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Why Investors are not Always Rational? A Behavioural Explanation of Stock Market Puzzles and Irrational Investor Behaviour

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ABSTRACT

The present paper discusses the Behavioural explanation of a few popular puzzles in the stock market and various Cognitive, social and emotional influences on an investor. The paper is divided into four parts. The first part presents the various heuristics and biases that influence an investor. The second part throws light on the various Cognitive, social and emotional influences on an investor. The third part deals with behavioural explanations for a few popular puzzles in the stock market. The fourth part provides the summary and conclusion. The various Heuristics to understand cognitive biases are the anchoring and adjustment heuristic, the Representativeness heuristic and the Availability Heuristics. These heuristics are used to explain the causes of irrational investors and why people's intuitive judgment deviates from rationality. The paper also discusses cognitive (Over Confidence, Cognitive dissonance, underreaction and Overreaction, Disposition effects, Diversification bias, Mental Accounting), social (Herding, Reputation, Beauty contests, Success stories and advice from family, expert influence) and emotional influences (Feelings of Regret, Loss aversion, Sunk cost fallacy) on an investor. The paper also talks about behavioural explanations for various market puzzles: Equity premium puzzle, Volatility puzzle and predictability puzzle.

Keywords: Behavioural finance, heuristics, biases, mental accounting

Introduction

Traditionally, finance has been based around the concept of "efficient markets" which states that the price of an asset or security is 'right' i.e., the price of an asset reflects its fundamental value and all the available information. For a long time, the financial theory was governed by the idea that investors act rationally as they have all the available information and they aim to maximize profits. The theory believed that even if there is any 'noise' by irrational investors in the market, it is balanced by rational investors. Traditional finance has been surrounded by three unbounded traits (rationality, self-control and self-interest) which form a base for 'homo economicus'.

However, over time, it was felt that the traditional theory was not able to explain various market anomalies like market volatility and unpredictability in the market, market crashes, irrational investor Behaviour, stock market bubbles etc. Traditional finance also wasn't able to address questions like 'why does an investor trade, how does an investor trade, what are the factors that help an investor decide his portfolio etc.

These market anomalies and investor Behaviour were explained by an alternative approach termed 'Behavioural Finance' which focuses on cognitive, sociological and psychological influences on the decision-making of investors and financial markets. It focuses on other important aspects of the decision-making process i.e., how people invest, what they value and how they adjust for risk by embracing findings from psychology and sociology. Behavioural finance highlights that the investors are not always rational and the prices are not always efficient. It examines the role of psychology and sociology in financial decision-making. It considers the influence that mood, fear, overconfidence, past experiences etc. have on investors when they decide to devote funds to any asset.

Over the last few decades, Behavioural finance has become an extremely popular field of study as an application in business and finance. Behavioural finance centres around the fact that investors' decisions are influenced by their own biases. Thus, investors behave quite differently from 'homo economicus' and their financial choices are guided by their social and psychological needs. It also highlights that investors as humans have a limit to self-control and often apply heuristics to take complex decisions.

The cognitive and psychological underpinnings to explain stock market Behaviour can be traced back to the 60s and 70s also but it was mainly in the 1980s when Behavioural finance evolved with an attempt to explain stock market bubbles and other market anomalies. Since then, foundational ideas of Behavioural Economics have been used to explain the reason behind these anomalies. The ideas of Daniel Kahneman and Amos Tversky have played a major role in explaining the contradictions in the traditional theory of finance.

Over time, Behavioural finance has developed through two phases: firstly, through examples of market anomalies and deviation from standard finance assumptions and secondly, through explanation of these anomalies. The decade of the 1980s saw various important concepts like the 'disposition effect' and 'equity premium puzzle' being developed by various economists. In 1981, Shiller discussed market anomalies and pointed out how rational factors alone cannot explain stock market volatility (Shiller, 1981). De Bondt and Richard Thaler's paper on stock market overreaction in 1985 elaborated on value anomaly (De Bondt, & Thaler, 1985).

