

A Systematic Literature Review on Behavioral Biases Affecting Investment Decisions in Capital Markets

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Abstract

Behavioral finance emerged as a response to consider behavioral aspects in financial decision-making. It has challenged the assumptions of rational investors and efficient markets. This study systematically reviews the literature available on behavioral biases affecting investment decisions in capital markets. The main purpose of the study is to identify major psychological and cognitive biases that influence investors and to analyze how these biases shape investment behavior, thereby affecting market outcomes. The study adopts the PRISMA 2020 framework (Page et al., 2021) to conduct a systematic literature review of scholarly articles published between 1955 and 2024. Relevant studies were collected from open-source Google Scholar, and a total of 61 articles were identified, of which 29 articles met the inclusion criteria and were selected for final inclusion. The findings show that behavioral biases like overconfidence, herding behavior, anchoring, representativeness, disposition effect, mental accounting, regret aversion, and loss aversion significantly influence investors' psychology and emotions, leading to poor investment choices that cause market inefficiencies. Overconfidence, herding, and representativeness emerged as the most frequently investigated biases. Although there has been extensive study of individual biases, no prior review has systematically studied these biases within a single PRISMA framework spanning seven decades of research across both developed and emerging capital markets. This review addresses that gap by covering 29 studies to map which biases are most frequently studied, where research has concentrated geographically, offering investors, financial advisors, and policymakers a consolidated evidence base for designing debiasing strategies, investor education programs, and behaviorally informed regulatory approaches.

Keywords: Behavior; Behavioral Finance; Cognitive Biases; Capital Market; Investment Decision; Investor Psychology; Prospect Theory.

Introduction

The ecosystem of the world financial market has been guided by traditional financial theories that assume investors are rational and that markets are efficient, reflecting all available information in share prices (Fama, 1970). Financial theories such as the Efficient Market Hypothesis (EMH), Modern Portfolio Theory (MPT), Capital Asset Pricing Model (CAPM), and Arbitrage Pricing Theory (APT) hold that investors' investment decisions center on risk and return. Thus, these theories have provided important foundations for understanding risk, return, and the ways to manage through portfolios (Markowitz, 1952; Ross, 1976; Sharpe, 1964). Traditional classical financial theories emphasize that an investor's investment decision is all about minimizing risk at a given level of return or maximizing return at a given level of risk.

Despite the facts laid down by various traditional financial theories, financial crises, speculative bubbles, and market anomalies, market crashes have been observed frequently (Shiller, 2003). The greatest examples, like the dot-com bubble collapse (1995-2002), the global financial crisis of 2008, the COVID-19-induced market turbulence of 2020, and different recurring market panics caused by different issues (political, economic, and social), showed the existence of behavioral biases in making investment decisions.

Thus, behavioral finance emerged in the 1980s to identify the causes of the irrational behaviors of investors. This part of finance studies investors' behaviors by integrating psychology with financial economics to explain why investors make irrational decisions (Thaler, 1999). This field of study gained importance through the work of Daniel Kahneman and Amos Tversky in 1979. The Prospect Theory proved that investors value gains and losses differently and most of the investors fear losses more than gains (Kahneman & Tversky, 1979). Their work confronted the traditional expected utility theory and provided solid evidence against rational behavior by providing a psychological explanation for irrational financial behavior. Adding to this, Thaler (1980, 1985) stressed this model by identifying behavioral deviations such as mental accounting and the endowment effect.

Behavioral finance contends that investment decisions of investors are affected by cognitive and emotional biases such as overconfidence, herding behavior, anchoring, representativeness, loss aversion, mental accounting, regret aversion, and disposition effect (Shefrin & Statman, 1985, 1994). These biases affect how investors perceive risks, interpret information available, and respond to market changes. As a result, investors may be involved in various investment behaviors like excessive trading, overconfidence-driven transactions, or disposition behavior that adversely affect investment results or perceived outcomes (Barber & Odean, 2008). Thus, understanding the nature and consequences of these biases is critical for investors, financial institutions, policymakers, and researchers seeking to understand investment behavior, share market prices, and market outcomes and to improve financial decision-making (Statman, 1999).

