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The Impact Of Cognitive Biases On Market Anomalies And Stock Pricing: A Systematic Review

1Ms. Shweta Aneja

1Assistant Professor

1IITM, GGSIPU

Abstract

This paper investigates the role of cognitive biases in contributing to market anomalies and stock pricing deviations through a systematic literature review. Traditional finance models, particularly the Efficient Market Hypothesis (EMH), assume that markets are efficient and that stock prices fully reflect all available information. However, behavioral finance research challenges this assumption, showing that psychological biases—such as overconfidence, anchoring, representativeness, and the disposition effect—caused investors to make systematic errors, resulting in irrational trading behaviors and persistent inefficiencies in market pricing. Overconfidence, for instance, drives excessive trading and market volatility, while anchoring causes delayed reactions to new information, leading to price inertia. Longitudinal studies further support the persistence of these biases across different market conditions, indicating that anomalies are not isolated but recurring patterns in stock behavior. The findings highlight the need to incorporate behavioral insights into financial models and call for strategies to mitigate bias-driven distortions in asset pricing. This study contributes to a more nuanced understanding of market dynamics by integrating psychological factors, suggesting that recognizing and addressing cognitive biases could enhance market efficiency and investment outcomes.

Keywords: Behavioral biases, Behavioral finance, Cognitive biases, Market anomalies, Modern finance, Stock pricing.

Introduction

In the recent years, financial markets have drawn interest of researchers where they are trying to understand the anomalies in the stock prices which the traditional theories failed to explain. One area that is gaining an increasing focus involves the role of cognitive biases-patterns of systematic deviation from norms or rationality in judgment-in driving such anomalies. The apparatus that behavioral finance gives allows researchers to consider how such cognitive biases influence investor behavior, which then leads to market inefficiencies and mispricing of stocks. The traditional economic theory assumes that investors behave rationally while making various kinds of decisions. Further, these theories assume that stock markets exist in an ideal world and show the impact of all available information. However, they were not in a position to satisfactorily raise solutions to answer such questions as what causes the development of market bubbles and crashes and which variable is responsible for untoward situations (Sharma and Kumar 2019; Zahera and Bansal 2018).

This has brought interest in researchers to a new branch of finance i.e. behavioral finance. Behavioral finance argues that markets can be inefficient due to human psychology (Shiller, 2003). This study of behavioral finance throws light on the irrationalities of investors. Human are always not rational. Their behaviors and decisions are based on various psychological and emotional factors. Behavioral finance has helped us in realizing that the concept of homo economics is a fallacy, thanks to the work of David Ricardo. Investors may lose control of themselves, might feel very confident that they were capable of what they have done, might miscalculate the facts, could overreact, or simply join the herd.Cognitive biases, including overconfidence bias, anchoring effect, and representativeness heuristic, exercise a great role in investor decision-making and ultimately lead to speculative bubbles and other market anomalies (Barberis & Thaler, 2003). For instance, overconfidence bias makes the investors overestimate their knowledge or predictive abilities, which has been linked to extremely high trading activity and market volatility, disturbing the efficiency of stock pricing (Daniel, Hirshleifer, & Subrahmanyam, 1998). Similarly, anchoring bias, by which investors rely heavily on initial information received, brings about a kind of influence to the stock valuations and stocks deviating from their fundamental values (Tversky & Kahneman, 1974).

A systematic literature review seems necessary in synthesizing insights across several studies to derive an integrated understanding concerning how cognitive biases affect market anomalies and, thereby, influence stock pricing. This approach allows to develop an understanding the impact of psychological factors to financial outcomes while giving an integrative vantage point on the limitations that explain rational models for market behaviors. In essence, through such a review of the existing literature, this paper establishes a more clear understanding of the role that cognitive biases play in market anomalies and points out areas where future research is vital in the realm of behavioral finance.

Theoretical Framework

The theoretical framework of this study is rooted in behavioral finance, a field that integrates insights from psychology with financial theory to explain how cognitive biases influence investor behavior and lead to market anomalies. Traditional finance theory on the Efficient Market Hypothesis (EMH), which assumes that all available information is fully reflected in stock prices, making markets inherently efficient (Fama, 1970). According to this assumption, stock prices should only change in direct response to new information, and the impact of such new information should be seen in stock price immediately. However, several empirical studies negated the EMH and presented evidence that psychological biases leading to irrational investor behavior and mispricing in the markets did indeed exist (Barberis & Thaler, 2003).