The late 1990s and the early 2000s saw Behavioural finance becoming part of mainstream finance. The area was able to explain the reasons behind many market anomalies. The limit to arbitrage, myopic loss aversion, overreactions and underreactions of the market were some of the major concepts that developed during this time. This decade also saw research in the area of irrational investors and the Behavioural mistakes they make. Robert Shiller's famous book 'Irrational Exuberance' in 2000 rightly predicted the crash of the dot-com stock market bubble and spread the ideas of Behavioural finance as a parallel field of traditional finance, understanding of which can increase the predictability in the stock market. Around the same time, Andrei Shleifer also worked to explain how noise traders in the financial market lead to limited arbitrage and cause market anomalies.

Finally, the Nobel prize in 2001 to George Akerlof, Michael Spence, and Joseph Stiglitz "for their analyses of markets with asymmetric information" and to Daniel Kahneman in 2002 for "having integrated insights from psychological research into economic science, especially concerning human judgment and decision-making under uncertainty" further increased the popularity and acceptance of Behavioural Finance.

This paper will address the following questions:

- What is the Behavioural explanation for a few popular puzzles in the stock market?

- What are the various Cognitive, social and emotional influences on an investor?

For the sake of convenience of the presentation, this paper has been divided into four parts. The first part presents the various heuristics and biases that influence an investor. The second part throws light on the various Cognitive, social and emotional influences on an investor. The third part deals with behavioural explanations for a few popular puzzles in the stock market. The fourth part provides the summary and conclusion.

I

Behavioural finance replaces the idea of rational decision-makers called 'econs' with 'humans' who are influenced by cognitive, social and emotional factors. Humans often are more biased than logical while taking financial decisions. Behavioural finance acknowledges that stock investors are boundedly rational (Simon, 1955). In real life, decision-making is a complex process and is influenced by context, cues, social norms and past experiences.

When faced with difficult situations, people use heuristics or 'rules of thumb' to take decisions. These rules are imperfect but functional shortcuts that help an investor to simplify the complex situation and take quick decisions.

The concept of heuristics was first introduced by the economist and cognitive psychologist Herbert A. Simon in the 1950s. He used this approach to answer the question of how humans make decisions when the conditions for rational choice theory are not met, that is how people decide under uncertainty. He suggested that there were limitations to rational decision-making.

Later, in the 1970s, psychologists Amos Tversky and Daniel Kahneman worked on 'Heuristics' to understand cognitive biases. Heuristics have since been used to explain the causes of irrational investors and why people's intuitive judgement deviates from the rule. Kahneman has discussed how heuristics can be understood in terms of substitution i.e., when faced with a difficult problem, the one that individuals are not able to address directly, they replace it with an easier question and answer that instead. For example: Instead of addressing the question: "How much profit this stock is going to make", an investor will substitute the question: "What do I feel about this stock?" Substitution helps to provide quick answers but may lead to systematic and predictable errors called biases. In the above example, an investor has used the affect heuristic. According to Tversky & Kahneman, 1974, these heuristics are highly economical and usually

effective, but they lead to systematic and predictable errors. A better understanding of these heuristics and of the biases to which they lead could improve judgments and decisions in situations of uncertainty.

Four prominent heuristics are as follows:

1. The Anchoring and Adjustment Heuristic

According to the anchoring and adjustment heuristic, people employ a certain starting point ("the anchor") and make adjustments until they reach an acceptable value over time. Anchoring is a cognitive bias where investors rely on facts provided before a decision or estimation is made. The facts may be completely unrelated, but research shows that they have a significant impact on the decision. (Epley & Gilovich, 2006, Jacowitz & Kahneman, 1995).

The anchoring heuristic is used by people when they have to estimate a value with an unknown attribute. In such cases, people use some initial "anchor" or default number which is then adjusted up or down based on the information available. Approximations or final values derived by a person using heuristics are often biased because anchors can never be adjusted sufficiently. Anchoring and adjustment bias occurs when an investor gives undue prominence to anchors which are most of the times statistically irrelevant. Anchoring occurs to reduce the amount of cognitive load placed on our brains.

For example: If an individual is asked to estimate the value of Reliance's stock after 4 months. Since the problem is difficult and there is uncertainty, most people will apply anchoring and adjustment heuristics to find a quick response. They would use the present value of the stock as an anchor and will adjust up or down based on any other information that they have. This may lead to a biased answer as an investor is looking at information from a twisted lens i.e., with the present value of stock in mind.