Thus, it is evident that investors often make various biases, both conscious and unconscious, that influence their investment decisions. Investors are influenced by various psychological factors that lead to irrational decision-making, such as overconfidence, herding behavior, disposition effect, mental accounting, confirmation bias, hindsight bias, house money effect, endowment effect, self-attribution bias, regret aversion, anchoring, representativeness, and loss aversion. These biases can cause investors to make suboptimal investment choices, such as excessive trading, holding on to losing investments, and making decisions based on emotions rather than rational analysis. Despite the recognition of these biases in behavioral finance literature, there is a need for a comprehensive collection and analysis of these biases to educate investors to make informed and rational decisions. Furthermore, there is a significant gap in understanding:

- What are the holistic approaches to understanding investors' behavior?
- Why are people trading in a certain way?
- How do global and national events affect investment behavior?

Theoretically, existing behavioral finance models tend to examine individual biases in isolation rather than explaining how multiple biases interact to shape investment behavior. Most of the existing literature so far considered in this review has examined individual biases in isolation rather than as a unified whole, limiting the completeness and comparability of the accumulated evidence. Thus, the study systematically considers seven decades of literature and the PRISMA

2020 protocol to produce a transparent evidence map of the field, identify the most and least studied biases and markets, and refine practical implications drawn from the findings.

Research Objectives

The major objectives of this study are as follows:

- To systematically review existing literature on behavioral biases and investment decision-making in capital markets.
- To identify major psychological and emotional biases influencing investor behavior.
- To analyze the effects of behavioral biases on investment decisions and market efficiency.
- To examine the influence of global and national events on investor psychology and financial decision-making.

Materials and Method

This study is a systematic literature review (SLR) that provides a transparent, rigorous, and replicable approach for synthesizing all the available scholarly articles (Page et al., 2021). The review process followed the PRISMA 2020 (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) to provide a structured four-stage selection process encompassing identification, screening, inclusion eligibility, and finally inclusion (Page et al., 2021). Thus, the framework adopted ensures both breadth of coverage and methodological transparency.

Sources of Data

To systematically review the literature, available articles were selected by using keyword search and were categorized as either conceptual or empirical. Conceptual studies include articles contributing to concepts, theoretical frameworks, and literature reviews, while empirical studies involve observations, experiments, and statistical analyses. The research review articles were searched on Google Scholar since it is open access. The search strategy consisted of phrase identification, time frame, and inclusion and exclusion measures.

Search Strategy

The search strategy included searching for relevant literature through systematic keyword searches applying Boolean operators (AND, OR, NOT). Keyword searches included key concepts like biases and emotional factors (behavioral factors) such as overconfidence, herding behavior, disposition effect, mental accounting, confirmation bias, hindsight bias, house money effect, endowment effect, self-attribution bias, regret aversion, anchoring, representativeness, and loss aversion that influence investment decisions. Articles spanning the years 1955 to 2024 were undertaken for abstract-level screening to confirm the selection of relevant articles.

The search was conducted between March and May 2024. The Boolean search string applied consistently was: ("behavioral bias" OR "behavioural bias" OR "investor psychology" OR

"cognitive bias") AND ("investment decision" OR "investment behavior") AND ("capital market" OR "stock market" OR "financial market"), with truncation and wildcard operators adapted to the database's syntax.

Inclusion and Exclusion Criteria

To initiate the process, 61 shortlisted articles were coded based on keyword searches and abstract searches. The PRISMA 2020 framework (Page et al., 2021) was used to select the relevant articles for the SLR purpose.