Behavioral Finance Theory : The theoretical basis for understanding how cognitive biases disturb market efficiency is defined by Behavioral Finance Theory. According to the theory, investors are not perfectly rational and are influenced by cognitive as well as emotional factors leading to systematic judgments' errors; this further influences the financial decision-making process in a way that deviates from the expected utility theory. These lead investors to take decisions which are not assumed by traditional finance theory (Kahneman & Tversky, 1979).

overconfidence theory: One of the cognitive biases suggested by behavioral finance in explaining market volatility and anomalies is overconfidence theory. Overconfidence bias leads to biased self-assessment of their information and abilities, causing investors to trade too much and distort the prices (Odean, 1998). In developing the theory of investor overconfidence, Daniel, Hirshleifer, and Subrahmanyam (1998) argue that traders who attribute their successes to skill rather than luck tend to trade more frequently. This might contribute to price swings and temporary deviations from fundamental values. Such a phenomenon is thereby in line with the perspective of behavioral finance: it teaches that the psychology of the investor can cause non-random movement in stock prices and destabilize markets.

Prospect Theory, which was advanced by Kahneman and Tversky (1979), further elaborates on some of the biases that affect stock pricing asymmetrically in risk preferences. The theory posits that investors are risk averse

in terms of gains; these investors are risk seeking for losses, and, at times, use reference points in assessing gains and losses. This can lead to behaviors such as the disposition effect, in which investors hold losers for longer periods and sell winners too quickly, hence generating downward price pressure on losers and keeping them priced incorrectly for even longer periods of time (Shefrin & Statman, 1985).

Anchoring theory: In anchoring theory, Tversky and Kahneman's (1974) work on heuristics is a perfect basis for how initial reference points by investors may impact their choices. It has been shown that anchoring bias causes investors to heavily rely upon information given at first or irrelevant to form an opinion, undervaluing new information thus making price adjustment be made late. The reason why this bias has been considered essential in the explanation of price inertia is that once these price expectations are set, the investors do not seem willing to change this perspective no matter whatever comes after them to prove that there would be a need for such a revaluation (Barberis & Thaler, 2003).

Finally, **representativeness heuristic theory** provides the light by which the general tendency of investors to make inferences from small samples works within stock pricing. Kahneman and Tversky (1972) pointed out that representativeness bias leads to a habit of overweighting recent information and short-term trends that create momentum in the prices of stocks. Barberis, Shleifer, and Vishny (1998) generalized this notion to explain the phenomenon of momentum whereby stocks that have performed well over a short period tend to continue their positive run because investor expectations are likely exaggerated at these points but eventually revert when fundamentals reassert themselves.

It is along these lines of behavioral finance theory and cognitive biases that forms the approach for understanding how investor psychology contributes to persistent anomalies in stock prices. Therefore, this study attempts to bring theory and reality together by connecting cognitive biases with observable market phenomena, thereby bringing an eclectic perspective on the role played by psychology in shaping financial markets.

Table 1: Types of Biases

Emotional Bias
Cognitive Bias
Overconfidence bias
Anchoring bias
Loss-aversion bias
Mental accounting bias
Regret aversion bias
Herd behavior
Endowment bias
Hindsight bias
Status quo bias
Disposition effect
Self-control bias
Framing bias
Self-Attribution bias
Ambiguity Aversion bias
Conservatism bias
Representativeness bias

Source: Pompian, M. (2016). Risk profiling through a behavioral finance lens. CFA Institute Research Foundation.

Brief Definitions of Biases

Loss aversion bias: This type of investor fears the pain of losses more than a liberal investor enjoys the pleasure associated with gains. Even when there is little hope of getting anything back, some clients will hold onto their losses for too long. Most financial advisors fear the loss of money.

Status Quo Bias: Many conservative investors-and, for that matter, most individuals-wish everything to remain exactly as it has always been, especially with investments and other aspects of their lives. "Things have always been this way," these investors tell themselves, and so they feel secure in keeping things the same.

Anchored bias: When asked whether someone should purchase or sell an investment, conservative investors will tend to rely on purchase points or arbitrary price levels.

Endowment bias: An investment that one already owns such as a piece of real estate or an inherited stock position tends to be worth more than an investment which one doesn't own or can't attain.

Mental accounting bias: Thus, the conservative customers perceive different amounts of money in different ways based on how they classify them. For example, that investor categorizes his assets into "buckets" called "safe" and "risky." If all investments are seen as safe money, returns will definitely be less than they would have been.

Hindsight bias: An investor may suffer from the hindsight bias if he finds that the outcomes of his investment at some earlier point in time would have been predictable.

Conservatism bias: This is a situation whereby people exhibit conservatism bias as they refuse to embrace new information in order to hold on to an existing belief or forecast.