Property dealers often use 'anchors' to start negotiations. They quote a higher price for the property to set an anchor and bargain the deal to give satisfaction to the customer who is influenced by the initial anchor.

2. The Representativeness Heuristic

According to Kahneman and Tversky (1972), representativeness means, that in situations of uncertainty, people "evaluate the probability of an uncertain event, or sample, by the degree to which it is: (i) similar in essential properties to its parent population; and (ii) reflects the salient features of the process by which it is generated". Often people choose options or take decisions based on representative information

rather than logical and probabilistic reasoning. This heuristic causes judgment errors such as neglecting base rate (people tend to ignore general information or base rate when specific information is also provided), conjunction fallacy (people assume that certain specific conditions are more likely than general conditions) and applying the law of small numbers (exaggeration of the degree to which a small sample will resemble the population from which they are drawn).

In the stock markets, investors often see the past performance of firms as being representative of the firm's future performance as well. Investors are also seen to overweigh the recent information to the detriment of the past information. Thus, if a firm has been making huge profits for a few years, investors might assume that the company will continue to perform great in future also. Representative heuristic sometimes leads to stock market overreactions and underreactions challenging the efficient market hypothesis.

3. The Availability Heuristics

In complex and uncertain situations, the brain tries to take a mental shortcut to ease the decision-making process. These predictable shortcuts are based on our past experiences and recent memory. The availability heuristic is one such rule of thumb or shortcut. The Availability Heuristic assess the probability of occurrence of the event based on the ease with which it comes to mind. It is governed by the principle that "if you can think of it, it must be important." Individuals believe that the things they can recall more easily are more common and more accurate representations of the real world. For instance, the ease with which a person can recall theft in his locality will determine how that person will rate the law and order situation in his locality. Though a recent crime may not be a true representation of a law-and-order situation in that locality person will overestimate the occurrence of such events because of the availability heuristic. This may lead to a cognitive bias as a recent event may not be the best representation of reality.

The availability heuristic is widely seen in financial markets also. Recent market news or event affects the investment decision more than the fundamentals of the company. Many times, this leads to an overreaction in the market which in turn might cause crashes or bubbles. In the case of a significant event, investors overestimate the probability of the occurrence of a similar event.

One example of the Availability heuristic leading to bias is the case of the 'hot hand' where it is assumed that a person having a string of successes will continue with the string and will be successful

(Gilovich, T., Vallone, R., & Tversky, A., 1985: 295-314). This bias was first noticed in the game of basketball (hence, the name 'hot hand') whereby the players who score maximum baskets keep on getting maximum passes even though they may be just average players. This bias is seen in the case of unrelated events like the roll of a dice or the flipping of a coin.

In financial markets, investors also experience the bias of 'hot hand' when they are more likely to deal with traders who have recently performed exceptionally well in the market. In reality, there is no relationship between past performance and future performance.

4. The Affect Heuristic

Affect heuristic helps individuals to assign the probabilities of the occurrence of an event based on how a person feels about it. If a person feels good about it, a higher probability is assigned to good consequences and vice versa. Slovic, P., Finucane, M. L., Peters, E., & MacGregor, D. G. (2007: 1333-1352) describe "affect" as the specific quality of "goodness" or "badness" experienced as a feeling state (with or without consciousness) and demarcating a positive or negative quality of a stimulus. Affective responses occur rapidly and automatically.

Affect heuristic lets the decisions affected by emotions and mood while taking a decision. People tend to take more risky decisions when they are happy or in a positive state of mind. The affect heuristic is most prominent when people do not have the resources or time to reflect. It is a bias in which emotions—fear, anxiety, surprise, pleasure influence and quickens a person's decision-making process. The affect heuristic may lead to overconfidence bias in an investor. An investor may take a sub-optimal decision when emotions override logic or facts.

For example: sometimes investors invest in a company's stock because "they have a good feeling about it". The good feeling may not have anything to do with the fundamentals of the company and thus, may lead to irrational decisions.

II

Cognitive, Social and Emotional Influences on an Investor

Behavioural finance postulates that investors are not completely rational, preference consistent or unaffected by emotions. Investors are boundedly rational and influenced by cognitive biases, social factors and emotions.

