

How behavioural bias affects investment decisions - A systematic review

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Abstract: This paper aims to identify and describe various biases in investment decision-making by reviewing behavioural finance research papers. This research paper describes various behavioural patterns of investors. For writing this paper, research papers have been collected and summarised for years, from when the most introductory paper was published (1974) to the most recent papers (2021). These research papers are classified based on specific biases. This study is more focused on the study of individual investors and tried to identify seven various types of biases. Practical implications of the research are that individual investors, investment advisers, students and other institutions in this area can get inputs from this research. The unique aspect of this paper is that this paper not only pays attention to basic principles of behavioural finance but also describes some emerging concepts of behavioural finance. Thus, the paper creates interest in the readers to find the solutions to minimise the effect of biases in decision-making.

Keywords: Behavioural Finance, Behavioural Biases, Financial Market, Investor decision-making

INTRODUCTION

"People in standard finance are rational, and people in behavioural finance are normal" - Meir Statman

Investment is a practice where individuals think investing will result in a specific future gain or some additional advantage from funds invested in shares, stocks, and other assets. Individuals invest for one of two reasons: to earn a profit or to ensure their safety. Return-seeking investors want a high or average return. Those who invest just for safety will seek a regular or low return. An investor first determines what he wants to invest in (kind of investment), then what he wants to invest in (return or safety). Every phase of the investing process necessitates several options and reasons for selecting a particular investment. These options are sometimes unique, and others influence, most of the time, the investor's choice. Investors may select investments depending on favourable opinions/beliefs about that particular investment. After selecting and determining the grounds for proper investment, the investor's outcome (behaviour) is referred to as a choice or decision-making.

Human decision-making is a never-ending process in which investments lead to various cognitive and psychological illusions. These circumstances may cause irrationality, which can alter or influence people's decision-making processes. Thinking and analysing a particular investment option causes cognitive illusions. Depending on the individual's emotional level, this option may influence or change the accurate decisions. Individuals' emotional levels are not equal or comparable. Psychological changes are causing these emotional imbalances. The stock market behaviour of investors may be used to study this change and variance among individual investors. It was formerly referred to as behavioural finance. As a result, behavioural finance examines not just investor behaviour (investment pattern) but also the psychological factors that influence investors' investment decisions. The fundamental theories that established the discipline's basis and intervention may be understood by looking at behavioural finance theory.

Behavioural Finance: It is a branch of finance that focuses on psychological aspects that impact investors' financial market decisions depending on how they interpret and act on specific information. Traditional finance theories such as Efficient Market Hypotheses (EMH) and Modern Portfolio Theory (MPT) concentrate on investors' rationality. In contrast, behavioural finance focuses on people's irrational behaviour. On the other hand, behavioural finance studies the psychology of financial decision-making. Emotions have a role in financial decisions, as most people are aware. These feelings are difficult to quantify. It may be assessed using a variety of methodologies, behavioural characteristics, and underlying concepts. These behavioural characteristics are drawn from various behavioural factors and variables derived from behavioural theories.

Behavioural Finance Biases:

- **Herding Bias:** Investors follow or join groups and blindly trust others' advice to ensure safety. They are often obedient to others' counsel and trust the advice of friends.
- **Representative Bias:** This is defined as "The degree to which an event is comparable in essential qualities to its parent population and represents the conspicuous elements of the process by which it is formed". A Representative Heuristic is a cognitive activity in which a person categorises a situation based on a pattern of past experiences or thoughts.
- **Overconfidence Bias:** This theory explains how people create beliefs when they are faced with uncertainty. People are poorly calibrated when calculating probabilities, and they frequently overestimate the precision of their knowledge. Also, they calibrated when the capacity to do well and the likelihood of good things occurring in the future.
- **Anchoring Bias:** When making a choice, anchoring bias happens when we rely too strongly on either pre-existing knowledge or the initial piece of information (the anchor).

