradigm for research.
2. The study of investor’s investment behaviour has always remained an enigma to researchers or financial professional.
3. At presents, there are limited studies on mutual funds investors’ behaviour from behavioural finance model perspective.
4. So far no study exploring this vital subject has been undertaken in the Indian context, specifically in Gujarat.

3.11 Focus of present study:

Previous literature shows that psychological factors have substantial effect on people’s decision making. Tversky and Kahneman (1974) stated that people rely on a limited number of heuristic principles which in general are quite useful, but sometimes lead to severe and systematic biases. This is the underlying motivation of this thesis, and this study focuses on examining biases in investors’ behaviour viz. Frame dependence, prospect theory, Framing, Representativeness, familiarity, overconfidence, disposition effect, etc. The objective is to draw from the literature on decision making as well as behavioural finance theory, and propose behavioural hypothesis that:

- Highlight the conditions in which investors’ behaviour can depart from the assumption of rationality:
• Examine the effect of frame dependence, prospect theory, and disposition effect and loss aversion attitude of investors.

• Examine the effect of these heuristics & biases, viz. Representativeness, Familiarity, Regret, Overconfidence, herding, and other biases, on investor’s investment behaviour.

This thesis attempts to better understand and explain how emotions and cognitive errors influence investors behaviour and the decision making process from new insight of behavioural finance. Major insight are from Kahneman and Tversky,(1974,1979)\(^{254}\), Shefrin and Statman (1994)\(^{255}\), Shiller (1995\(^{256}\)), and Shliefer (2000)\(^{257}\), Richard Thaler (1999)\(^{258}\) Odean(1999)\(^{259}\) - leading researches that have utilised theories of psychology and social sciences to shed light on the efficiency of financial markets as well as rationality of investors. As such it is considered that behavioural finance theories have lot to offer towards analysing mutual funds investment as well.

This research also was carried out for two subsidiary reasons as mentioned below:

• To provide complete explanation of trends in mutual fund Industry, as well as its role as investment vehicle to individual investors.

• To understand the individual investor behaviour, from behavioural finance perspective, this leads to either growth or failure of any mutual schemes.

This research purpose is to describe and analysis of factors, investment characteristics and decision making process, that affect the behaviour of mutual fund investors. This helps to understand complexity of investments such as (i) Why do investors invest, (ii) how do they perform decision, (iii) how do they choose the MFs portfolio, and (iv) why do return vary for reasons other than risk etc.


This thesis attempts to explain and increase understanding of reasoning patterns of investors, including the emotional processes involved and degree to which they influence the decision making process, through Behavioural finance approach. Essentially, it attempts to explain what, why and how finance and investing is performed, from peoples’ perspective. These help investors to minimize or eliminate the psychological biases in investment decisions behaviour.

Most critical issue is that market participants cannot behave rationally always, they deviate from rationality and expected utility assumption while really making investment decisions. Behavioural finance helps investors as well as market participants to understand biases and other psychological constraints in their interplay in market. This study is an attempt to better understand and explain how behavioural biases and heuristics affect investment behaviour.

3.12 Need for Study:

Review of literature conducted as a prelude to the present study revealed that majority of available studies in finance field is focusing on traditional finance model or if behavioural finance model study confide to US, and Europe. Studies particularly in the context of India as well as Gujarat on Mutual fund Investors Behaviour are few. These insight are supported by the recent literature in behavioural finance, in which marketing and consumer behaviour theories and concepts are applied to distinguish between utilitarian and expressive characteristics of investing and behavioural finance characteristics.

3.13 Significance of the present Study:

Finance is the word that mentioned as blood whether we are referring corporate or individuals’ wealth building. It is function of management that serves not only to bring reward for which all efforts were undertaken, but also directly relates to investors at large whether corporate or individuals.

There has been many attempt to explain the investors in particular within the market place (Selden, 1912\textsuperscript{260}, and Tversky and Kahneman, 1974)\textsuperscript{261} and ultimately whole sentiment in the market. The basic paradigm, i.e. from traditional finance theory to behavioural finance theory market and finance problem, investors’ problem will remain as it is, but way it is evolving with the aim to maximise the effectiveness and minimise the efforts and time to understand investors well.


The investors are often not aware of their deeper motives and may not exactly know what they really want. A mutual fund houses makes the schemes available to investors, which become plethora of MFs Schemes in Indian Market. But, investors have to search and understand their needs and objectives and what available in market. By studying investors’ behavioural factors, in field of investment becomes other milestone in the finance world.

Even, sometimes Mutual Fund Managers and Houses failed to understand the complex process by which investor undertakes investment decisions. Unless investors’ behaviour is thoroughly understood, it is not possible to structure the various MFs schemes as well as to achieve financial wellbeing of investors. The cumulative results of all the development and changes in external world, study of investors in depth is major challenges for all whether it is academician, MFs, investors and regulators.