Cognitive Influences on Investor Behaviour

1. *Over Confidence*

Often it is seen in financial markets that people tend to attribute

success to their ability and failures to external factors. This is called self-attribution bias. This makes them overconfident about their capability which in turn leads to poor decisions regarding stocks. Overconfidence also leads to excessive trading as people having too much confidence in themselves buy too often for which they also have to sell too often (to free up capital). Odean (1999: 1279-1298) discussed that because of overconfidence, there is an excessive trading volume in the equity market. Overall trading volume in equity markets is excessive, and one possible explanation is overconfidence. He also found evidence of the disposition effect which leads to profitable stocks being sold too soon and losing stocks being held for too long.

Another source of overconfidence in investors is hindsight bias. The hindsight bias is the tendency for people to believe falsely that they would have predicted the outcome of an event, once the outcome is known (Stahlberg, D., & Maass, A., 1997: 105-132). Hindsight bias makes people believe after an event that they knew the outcome of the event before it happened. For example: after a stock market crash, many investors claim that they knew it was coming. When an investor believes that he has exceptional foresight or intuition, it makes him overconfident and more likely to take uncalculated risks. Monti, M., & Legrenzi, P. (2009) also found strong evidence for the consequences that hindsight bias can have on the investor's portfolio decisions: the portfolio allocation perception and therefore, the risk exposure. Another factor that might lead to overconfidence is 'magical thinking'. People have occasional feelings that certain actions will make them lucky even if they know logically that the actions cannot affect their fortunes (Shiller, 2000: 49-60).

2. *Cognitive Dissonance*

Festinger's theory of cognitive dissonance states that people feel internal tension and anxiety when they are subjected to conflicting beliefs. Festinger (1957: 401) stated that any person may face dissonance or non-fitting situation among their cognitive beliefs which emphasized the behavioural changes and circumspect exposure of newly acquired information or opinions. Every individual tries to reduce cognitive dissonance either by changing past values or feelings or by trying to justify the decision. This is also applicable to financial market investors who attempt to justify wrong investments or decisions. Cognitive dissonance leads to irrational Behaviour of selling losers too late as they are not able to accept the fact that they made a wrong decision.

This theory may apply to investors or traders in the stock market who attempt to rationalize contradictory behaviour. Investors sell losers

too late as they are not willing to accept that they made a wrong decision. They also try to avoid feelings of regret or embarrassment of reporting a loss as a result of poor investment decisions.

3. *Underreaction and Overreaction in the Market*

Various research studies have examined under-reaction and overreaction in the market (De Bondt, W. F., & Thaler, R., 1985: 793-805), Barberis, N., Shleifer, A., & Vishny, R. 1998: 307-343, Fama, E. F. 1998: 283-306) studies have proved that the investors are often biased in perceiving any new information relative to their prior beliefs. Thus, if any new information or news is against their existing beliefs, they under weigh it and initially underreact to it. In the weeks following the information, they start to adjust their investments.

Similarly, when any new information, news or announcements are similar to their existing beliefs, investors overreact to it. Both underreaction and overreaction are irrational investor Behaviour and lead to sub-optimal decision-making. This leads to stock market volatility.

4. *Disposition Effects*

The disposition effect refers to the tendency to prematurely sell assets that have made financial gains while holding on to assets that are losing money. Investors sell profitable investments to make quick profits while holding on to losing investments in a hope of converting them into gains. The disposition effect reflects the irrational behaviour of investors as they lose out on possible gains due to momentum when they sell winning assets too quickly.

Daniel Kahneman has explained the disposition effect through the Prospect theory. According to the theory, investors become risk averse after gains and chose to realise the gain rather than risk losing it. On the other hand, investors become risk-seeking after a loss and hold on to the risky asset.

5. *Diversification Bias*

People seek more variety when they choose multiple items for future consumption simultaneously than when they make choices sequentially, i.e. on a 'the moment basis'. Diversification is non-optimal when people overestimate their need for diversity. When they have many options, they diversify even if it is in their best interest to invest in a single asset.

On the other hand, sometimes investors diversify insufficiently. Availability heuristics and familiarity biases lead to heavy investment

towards companies from investors' home countries. There is no economic justification for the home bias but familiarity reduces the perception of risks. Benartzi, S. & Thaler, R. H. (2001: 79-98) found evidence of the diversification bias in the retirement investment selection. Specifically, they found evidence of the 1/n heuristic in which investors tend to divide their investments evenly among the funds offered.