- **Loss Aversion Bias:** Loss aversion is a behavioural finance characteristic in which investors are so afraid of losing that they prioritise avoiding losses over gaining gains. The more losses a person suffers, the more likely they are to develop loss aversion.
- **Disposition Bias:** Disposition bias is a dominating and substantial prejudice in which investors are more likely to sell winning equities and hold on to loss-making stocks.
- **Mental Accounting Bias:** Mental accounting is a behavioural economics concept. It was developed by economist Richard H. Thaler and said that people classify finances differently. Hence are prone to irrational decision-making in their spending and investing behaviour.

LITERATURE REVIEWS:

The researcher has attempted to review relevant literature on studies conducted about behavioural finance. In this area, many researchers have studied various behavioural factors that affect the decision-making process of individual investors. Therefore, only those studies have been taken into consideration by the researcher, which fulfils the objective of this research paper.

The essential notion of prospect theory was established by Kahneman and Tversky (1979) and proved to be an important addition to the field of behavioural finance. When the likely outcome of an investment choice is known, this theory describes how investors make decisions based on probabilistic options incorporating risk. According to Thaler (1980), behavioural biases impact investment judgments, resulting in less-than-optimal outcomes. Thaler (1999) highlighted numerous issues in financial markets to which modern finance theories do not provide an answer and where behavioural finance assumptions can assist solve these issues. He has described dividends, predictability, equity premium, volume, and volatility as these five situations in which stock market investor behaviour departs from what traditional and standard finance theories predict. As described by Ricciardi and Simon (2000), behavioural finance is a technique of studying the psychological and emotional factors that affect investors in financial markets while making investment decisions. Researchers and investment professionals in behavioural finance are proactively trying to advance this area. Shiller (2003) presented several doubts and flaws in the efficient market hypothesis, claiming that the interaction of finance and other social sciences is known as behavioural finance. It has resulted in a remarkable deepening of our understanding of financial markets. J. R. Ritter (2003) defined two behavioural finance building components: cognitive psychology and limits to arbitrage. Subrahmanyam (2007) also provided a basic examination of relevant literature on current behavioural finance theories. That highlights the scope to investigate the fast-growing subject of market microstructure and behavioural finance. He also explained that we might use CEO profiles and observable CEO traits to forecast corporate events such as splits, securities offerings, and so more. DeBondt et al. (2010) examined the numerous benefits behavioural finance research may provide to the financial sector. However, there are differing perspectives on how behavioural finance research should be used in academics and business. Muradoglu & Harwey (2012) give a brief overview of behavioural economics' roots, describing the importance of experimental and survey methodologies in studying financial behaviour. The major highlights as the contributions made by the past studies on the issue, explore their consequences and explains why behavioural finance research is essential for finance academics and practitioners. He has concluded in his study that; Experimental psychology has been the most important contributor to behavioural finance. Surveys, interviews, participant observation, and focus groups created in sociology did not have the same impact. These procedures are typically much more expensive than experimental methods, which might be one cause for their lack of effectiveness. However, finance experts' education may drive them to choose approaches that allow for more control and a clearer causal explanation. According to Bikas et al. (2013), behavioural finance is based on identifying emotional variables' influence on important changes in financial markets and focuses on limited logical cognition. They also detailed the impact of psychological factors on financial investing activities. Statman M. (2014) stated that behavioural finance goes beyond asset pricing, portfolios, and market efficiency. It examines managers' and investors' behaviour by both direct and indirect methods, using surveys, tests, and the field to examine desires, mistakes, preferences, and behaviour. According to Nair and Antony (2015), investors act irrationally in financial markets, which is caused by behavioural biases and heuristics. These emotional and psychological biases significantly influence investment decision-making. Kumar and Goyal (2015) conducted a systematic literature review on the four categories of investor biases to provide comprehensive details about the research publications based on citation, methodologies employed, and data analysis. The researcher concluded that most of the past studies on behavioural biases have revealed the lack of research has done in this area, the dominance of secondary data-based empirical research, the lack of empirical research on individuals who show herd behaviour, the emphasis on equity in home bias, and indecisive empirical findings on herding bias. Huang et al. (2016) analysed articles published in the last 20 years to provide an overview of relevant research in this field. Most publications fall into one of two categories: empirical or theoretical. The number of articles in the review class should be expanded to aid researchers and professionals in learning behavioural finance and its application. Several key individuals, both personal and institutional, have had a significant effect on the area of behavioural finance. With the rapid growth of financial markets worldwide, an increasing number of academics are becoming interested in behavioural finance research. According to Kapoor & Prosad (2017), Behavioural finance is the study of investor psychology and its influence on financial decision-making. This field relaxes the rationality assumption in standard finance theories and illustrates how actual investors are affected by psychological factors. These biases manifest in their behaviour, causing them to make poor judgments. Such large-scale choices can generate market disruptions and are referred to as market oddities. Because such anomalies have a destructive effect on both individual financial health and the financial health of the entire economy, they must be avoided. Such prevention is only possible if practitioners are more conscious of their psychological and behavioural constraints. As a result, a more in-depth examination of this subject is required. Mushinada, V.N.C. and Veluri, V.S.S. (2019) their study aims to see if there is a link between investors' rationality and behavioural biases like self-attribution and overconfidence. It was found that there was a statistically significant positive correlation between self-attribution and overconfidence, meaning that a change in self-attribution causes a change in overconfidence and vice versa. Personal variables of an investor, such as gender, age, employment, yearly income, and trading experience, have also been found to influence behavioural