For investment professionals, it is important to be aware that investor clients may have multiple needs, and to discover and cater to these needs. After all successful financial products, like all successful products, are those that meet the needs of investors /customers (Statman,1999). This implies that investment professional now explicitly have to deal with questions have were formerly considered to be domain of marketing. Yet, investment professionals are reluctant to discuss marketing and in the academic literature few article link the marketing to the investments profession (Statman, 2004). It also provides knowledge to the practitioner professional in financial market/fund managers on the possible effects of the investor behaviour.

Behavioural finance scholars have therefore recently called for more explicit link between investment and marketing (Statman, 2004), investment and behavioural or psychological biases etc. Even, Fama and French (2005) two proponents of traditional finance- have recently questioned the strict distinction in decision making process for investment and consumption goods. For the same, present study mainly focus on investors’ behaviour from behavioural finance perspective, of mutual funds in India, specifically from inferences of investors in Gujarat.

3.14 Rationale of this research study:

Individual decision making is the process of choosing a particular alternative from many available financial alternatives. It is complex process involving analysis of

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various factors at individual levels as well as market levels. Making investment
decision is not exception from above, and is most crucial decision faced by investors.
Appropriate decision in financial market in general and mutual funds investment in
specific requires an understanding of human nature in global perspective on top of
financial skills. Thus cognitive psychology should be required to evolve in decision
making. As result of the bullish rally in Indian stock market as well as MFs in year
2004-2007, and the subsequent financial crash, there has been signal to focus
irrational investors behaviour.

‘Behavioural finance is becoming an integral part of decision making process because
it heavily influences the investors’ performance’ (Banerjee)\textsuperscript{265} and ‘understanding of
how our emotions results in irrational behaviour is indispensable for any investors’.
Thus, to understand irrationality of investor is the main focus of this study.

Whether investor finds any problem in the acquisition and processing of information
or they are interpreting the results after using heuristics to arrive at decisions. Most
common biases are attributable to loss aversion, lack of sensitivity to sample size,
failure to allow for regression towards mean, conjunction situations, overconfidence,
undue anchoring, framing the information, and ignoring prior probabilities.

Sometime, investors due to cost and impossibility of undertaking optimising
calculations, use shortcuts when making decisions. General heuristic can often be
thought of as strategies and have been subjected to analysis. So, it is important to
consider the nature of such biases used by investors, which affect their choices among
the context specific heuristics. Decision maker often requires heuristics of both types
to resolve problem in areas such as finance.

The importance of constructing heuristic rather than just accepting long-held, largely
intuitive heuristics derives from the fact that people often make quick intuitive
judgment to which they are not deeply committed.

3.15 Contribution of Study:

Very limited research studies carried out with reference to Behavioural finance in
India, and Mutual funds investor's behaviour, specifically in Gujarat. The study
would therefore help in expanding the existing body of knowledge in the field of
Behavioural Finance, and its managerial implications. Further, the present study will
bring to fore the following points which will provide impetus for financial decision
making:

107:3, 797-817.
1. Investors profiling based on their attitudes and preferences and draw reasonable inferences based on demographic and psychographic characteristics.
2. To analyse the investors perception and preference for mutual funds and schemes.
3. To analyse the role of contextual factors in influencing investors behaviour while making mutual funds investment decisions.

This thesis contributes to the literature discussed above by performing a fine grained empirical investigation on multiple needs of individual investors using theories and research techniques originating from behavioural finance, which is drawn from socio-economic psychology.

Thesis aims to contribute both to the understanding in the academic literature of as well as to the professional practitioners’ knowledge on individual investors mutual fund choice, and effect of heuristics and biases of behavioural finance, investors’ psychology on individual investors’ decision making behaviour. So this study contributes and explains the understanding of behaviour of investor in general and mutual funds investors in specific from new theories of behavioural finance. This also shed the light on investing aspects such as, what mistakes to avoid while investing, how to hold on bias, to earn a return form financial market as investors.

3.16 Summary:

Investors in Capital market are supposed to act according to the rationalism provided by financial theories. But empirical evidence suggests that it is not so, and behavioural finance that provide new models to understand the functioning of the market participant who are not rational. In this Research scholars in many countries of the world have done number of interesting studies in the area influenced by cognitive psychology and economic behaviour in behavioural finance and investor’s behaviour. Moreover, the realities put forward by prospect theory, regret aversion, disposition effect and heuristic biases seems to play important role in shaping the cognitive behaviour of investors. But in India, some studies are focusing on mutual fund’s either focusing on performance of it or awareness and perception of mutual funds investors. Existing research in finance is mainly focused on traditional finance theory, or mutual fund industry performance. There is hardly any research in area of behavioural finance specifically in India, and relevance of Mutual funds investor’s behaviour from Behavioural perspective. Following form the above research gap on one hand and perceived requirement of knowledge of investor’s behaviour from the recent development in the field of finance on the other hand, the objectives of the present study were defined.