Mental Accounting

The term 'Mental accounting' as coined by Richard Thaler refers to a set of cognitive operations that investors use to keep track of their financial investments (Thaler, R. H. 1999: 183-206). Investors classify their money differently based on various subjective criteria. Investors invest in both safe and speculative assets and keep these investments in different mental accounts so that negative returns from speculative assets cannot affect the positive returns from safe assets. Thus, investors keep money that they can afford to lose for speculative purposes. Rationally, there should be no division between safety capital and money that an individual can afford to lose. This mental bias often leads people to take irrational decisions and financially counterproductive investment decisions.

Social Influences on Investor Behaviour

1. *Herding*

Herding in financial markets generates speculative bubbles when traders are tracking the decisions of others rather than the fundamental value of assets. Generally speaking, in economics and finance with the term herding or herd behaviour we mean the process where economic agents are imitating each other actions and/or base their decisions upon the actions of others (Spyrou, S., 2013: 175-194).

An investor with herding instincts follows others and makes similar investments rather than trusting their analysis. Herd instinct can lead to Asset bubbles, panic buying or selling and can be very detrimental to the market.

Herding is the outcome of social learning when people believe that others are better informed and thus follow the crowd. During financial speculation, it is seen that investors buy at an exorbitantly high price not because they think that the asset is worth it but because they believe that others think it is. Bikhchandani and Sharma (2000: 279-310) distinguish between "spurious" herding where investors face a similar fundamental-driven information set and thus make similar decisions and "intentional" herding where investors have the intention

to copy the behaviour of others. The former may lead to an efficient outcome while the latter may not (intentional herding may also lead to fragile markets, excess volatility and systemic risk).

2. *Reputation*

Herding often emerges as a reputation concern as well. Keynes postulated that it is rational and follows the crowd and herd as it helps to maintain good reputations. People believe that it is better to fail conventionally than to succeed unconventionally. According to Scharfstein, D. S., & Stein, J. C. (1990: 465-479) an unprofitable decision is not as bad for a reputation when others make the same mistake-they can share the blame if there are systematically unpredictable shocks.

3. *Beauty Contests*

Financial beauty contests were first used by Keynes to describe the second-guessing that characterizes financial speculation. A beauty contest is a newspaper competition where competitors are asked to select from a series of photos which according to them will be liked by a majority of people. It is similar to iterated reasoning used in financial speculation. Speculators are interested in identifying the short-term investment plans of others and not what they think will be the best investment.

Financial speculations subject asset prices to financial loops which in turn might lead to financial instability. Instability is magnified if borrowings are the source of asset funding.

4. *Success Stories and Advice from Family*

Investors are also affected by success stories and advice from the family. It was found in various research studies that people tend to invest more when their neighbours and family members have made profits from investing in the stock market. Interestingly, it was also found that investors are not negatively influenced by the failures of people around them majorly because people share success stories more than failures.

5. *Investors are Influenced by Experts*

Investors are also influenced by stock market experts. Analysts many times have incentives to tout particular shares or are influenced by other analysts or previously released information. This leads to herding and inferior returns in the market.

Emotional Influences on Investors

1. *Feelings of Regret*

Fear of regret deals with the emotional reaction that people

experience after realizing that they have made a mistake or error in taking a decision. When an investment goes bad, people act irrationally by trying to avoid selling it to avoid feeling regret. Sometimes investors avoid the possibility of regret by following what other investors are doing. They feel less embarrassed about losing money in popular investments than in unpopular investments. The theory of Regret can be explained also in terms of cognitive dissonance. Various studies have examined how people react to avoid regret and how it affects their decision-making. Qin, J. (2020: 105784) examines the influence of regret aversion on asset pricing by proposing a regret-based capital asset pricing model in which individuals maximize the expected returns from chosen portfolios of assets while minimizing anticipated regrets.