biases. Valaskova et al. (2019) discovered a close relationship between fuzzy logic and behavioural finance. He investigated whether fuzzy sets effectively represent the human decision-making process. Behavioural psychology has demonstrated that the fuzzy logic model of human decision-making has substantial real-world applicability. Based on a survey of the literature, this study examines seven biases: loss aversion, herding behaviour, overconfidence, representativeness, disposition effect, mental accounting, and anchoring bias, which impact investors' decision-making processes. Many researchers have acknowledged the biases mentioned above in their investigations.

Overconfidence: According to Odean (1998), overconfident traders do not manage and control risk appropriately. They usually get information from various sources and engage in frequent market trades. Nevins D. (2004) explain overconfidence as investors' overestimation of their ability to foresee market occurrences, resulting in investors frequently going out on a limb without receiving equivalent rewards. Statman et al. (2006) explored how confident investors were overconfident about the benefits of active trading when their portfolio returns were favourable and less confident when their portfolio returns were negative. Fagerström (2008) researched overconfidence in financial markets and the elements that influence investors' decision-making when it comes to investing in the financial market. This study indicated that S&P 500 analysts were impacted by overconfidence and over-optimism biases. Deaves R. et al. (2008) analysed that overconfidence leads to increased trading activity, which is true both at the individual and market levels. It was also determined that there were no significant differences in trading behaviour across genders. In their paper, Graham et al. (2009) concluded that investors who are confident in their abilities trade more frequently and have more globally diversified portfolios. Male investors, as well as those with more significant portfolios or more education, are more likely than female investors, as well as those with smaller portfolios or less education, to regard themselves as competent, according to the study. Overconfident investors believe they are more competent and are more likely to act on their beliefs, resulting in increased trading frequency. Subash (2012) performed an investor survey in several Indian states to determine the prevalence of the overconfidence bias. He discovered that investors in Kerala, India's southernmost state, are more likely to overestimate their capacity to outperform the market. Menkhoff et al. (2013) observed significant disparities in overconfidence between categories. They found that institutional investors were the least and investment advisors were the most overconfident. Jaya, M.P. (2014) researcher concluded that men were more overconfident than females. In the case of intraday traders, overconfidence bias affects traders with a lot of experience and investors in new firms. According to Prosad J. M. et al. (2015), behavioural biases are influenced by investors' demographics and trading skills, with age, career, and trading frequency having the most impact. Overconfidence emerges as the most prominent bias in the Indian context, with each bias related to a distinct set of investor traits. According to Seetharaman A. et al. (2017), behavioural biases such as excessive optimism and overconfidence significantly impact investor behaviour. Ngacha, S.W. et al. (2019), the study discovered that there was a strong positive association between overconfidence and investing decision-making.