Table 1: It represents the inclusion Criteria applied in article selection

S.N.	Inclusion Criteria	Description
1	Topic Relevance	The study is focused on the relationship between behavioral biases and investment decision-making
2	Publication Date	The time frame should be between 1955 and 2024 to uncover the evolution of behavioral aspects of investment decisions
3	Type of Study	Both empirical and theoretical studies using primary and secondary data
4	Accessibility	Studies should be freely available

Table 2: It represents the exclusion criteria applied in article selection

S.N.	Exclusion Criteria	Description
1	Topic Irrelevance	The study that is not focused on the relationship between behavioral biases and investment decision-making
2	Publication	If they are not available easily, Magazines
3	Date Restrictions	Outside the time frame of 1955 to 2024
4	Duplicate	If the study has the same research agenda
5	Language	Articles not available in English

PRISMA 2020 Selection Process

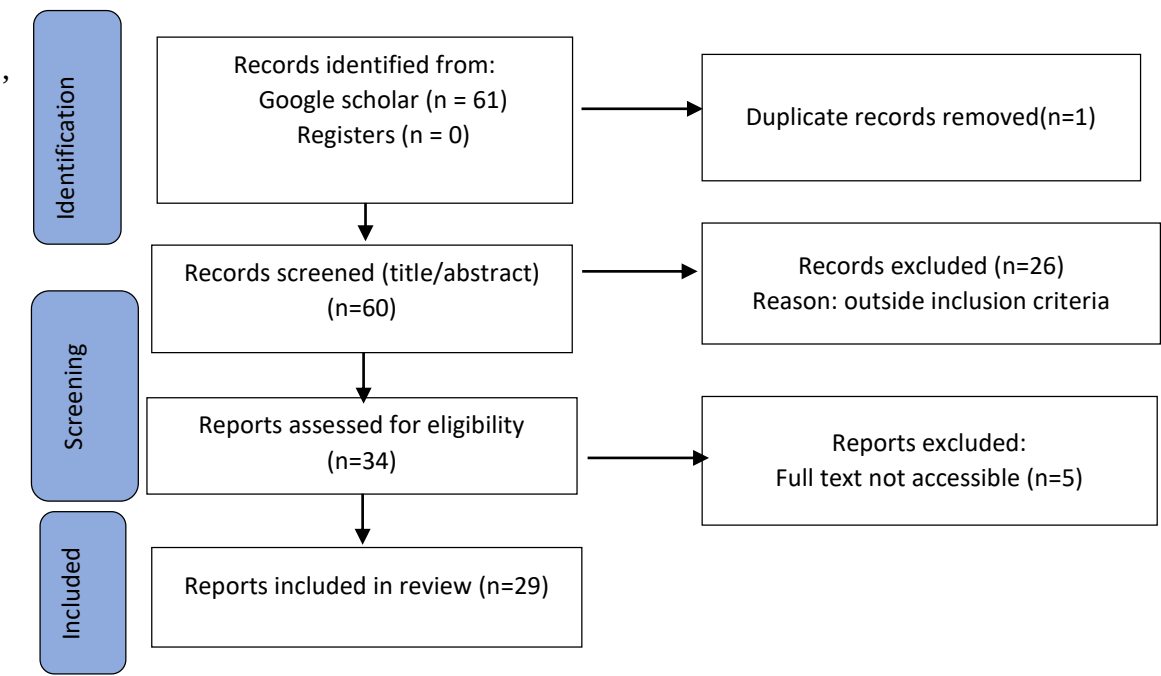
Table 3 summarizes the relevant articles by following the four-stage PRISMA 2020 framework (Page et al., 2021).

Table 3: PRISMA 2020 Selection Process

PRISMA Stage	Number of Articles
Records identified	61
Duplicate records removed	1
Records screened	60

Records excluded	26
Full-text articles assessed	34
Full-text articles excluded	5
Studies included in review	29

Figure 1: PRISMA Diagram of Systematic Literature Review



Source: Page et al. (2021)

The systematic literature review included 29 articles out of 61 articles. The studies included were published in world-renowned journals like the Journal of Finance, Journal of Financial Economic Theory, Econometrica, and Journal of Behavioral Decision Making, thus covering a broad range of markets and geographic contexts.