Representativeness bias: When processing new information a flawed framework of perception leads to a prejudice called representativeness bias. Some investors attempt to make the new information easier to understand by anticipating outcomes that resemble their preconceived notions.

Self-Assessment (Self-Enhancing) Bias: This type of bias is referred to as self-attribution bias or self-enhancing bias where a person tends to attribute his successes and failures to his innate abilities.

Overconfidence bias: It is better to think of overconfidence as having an unjustified faith in one's own abilities and thinking, which includes both mental and emotional components. Investors who are overconfident in the quality of their judgement show their overconfidence in their own abilities.

Aversion Bias to Regret: A moderate investor is likely to shy away from reaching a decision, fearing that he may later regret it. Medium investors can be taken aback by previous losses as well, thereby being overcautious with investment choices.

Research Methodology

This paper is based on the Systematic Literature Review (SLR) of the existing knowledge available on how cognitive biases impact market anomalies in terms of how stocks are priced. The SLR methodology helps in yielding a systematic, comprehensive collation of previous studies that would enable one to draw key patterns and gaps in theoretical frameworks and the general literature existing to date (Tranfield et al., 2003). The following sections describe the research design and literature search strategy used in this paper.

Research Design

The current study is based on a qualitative research design in analyzing and interpreting findings from the literature focusing on cognitive biases in behavioral finance. A qualitative systematic review primarily synthesizes existing research studies to identify overall themes and theories rather than conducting empirical

testing related to specific hypotheses, as would be the case in quantitative studies (Sandelowski 2004). Using this approach, the study will try to achieve a broad view of how overconfidence, anchoring, representativeness, and disposition effects impact the behavior of the stock market and its anomalies.

Search Strategy for Literature

The database used for literature search was a combination of more than one database such as JSTOR, ScienceDirect, and Google Scholar so that all relevant studies in the fields of behavioral finance, psychology, and economics were covered. The keywords used were in combinations such as "cognitive biases," "behavioral finance," "market anomalies," "stock pricing," "overconfidence," "anchoring," "representativeness," and "disposition effect." These keywords were used to maximize the retrieval of relevant articles (Kitchenham, 2004). To ensure quality sources, the sources considered were peer-reviewed journal articles, books, and highly cited working papers.

Analysis of Literature on Cognitive Biases and Market Anomalies

Longitudinal studies based on the patterns of behaviors and changes in investor behavior can well capture how cognitive biases impact investor behavior and contribute to market anomalies across economic cycles. These studies trace the patterns in investor psychology and how markets react in explaining why such a phenomenon as persistence exists and affects the price of stocks, deeper insight not revealed by cross-sectional studies.

One of the most famous longitudinal studies on cognitive biases and their implications in stock market behavior is that by Barber and Odean 2001 focusing on investor trading over a six-year period. The study revealed that overconfidence causes investors to trade more than they should, which in turn hurt their performance because of transaction costs and bad timing decisions. Barber and Odean followed the trading activities of individual investors over time and demonstrated how this overconfident trading behavior continued even if it inherently led to the reduction of returns. Their findings in the research emphasize that the overconfidence bias not only impacts short-term decisions for trading but also has long-term negative impacts on portfolio performance (Barber & Odean, 2001).

More recently, Malmendier and Nagel (2011) showed how experiences with macroeconomic events from high inflation or economic recession affected the level of risk tolerance and subsequent investment behaviors at different life stages, using longitudinal data. By following survey data across multiple cohorts over several decades, they confirmed that the experience with past economic events influences future investment decisions and risk perceptions for investors. For instance, those that experienced the period of recession in their early life will not invest in any risk assets later in life. The authors observed this and stated there are persistent effects of cognitive biases, such as availability bias, that influence financial behavior overtime (Malmendier & Nagel, 2011).

Further, Kaustia and Knüpfer (2008) probed into disposition effect characterized by selling the winning stocks too early and failure to sell the losing ones in a longitudinal study. The researchers examined records of trading and found out that individual investors have this bias, therefore, leading to patterns of suboptimal trading hence influencing the prices of stocks. However, persistence in disposition of effect among investors evidenced the view that cognitive biases may create systematic price patterns in the market because the cumulative effect of individual decisions led to predictable stock price movements (Kaustia & Knüpfer, 2008).

According to Kafayat (2014) argues that, Kafayat discovered three causes that lead to bad results; these factors are overconfidence, overoptimism, and self-attribution. Ramiah et al. (2016) reveals that overconfidence bias affects the decisions concerning investments. According to Qadri and Shabbir (2014), in their study published last year, overconfidence bias and the "illusion of control" have a strong positive influence in investment decisions. The following biases, Tripathy stated might impact investment decision-making are: overconfidence; anchoring; regret bias; and loss aversion (2014).