Disposition Effect: Shefrin H. (1985) established a conceptual framework for the general propensity to sell winners too soon and retain losers too long and emphasised how this disposition exists in actual financial markets among investors, not just in laboratory experiments. Odean (1998) found that individual investors show a strong preference for selling winners and keeping losers, with the exception of December, when tax-motivated selling prevails, resulting in reduced returns. Weber et al. (1998) defined the disposition effect as the conduct of investors to sell assets that have increased in value while remaining invested in assets that have decreased in value. According to Frazzini (2006), the disposition effect can negatively react to any news or information, resulting in return predictability and post-announcement price drift.

Anchoring Bias: Tversky et al. (1974) defined anchoring as a term utilised when people use specific beginning values to construct forecasts biased toward the early ones since different starting points produce different estimations. According to Shiller (1999), when individuals are asked to make quantitative judgments, their assessments are often influenced by recommendations, known as anchoring, which can assist in resolving many issues in financial markets. In a study done by Kaustia et al. (2008), it was discovered that there was an anchoring effect in students' long-term stock return predictions. It also found that the anchoring effect had less influence on professionals. Dodonova (2009), This research shows that individuals utilise anchoring to assess potential purchases. The researcher also discovered that bidders in first and second-price sealed auctions bid more aggressively when just the retail value of the products is offered rather than both the retail and wholesale prices. Ngacha (2019), The study revealed that there was little association between the two factors when it came to the influence of anchoring on investment decision-making. As a result, it is advised that investors conduct a comprehensive study before making investment decisions in order to prevent any ambiguity caused by increased access to information and to be more knowledgeable about the decision at hand.

Herding Bias: Garg et al. (2013) investigated herding behaviour in the Indian stock market from 2000 to 2013, concluding that there is no herding in the Indian stock market and explaining that herding is not connected to trade volume. Poshakwale (2014) states that herding is more common during unfavourable financial markets. Herding often grows due to the expectation of a financial crisis and decreases shortly before the crisis occurs. Filip A. et al. (2015) concluded that investors' behaviour in CEE stock markets and indicated that most investors follow the decisions of other market participants revealed that herd behaviour exists in both upward and downward movements. Choi S. (2016) discovered that offline investors exhibit more herding behaviour than online investors. Because they do not have quick and straightforward access to information, older offline investors generally place more reliance on information offered by friends and family members. Nair, M. A., & Yermal, L. (2017) The most prevalent behavioural bias that affects financial markets is herding behaviour. This study found that stock investors are more likely to exhibit herding behaviour when they get most of their financial information through word of mouth rather than any other source of information. There is a behavioural trend for investors with comparable demographics. According to this study, men investors exhibit a less herding

tendency than female investors. When compared to youthful stock investors, older stock investors exhibited a stronger herding tendency. The investors' marital status did not affect showing herding bias. Raut, R. K., & Kumar, R. (2018). Under anchoring bias, inexperienced investors proved to be more illogical decision-makers than experienced ones. This research implies that most Indian investors who are new to the financial market base their selections on the point of reference (anchor), which is the investors' very first information about the performance of a company. According to Chauhan Y. et al. (2019), Herding bias is a pricing risk factor in large-cap equities. However, small-cap stocks are not observed due to reduced trading volume. Shrotriyia, V. K., & Kalra, H. (2019). This study aimed to explore herding in the Indian stock market and its severity under market asymmetry. The findings demonstrated no herd behaviour among Indian investors throughout normal and crisis market situations. Positive herding coefficients indicate diverse trading due to the apparent rationality of Indian investors. Ngacha, S. W. (2019), The study determined a strong association between herding and investing decision-making. It was suggested that historical occurrences should be thoroughly examined since they impact investor behaviour. When making judgments, investors should only utilise trustworthy people as references. Before relying on the information, it should be independently validated. Sometimes, it is necessary to take a step back from what the crowd is doing to make smarter decisions. Kanojia, S., Singh, D., & Goswami, A. (2020) During normal market conditions, the analysis shows herd behaviour does not affect stock returns in the Indian equities market. It emphasises that those more prone to herding are more likely to participate in short-term investments than long-term holdings. Sachdeva et al. (2021) The study's findings showed that the three main elements influencing herding behaviour were investor cognitive psychology, market information, and stock characteristics.