Screening and Data Extraction

The screening process was based on title and abstract screening; 60 non-duplicate records were screened independently against the inclusion and exclusion criteria in Tables 1 and 2, while the disagreements were resolved by re-reading the full text. The final 29 studies were selected by doing a full-text assessment of 34 shortlisted articles to confirm topical relevance, availability, and non-duplication. The data were then extracted into a structured spreadsheet: author(s) and year, country/market context, and key findings (shown in Tables 4 and 5).

Theoretical Foundations

Traditional Financial Theories

Traditional financial theories by different scholars assume the notion of rational investors and efficient markets. The major traditional theories undertaken are as follows:

Modern Portfolio Theory (MPT): Modern Portfolio Theory, developed by Harry Markowitz in 1952, explained that investors, by diversifying their investments, can reduce investment risk. This concept is to create an optimal portfolio as per the risk-return preference of the investors. This further explains that investors, by choosing investment alternatives, can either maximize returns for a given level of risk or minimize the risk for a given level of expected return.

Efficient Market Hypothesis (EMH): The Efficient Market Hypothesis developed by Eugene Fama in 1970 suggests that the financial market is efficient, reflecting all available information; thus, no investor using the information can beat the market to get abnormal profit. However, it fails to explain the irrational behaviors and market anomalies that can distort the price in the market.

Capital Asset Pricing Model (CAPM): The Capital Asset Pricing Model (CAPM), developed by William Sharpe (1964) and John Lintner (1965), explains the relationship between risk and return. The expected return of assets is directly proportional to their systematic risk (beta). The given formula calculates the expected return of an asset ($E(R_i)$), and it depends upon the systematic risk, its beta (β_i), overall market return (R_m), and the risk-free rate (R_f).

$$E(R_i) = R_f + \beta_i(E(R_m) - R_f)$$

Arbitrage Pricing Theory (APT): Stephen Ross in 1976 put forward that asset returns are influenced by multiple macroeconomic factors rather than a single independent market factor. This theory assumes that the market is efficient and no investor can get an arbitrage opportunity, and lastly, risk can be managed through the diversification of the investment.

Behavioral Finance Theories

The behavioral finance theory explains that the psychological aspect of individuals is considered one of the major factors affecting financial decisions; thus, it helps to understand why irrational behavior happens, resulting in inefficient market conditions. Thus, these theories are key to understanding why and how market participants act irrationally, causing the market to be inefficient.

Traditional financial theories assume that investors are rational and markets are efficient, but the reality is different. Thus, behavioral finance questions these assumptions by proving that investors, due to various cognitive biases and emotional responses, behave irrationally (Shiller, 2003).

Prospect Theory: Daniel Kahneman and Amos Tversky, in 1979, explain that individual perception towards gains and losses is different. Mostly, investors exhibit strong loss aversion behavior. This further explains that investors feel more distress from losing a certain amount

rather than having the pleasure of gaining the same amount. The fear of loss outweighs the pleasure of gaining the same.

Theory of Bounded Rationality: Herbert Simon, in 1955, suggested that individuals like to make satisfactory decisions rather than the best decisions due to their cognitive limitations and incomplete information. The researcher challenged the idea that in the real world, due to cognitive constraints and environmental constraints, rational decision-making is very limited, resulting in emotional decision-making.

Cognitive Dissonance Theory: Cognitive dissonance theory, introduced by Leon Festinger in 1957, explains why and how individuals experience discomfort when their beliefs conflict with real world result. Thus, their decisions, rather than being rational, are always trying to rationalize decisions in order to reduce psychological stress.

Behavioral Portfolio Theory: Behavioral Portfolio Theory incorporates psychological factors into portfolio construction and investment behavior. According to Statman (1999), investors don't evaluate risk and return in absolute terms; rather evaluate relative to a specific reference point. It explains that individuals pretend to be risk-averse when dealing with gains and risk-seeking when facing losses. Thus, this approach is a more accurate framework for understanding how investors create and manage their portfolios within market uncertainty and volatility (Statman, 1999).