2. *Loss Aversion*

In 1979, Amos Tversky and Daniel Kahneman developed a successful behavioural model, called prospect theory, using the principles of loss aversion, to explain how people assess uncertainty. Investors find losses to be disproportionately painful as compared to the pleasure from the gains. Loss aversion makes people prefer things as they are. People will overvalue things that they already own leading to divergences between willingness to pay and willingness to accept. People are willing to pay less for an object that they don't yet own than they will accept when selling the same object that they already own. For example: If a person owns an antique art piece worth a market price of Rs. 50,000, he will not be willing to pay Rs. 50,000 for it at this point but would expect a much higher price for it if he sells it.

3. *Sunk Cost Fallacy*

The sunk cost fallacy describes an emotional tendency to invest more money, time, and effort into a project where we have already invested even if person knows that the investment is going to fail. Once individuals have made a large sunk investment, they tend to invest more in an attempt to prevent their previous investment from being wasted. The greater the size of their sunk investment, the more they tend to invest further, even when the return on additional investment does not seem worthwhile. (McAfee, R. P., Mialon, H. M., & Mialon, S. H., 2010: 323-336)

The sunk cost fallacy is closely linked to 'loss aversion'. Investors become emotionally involved in a stock or project that they are not willing to accept the failure. Thus, they invest more money to make that investment work. People have difficulty in letting go of the sunk cost and they make additional mistakes like:

- Aggressive Investing: People who were risk averse initially become more aggressive in investing after losing a certain amount of money. They start taking undue risks which might lead to huge losses.
- Averaging: People invest more in the stocks where they have lost money as they try to average out returns in those stocks. This may lead to even more losses.

III

Market Puzzles and Behavioural Explanation

Efficient Market Hypothesis (EMH) and Its Critique

According to EMH, market prices fully reflect all available information. The efficient market hypothesis is one of the important cornerstones of traditional finance theories. It was developed independently by Paul A. Samuelson and Eugene F. Fama in the 1960s and has been applied extensively in traditional finance. An efficient market is described as a market where all the relevant information is freely available to profit-maximizing rational investors who are trying to predict the value of various securities. According to EMH, markets are rational and prices of stocks fully reflect all available information and since the information is readily available, the price of securities quickly adjusts to the change. The idea behind it is that when information arises or any event occurs, the news spread very quickly and is incorporated into the stock prices. For example, if a currency note is lying on the road, it will not be there for long as it will be surely picked up by someone. Thus, current prices are considered to be the best approximation of the company's intrinsic value.

The Efficient market hypothesis is associated with the idea of a "random walk." According to the Random walk theory, the past movement or trend of a stock price or market cannot be used to predict its future movement and it is not possible to outperform the market without assuming additional risk. The logic behind random walks is that stock prices reflect information or news about the stocks. Since the news is unpredictable, today's situation or price cannot be used to predict future values. As such, experienced investors do not have any added advantage over uninformed investors.

Behavioural Finance on the other hand believed in 'momentum' in short-run stock prices. According to Behaviour Finance, investors follow market trends i.e. if they notice a rise in the price of a stock, they invest in the market in a kind of "bandwagon effect." leading to sometimes which is called 'irrational exuberance' i.e. investor

enthusiasm that leads to rise in a stock price higher than its fundamental value. Another rationale for 'momentum' as given by Behavioural finance is the investor's underreaction to the new information. Investors take time to change their existing perception or understanding of a particular stock. Thus, the full impact of any news or announcement is realized over a period of time leading to a positive correlation in prices (thus, changes in prices are not random)

Many times, the various biases lead to irrational behaviour and ultimately to sub-optimal outcomes in the market. These biases in turn lead to market anomalies like the Equity premium puzzle (Stocks have earned disproportionately higher returns over the years yet investors are relatively unwilling to hold them), the Volatility puzzle (Stock returns are very variable with large dispersions) and the Predictability puzzle (Stock returns are predictable suggesting that persistent profits are not being eroded by arbitrage).

Over time, Behavioural Finance has attempted to explain various market anomalies and puzzles. This section discusses a few popular puzzles in the stock market and their Behavioural explanation.