According to Messis and Zapranis, "the existence of herding added yet another parameter of risk to the investor's portfolios." Therefore, the existence of herding behavior positively affects the volatility measurement. According to Jaiyeoba and Haron, investors are herders during investment decisions. Metawa et al. explained evidence indicating that herd prejudice influenced investment choices.

Glaser et al. (2013) use interval estimates to measure overconfidence. This approach measures investor overconfidence on an individual level. The results indicate that professional experience does not reduce losses. Investors could also be overconfident or underconfident, depending on the task.

According to Luu Thi Bich Ngoc (2014) people critically analyze trends existing in the stock market and current price fluctuations before making an investment. Findings of Bashir et al. (2013), Kafayat (2014) and Bakar and Yi (2016), among others, it can be noted that overconfidence has a huge impact on investors' investment decisions.

According to Bakar and Yi, who analyzed this problem issue, several different biases impact the decision-making of the investors. Overconfidence, conservatism, and availability prejudice make a huge difference within investor decisions, but the herding bias makes no difference. According to scholars, anchoring has negative effects on individual investors and traders (Maqsood Ahmad, Syed Zulfiqar Ali Shah, 2013).

The study by Raheja & Dhiman (2014) has showcased a relation of behavioural biases to investor decision-making. They have divided behaviour bias into four categories: conservatism, overconfidence, herding, and regret. Their study clearly manifests that an important relation exists between overconfidence and the investment choices undertaken by investors as well as a certain degree of relation exists between regret and the decisions taken while investing. There is no evident relationship between conservatism and investor investment decisions, herding, or investor investment decisions between investors. Robin and Angelina (2015) aimed to investigate the impact of anchoring, herding bias, and overconfidence on investment decision-making. When specified biases from this study are applied to individual investment decision-making, there is a substantial positive influence. There is a close relationship between the standardized beta coefficient of the herding bias and its impact on decision-making.

These longitudinal studies underline that cognitive biases play a role in the mechanisms of shaping market behavior and stock pricing. Over time, biases such as overconfidence, representativeness, availability, and disposition augment anomalies in the markets through repetitive investor behavior patterns. The longitudinal nature revealed through such research somehow questions the traditional finance theories, which proclaim that cognitive biases do not exist but are a mere short-term phenomenon.

Conclusion

The behavioral finance literature is systematically reviewed to examine the role of cognitive bias in contributing to market anomalies and stock pricing deviations. Through this study, the researcher affirms that overconfidence bias remains the biggest reason for unnecessary trading volume, which contributes to higher market volatility and mispricing. In addition, anchoring bias contributes to delayed reactions to new information and persistent price inertia, where investors make heavy use of initial information. The representativeness heuristic and the disposition effect further explain how cognitive biases create cyclical patterns in stock prices, where investors' tendency to misread short-term patterns as trends or holding onto losing investments disproportionately affects market prices and contributes to momentum and reversal anomalies.

Summarily, the research in behavioral finance does make an invaluable contribution to the theoretical background of finance by providing the proper explanations for occurrences that traditional models could not offer. Following on from that, the role of cognitive biases introducing the shaping of stock prices and markets means that one had to develop an understanding that has psychological elements among factors and strategies that mitigate adverse effects on market efficiency. Later studies can target experiments or actual implementations to mitigate investment errors that find their basis in biases while causing a more robust financial markets framework.

The outcome of this study provides valuable insights into the intellectual structure and biases of investors and adds value to existing knowledge. This review provides a road map for the future trend of research on behavioral bias and investment decisions.

Suggestions

Through this study, researcher wants to suggest that to negate the consequences of behavioral biases on investment decisions, it is recommended that investors should perform suitable research into cognitive and emotional biases. They before making any investment decision, become conscious of their own emotional tendencies and biases, then develop the strategy for dealing with or coping with them. They may also consult experts rather than solely relying on their intelligence and intuitions, which is always affected by their emotional qualities. They need to be aware of current market conditions and dangers in their investment. He can obtain the quantitative and qualitative risks of specific equities with views toward helping the quality of investment decisions made by investors. Individual investors can use the findings of the study for a better understanding of their personal behavioral bias in order to know the dynamics of stock trading and make prudent investment decisions.

Limitations

This study considered only articles and research papers available on the JSTOR, ScienceDirect, and Google Scholar. Research papers from other database could also be included. It is based on systematic study of existing literature available on the topic. More robust research can be done in future where quantitative data can be used to analyze the behavioral biases of investors.

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