Major Behavioral Biases Affecting Investment Decisions

Overconfidence Bias: Overconfidence occurs when investors overestimate their knowledge, forecasting ability, and investment skills. Research by Brad Barber and Terrance Odean found that overconfident investors trade excessively, often resulting in lower investment returns (Barber & Odean, 2008). They often attribute their high performance to their own skills, ignoring other critical factors, which can lead to significant future losses.

Herding Behavior: Herding behavior occurs when investors imitate the actions of others instead of conducting independent analysis. This behavior has been extensively researched because investors often rely more on collective information than private information, thus leading to potential price deviations from fundamental values and increased risk of reduced returns. This behavior contributes to speculative bubbles, market panics, and excessive volatility (Shiller, 2003)

Loss Aversion: Loss aversion occurs because people react differently to certain losses compared to certain gains. When faced with sure profits, investors avoid risks, but when confronted with potential losses, they are more willing to take risks. This reflects a stronger preference for avoiding losses over gaining gains. Loss aversion refers to investors' tendency to fear losses more strongly than they value gains. Investors therefore avoid realizing losses and may hold declining investments for excessively long periods (Benartzi & Thaler, 1995).

Anchoring Bias: Anchoring bias occurs when investors rely too heavily on initial information such as purchase price or historical market levels, while making investment decisions (Tversky & Kahneman, 1974).

Mental Accounting: Mental accounting is a kind of investment bias in which investors categorize their investments into separate portfolios based on various mental categories. Each portfolio is managed with distinct investment policies aimed at maximizing returns and minimizing risk. This can result in the selection of less profitable portfolios that satisfy the investors' emotional needs. Mental accounting explains how investors mentally separate money into different categories, often leading to irrational portfolio management and inefficient allocation decisions (Thaler, 1985).

Disposition Effect: The tendency of investors to sell profitable stocks prematurely to lock in gains while retaining losing stocks to avoid realizing losses. This behavior indicates that investors have a greater aversion to losses than a preference for gains, leading them to make decisions based more on avoiding perceived losses rather than securing perceived gains. The disposition effect causes investors to sell profitable investments too early while retaining losing investments to avoid emotional discomfort associated with losses (Shefrin & Statman, 1985).

Confirmation Bias: Confirmation bias occurs when people rely on preconceived philosophy and adjust new information to fit their existing beliefs. This leads to irrational decisions as investors become skewed towards information they already have and ignore other relevant information. Confirmation bias causes investors to seek information that supports their existing beliefs while ignoring contradictory evidence (Kahneman & Tversky, 1979).

Hindsight Bias: Fischhoff and Beyth (1975) identified hindsight bias, where investors believe that the occurrence of certain events can be predicted. This belief can be dangerous as it may lead to forming cause-and-effect relationships between unrelated events, resulting in irrational decisions.

House Money Effect: The house money effect that describes how gamblers, after making profits, become less loss-averse and more willing to take risks. Similarly, investors who are making significant profits may be more inclined to take additional risks (Thaler & Johnson, 1990).

Regret Aversion: Regret aversion leads investors to avoid decisions that might produce future regret, causing them to delay action, avoid selling losing investments, or forgo new opportunities in order to sidestep the emotional discomfort of a wrong decision (Shefrin & Statman, 1985).

Endowment Effect: The endowment effect is the tendency for individuals to overvalue their existing possessions and resist altering their current holdings. This cognitive bias can result in missed opportunities for profitable investments and cause valuable securities to remain undervalued due to a lack of action by investors (Kahneman et al., 1990).

Representativeness: Representativeness is a bias that involves assessing the characteristics of an event or object and considering it similar to other events or objects, which can lead to incorrect assumptions about the likelihood of certain outcomes (Tversky & Kahneman, 1974).