1. *Equity Premium Puzzle*

The equity premium puzzle, first documented by Mehra and Prescott, refers to the empirical fact that stocks have greatly outperformed bonds over the last century (Mehra, R., & Prescott, E. C. (1985: 145-161). Stocks have earned disproportionately higher returns than bonds, however, people still buy bonds. The level of risk aversion required for such a choice by investors has to be very high. Thus, the equity premium puzzle cannot be explained in terms of risk aversion. Benartzi, S., & Thaler, R. H. (1995: 73-92) explain this puzzle in terms of Prospect theory. The first explanation is provided in terms of 'loss aversion' i.e., investors are more sensitive to losses than to gains. Secondly, investors are myopic i.e., investors are assumed to evaluate their portfolio frequently even if they are saving for their retirement. Thus, myopic loss aversion explains the equity premium puzzle. Another explanation for the puzzle is provided through ambiguity aversion. Ambiguity aversion is a preference for known risks over unknown risks. Since the probability distribution of equity returns is unknown, people overweigh the probability of returns from bonds.

2. *Volatility Puzzle*

The volatility puzzle reflects the high variability of stock prices having large dispersions. It is observed in the stock market that changes in stock prices are disproportionately higher than changes in fundamentals. This observation is against the theory of EMH according

to which, prices always represent the fundamentals of the assets. Shiller (1981: 71-87) examined the volatility of stock prices and concluded that it is too high to be justified by fundamental information about the firm's earnings prospects.

Behavioural finance attempts to solve this puzzle through various biases that investors have. Various cognitive, social and emotional biases lead to sub-optimal decision-making by the investors which in turn affect the stock market and stock prices. It is noticed that while taking a decision, investors overweigh more recent information and consensus beliefs and seek confirming evidence which makes them underreact or overreact in the market.

Investors also tend to focus more on similar pieces of information called focal points which also affect their decision-making. The reason behind the steep fall in prices and the upward correction is that people are loss averse and tend to overweigh negative information and feedback.

3. *Predictability Puzzle*

This puzzle states that stock returns are predictable from price-dividend ratios. Behavioural finance explains in terms of behavioural biases like the disposition effect (the tendency to prematurely sell assets that have made financial gains, while holding on to assets that are losing money), momentum effect (the tendency of stocks that performed well in the past months to continue to do well in the following period and vice versa for stocks with poor performance.

IV

Conclusion

This paper discussed the Behavioural explanation of a few popular puzzles in the stock market and the various Cognitive, social and emotional influences on an investor. Traditional finance has been based on the concept of "efficient markets" which states that the price of an asset or security is 'right' as it reflects its fundamental value. The financial theory was governed by the idea that investors are rational. However, the traditional theory was not able to explain market volatility and unpredictability in the market, market crashes, irrational investor Behaviour, stock market bubbles etc. These were explained by an alternative approach termed 'Behavioural Finance' which focuses on cognitive, sociological and psychological influences on the decision-making of investors and financial markets. Behavioural Finance also explains various market puzzles. The equity premium puzzle refers to the empirical fact that stocks have greatly outperformed bonds over

the last century. Stocks have earned disproportionately higher returns than bonds, however, people still buy bonds. Behavioural finance explains this puzzle through the concepts of myopic loss aversion and Ambiguity aversion. The volatility puzzle reflects the high variability of stock prices having large dispersions. Behavioural finance attempts to solve this puzzle through various cognitive, social and emotional biases that investors have. This puzzle states that stock returns are predictable from price-dividend ratios. Behavioural finance explains in terms of behavioural biases like the disposition effect, momentum effect and of post-earnings announcement drift.

This paper also discussed the four prominent heuristics that people follow while taking decisions. Heuristics or 'rules of thumb' are imperfect but functional shortcuts that help an investor to simplify the complex situation and take quick decisions. These heuristics are The anchoring and adjustment heuristic (people employ a certain starting point ("the anchor") and make adjustments until they reach an acceptable value over time), Representativeness heuristic (In situations of uncertainty, people evaluate the probability of an uncertain event by comparing it to an existing prototype that already exists in our minds), Availability Heuristics (assess the probability of occurrence of the event based on the ease with which it comes to the mind), Affect Heuristic (helps individual to assign the probabilities of occurrence of an event based on how a person feel about it).

This paper discussed cognitive (Over Confidence, Cognitive dissonance, Under reaction and Overreaction, Disposition effects, Diversification bias, Mental Accounting), social (Herding, Reputation, Beauty contests, Success stories and advice from family, expert influence) and emotional influences (Feelings of Regret, Loss aversion, Sunk cost fallacy) on an investor.

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