Loss Aversion Bias: Hwang et al. (2010) analysed those investors in financial markets are far more risk-averse than previously thought. It was also shown that the influence of loss aversion varies depending on financial market conditions; during bull markets, investors become considerably more loss averse than during down markets. Arora et al. (2015) found that investors aged 41-55 years had a higher effect loss aversion bias than those aged 25-40 years and that females have more loss aversion and regret than males. According to Lee et al. (2016), investors who are strongly influenced by loss aversion invest less in stocks as a percentage of their total portfolio. Loss-averse investors have a propensity to over-observe their stock portfolio performance, which adds to myopic loss aversion. According to Mahima et al. (2017), Loss aversion bias influenced investing in the Rwanda stock market. This research also found that stock market investors are more likely to regret keeping losing equities for too long than they are to regret selling winning stocks too soon. Kumar et al. (2018) found that the gender of investors significantly impacts the incidence of loss aversion in investors and that loss aversion bias influences investors' investing decisions. Ong'eta, J. O. & Nasution, E. J. (2021) The research's findings revealed that individual investors had shown a high level of loss aversion behaviour. This indicates that loss aversion has an impact on the investment decision made by individual investors, and the research also showed that investors make their investment decisions in order to limit their exposure to losses.

Mental Accounting Bias: According to Barberis et al. (2001), mental accounting is the process through which investors consider and analyse their financial investments and transactions. According to Barberis et al. (2003), mental accounting allows investors to divide their assets into several accounts. According to Grinblatt et al. (2005), mental accounting provides a basis for how investors establish reference points for the accounts that decide gains and losses. The essential premise is that decision-makers prefer to divide various forms of gambles into distinct accounts and then apply prospect theory to each account while disregarding possible interconnections. According to Agnew (2006), individual investors are usually influenced by behavioural biases such as mental accounting bias. Mental accounting bias causes investors to evaluate each component of their portfolio separately rather than examine the whole portfolio. According to M. Sewell (2007), mental accounting is a collection of mental processes used by people and households to organise, analyse, and track financial activities and transactions.

Representativeness Bias: J. R. Ritter (2003) defined representativeness bias as the overall underweighting of long-term average returns. Furthermore, they tend to put more emphasis on recent experience and rewards. According to Pompian, M. M. (2017), representativeness bias develops while processing new information owing to an inadequate emotional framework. Some investors project outcomes that resonate with their pre-existing notions and decision-making to make new information simpler to comprehend. Bílek, J., Nedoma, J., & Jirásek, M. (2018), The goal of this research was to determine and assess the influence of biases associated with the representativeness heuristic on the quality of economic decision-making. A thorough literature analysis was done for this purpose, and the research discovered that the influence of biases is considered in the actual world, namely in the domain of business. Most research looked at representativeness heuristics in investing and found no conclusive evidence of a strictly detrimental influence of heuristic decision-making. Kanojia, S., Singh, D., & Goswami, A. (2018), This study aimed to analyse the impact of behavioural biases on retail investors' investing success. It was found that respondents were most impacted by representative bias.

CONCLUSION:

Based on the above systematic review of past studies on behavioural finance, it has been found that so many studies only focused on certain behavioural biases. Few researchers concluded their studies with primary data, especially in the Indian context. Behavioural finance provides a psychology-based framework to explain stock market abnormalities, such as sudden gains or declines in the stock market. Behavioural finance uses other research approaches such as psychology and sociology to study investors' behaviour in financial markets. This field eases the assumptions of rationality in standard financial theories and examines how psychological biases affect genuine investors. Most of the studies that the researcher analysed in this study support the occurrence of the seven behavioural biases described above in investors. In this study, the researcher reviewed earlier research papers and studies on behavioural finance and behavioural biases. Numerous studies have revealed that investors have a herd mentality and excessive confidence. A limited number of studies also support the existence of the other five investors' behavioural

biases. Various studies have also identified links between behavioural biases and demographic variables like age and gender. Overall, it can be said that a lot of research has been done in this area on the financial markets of developed countries. However, there is also much scope for growth and opportunity in the financial markets of developing countries.

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