Summary of literature on various behavioral biases

Table 4 summarizes all the major behavioral biases reviewed, their authors and year of publication, and major findings.

Table 4: *Summary of literature on various behavioral biases*

Bias	Author and Date of Publication	Findings
Overconfidence	Barber & Odean (2008)	Overconfidence occurs when investors are excessively optimistic about their trading outcomes, as they believe that the information they have is sufficient for making sound investment decisions. They often attribute their high performance to their own skills, ignoring other critical factors, which can lead to significant future losses
Herding Behavior	Shiller (2003)	Herding in the stock market refers to investors' tendency to follow others' decisions. This behavior has been extensively researched because investors often rely more on collective than on private information, leading to potential price deviations from fundamental values and an increased risk of reduced returns.
Disposition Effect	Shefrin & Statman(1985)	The tendency of investors to sell profitable stocks prematurely to lock in gains while retaining losing stocks to avoid realizing losses. This behavior indicates that investors have a greater aversion to losses than a preference for gains, leading them to make decisions based more on avoiding perceived losses rather than securing perceived gains.
Mental Accounting	Thaler(1985)	Mental accounting is a kind of investment bias in which investors categorize their investments into separate portfolios based on various mental categories. Each portfolio is managed with distinct investment policies aimed at maximizing returns and minimizing risk. This can result in the selection of less profitable portfolios that satisfy the investors' emotional needs.
Confirmation Bias	Kahneman & Tversky(1979)	Confirmation bias occurs when people rely on preconceived beliefs and adjust new information to fit their existing beliefs. This leads to irrational decisions as investors become skewed towards information they already have and ignore other relevant information.

Bias	Author and Date of Publication	Findings
Hindsight Bias	Fischhoff & Beyth(1975)	Fischhoff and Beyth (1975) identified hindsight bias, where investors believe that the occurrence of certain events can be predicted. This belief can be dangerous as it may lead to forming cause-and-effect relationships between unrelated events, resulting in irrational decisions.
House Money Effect	Thaler & Johnson (1990)	The house money effect that describes how gamblers, after making profits, become less loss-averse and more willing to take risks. Similarly, investors who are making significant profits may be more inclined to take additional risks.
Endowment Effect	Kahneman et al. (1990)	The endowment effect is the tendency for individuals to overvalue their existing possessions and resist altering their current holdings. This cognitive bias can result in missed opportunities for profitable investments and cause valuable securities to remain undervalued due to a lack of action by investors.
Regret Aversion	Shefrin & Statman(1994)	Regret aversion leads investors to avoid decisions that might produce future regret, causing them to delay selling losing investments or avoid new opportunities to sidestep the emotional discomfort of a wrong decision.
Anchoring	Tversky & Kahneman(1974)	Anchoring bias occurs when investors rely too heavily on initial information such as purchase price or historical market levels while making investment decisions
Representativeness	Tversky & Kahneman(1974)	Representativeness is a bias that involves assessing the characteristics of an event or object and considering it similar to other events or objects, which can lead to incorrect assumptions about the likelihood of certain outcomes.
Loss Aversion	Benartzi & Thaler(1995)	Loss aversion occurs because people react differently to certain losses compared to certain gains. When faced with sure profits, investors avoid risks, but when confronted with potential losses, they are more willing to take risks. This reflects a stronger preference for avoiding losses over gaining gains.

Market Anomalies and Investor Behavior

Market anomalies refer to deviations from what the efficient market hypothesis (EMH) predicts, significantly impacting investor behavior and the overall efficiency of markets. These anomalies arise from various factors and have intense implications for investment strategies and outcomes. Behavioral biases significantly contribute to market anomalies that contradict traditional financial theories.

January Effect: The January Effect refers to the tendency for stock prices, particularly small-cap stocks, to rise abnormally during January. This anomaly suggests that investor behaviors such as tax-related selling and year-end portfolio adjustments affect stock prices differently than expected under EMH principles

Momentum Effect: The momentum effect explains that stocks having strong performance tends to continue performing well in the short term. This effect challenges the EMH's assumption that stock prices immediately and accurately reflect all available information, implying that investors may not fully adjust their decisions to new information or may follow prevailing market trends rather than making purely rational adjustments. Momentum trading occurs when investors continue purchasing stocks with recent positive performance, contributing to persistent price trends (Maheshwari & Dhankar, 2017).

Thus, market anomalies challenge the assumptions of the EMH by revealing persistent patterns that alone cannot be explained by rational decisions and immediate price adjustments. These anomalies shape investor behavior by highlighting opportunities for abnormal returns through strategies that can capitalize on market inefficiencies or by exploiting behavioral tendencies (Maheshwari & Dhankar, 2017).

Speculative Bubbles and Crashes

Investor emotions and herding behavior frequently contribute to speculative bubbles and financial crashes (Shiller, 2003). Studies conducted in countries such as Nepal, Iran, Indonesia, Kenya, Oman, and the United States demonstrate that behavioral biases influence investor behavior globally (Kartini & Nahda, 2021; Poudel et al., 2024). Likely, Naseem et al. (2021) demonstrated that behavioral factors affected by psychological and emotional effects mainly have a negative impact in the capital market across China, Japan, and the U.S. during the COVID-19 pandemic.

Global view on behavioral biases and Investment behavior

Table 5 summarizes the global evidence that confirms that behavioral biases affect investment decisions in the capital markets.

Table 5: Global view on behavioral biases and investment behavior

S.N	Author	Findings	Country
1	Moradi et al. (2011)	The study found that in the Tehran Stock Exchange, investors overreacted to past performance,	Iran

S.N	Author	Findings	Country
		overvaluing high performers and undervaluing poor performers, leading to price corrections over time (Moradi et al., 2011). Behavioral biases like conservatism and representativeness affect their decisions, causing deviations from market efficiency	
2	Kartini, K., & Nahda, K. (2021)	The study by Kartini and Nahda identifies cognitive and emotional biases, such as anchoring, representativeness, and herding, that significantly influence Indonesian investors' decisions. A quantitative study of 165 investors in Yogyakarta highlights the substantial role of these biases in investment behavior (Kartini & Nahda, 2021).	Indonesia
3	Naseem et al. (2021)	During the COVID-19 pandemic, investor psychology significantly impacted stock markets in Shanghai, Nikkei 225, and Dow Jones indices. Psychological resilience and pandemic pressure induced negative investor sentiment, leading to decreased market returns.	China, Japan & USA
4	Sha & Ismail (2016)	The study on investor behavior in Oman's Muscat Securities Market found significant cognitive biases among investors, influenced by gender differences. It employed statistical tests to analyze age, gender, and experience, revealing varying behavioral types among male and female investors, highlighting the importance of understanding these biases in stock market decision-making	Oman
5	Athur (2014)	The study examines the impact of behavioral biases on investment decisions of individual investors in Kenya. The findings suggest that representative bias has a significant influence on investment decisions.	Kenya
6	Poudel, Bhusal & Pathak (2024)	The study by Poudel, Bhusal, and Pathak provides insights into how various behavioral biases affect investment decisions of individual investors in the Nepalese market. It also highlights the importance of financial literacy in reducing the impact of these biases on investment choices.	Nepal
7	Shrestha (2022)	The article by Shrestha emphasizes that both tangible and intangible factors contribute to the investment decisions of Nepalese investors. Tangible factors include capital structure and average pricing	Nepal

S.N	Author	Findings	Country
		methods, while intangible factors include political and media coverage, financial education, and psychological and behavioral biases.	

Discussion

The systematic literature review titled “behavioral biases affecting the investment decisions in capital market” offers a comprehensive overview of various cognitive and emotional biases that affect investment decisions, bridging classical financial theories with behavioral finance insights. The review of the twenty-nine studies highlights both the presence of behavioral biases in investment decision-making and how differences in markets, time periods, and research designs affect investment decisions. This section critically compares findings across the reviewed studies and also examines similarities and differences across countries and markets.

Cross-Study Comparison of Findings

The country-specific studies summarized in Table 5 identified herding, overconfidence, and representativeness as the most frequently recurring biases, and this pattern is already evident in Table 4. Moradi, Salehi, and Hasanzadehnamaghi (2011) documented conservatism and representativeness driving investor overreaction on the Tehran Stock Exchange; Kartini and Nahda (2021) found anchoring, representativeness, and herding as biases among 165 Indonesian investors; and Athur (2014) identified representativeness bias as the dominant bias influencing Kenyan investors.

The studies by Sha and Ismail (2016) found that gender significantly moderated the type and strength of biases affecting investment decisions as exhibited by Omani investors, while the Nepalese studies (Poudel, Bhusal, & Pathak, 2024; Shrestha, 2022) emphasized financial literacy as the key moderating factor rather than demographic characteristics in investment decision-making.

Naseem et al. (2021) found the pandemic negatively affected investors' sentiment, leading to decreased market returns after examining the Shanghai, Nikkei 225, and Dow Jones indices during COVID-19.

Similarities and Differences Across Countries and Markets

Most of the cross-country studies cluster into emerging markets like Iran, Indonesia, Oman, Kenya, and Nepal, while Naseem et al. (2021) cover developed markets like Japan, the United States, and China. This is itself a finding that emerging-market investors often face less mature disclosure regimes, lower average financial literacy, and greater information asymmetry, and are studied far more frequently than developed-market investors. This finding limits the review's ability to determine whether behavioral biases are genuinely more prominent in less efficient markets or simply better documented in developed nations.

Theoretical Implications

The Prospect Theory (Kahneman & Tversky, 1979) claims loss-averse decision-making is a general feature of investor psychology rather than a result of specific market inefficiencies. While moderators such as financial literacy in Nepal and gender in Oman suggest that Prospect Theory alone is insufficient to explain the variation in investors' decision-making. In contrast, the theory of bounded rationality (Simon, 1955) highlights that socio-cultural factors and cognitive factors need to be integrated to explain why the same bias produces different effects of different magnitudes across different countries and contexts.

Practical Significance

For investors and financial advisors, the recurrence of representativeness and overconfidence across markets suggests that investor-education interventions targeting these two biases specifically could have broad applicability rather than needing to be designed separately for each market. However, the literacy and gender-biased investment decision-making from Nepal and Oman indicate that intervention design should still be tailored. The literacy-enhancing strategy may be the more effective lever in developing markets with lower baseline financial education; advisory practices may be more suitable in more literate markets to address overconfidence and self-attribution more directly. For regulators and policymakers, the crisis-driven convergence documented by Naseem et al. (2021) suggests that circuit breakers, enhanced disclosure requirements, or investor-sentiment monitoring may be particularly valuable during periods of systemic stress, when behavioral biases appear to synchronize across otherwise dissimilar markets.

Critical Analysis

Behavioral finance offers valuable insights into investor behavior and market inefficiencies, but it faces several criticisms. The studies conducted in the field of behavioral finance help to understand how the psychological biases of investors impact their investment decisions. The major studies are outlined as:

- As explained by Kahneman and Tversky (1979) in Prospect Theory, individuals make decisions under risk and uncertainty. It explains that investors' investment decisions are affected by psychological biases: loss aversion and framing effects, leading to irrational investment decisions. But the theory fails to incorporate the real financial world complexities while explaining the impact of behavioral biases in investment decision-making.
- Thaler in 1999 explains that there are various biases such as mental accounting, anchoring, and the endowment effect that affect investors' behavior. He also explains that mental accounting affects spending and saving behavior, leading to suboptimal financial decisions due to irrational categorization of money. But it lacks the complexities of behavioral biases and their predictive ability in making financial decisions.
- Barberis and Huang (2001) explain that behavioral biases like overconfidence and loss aversion affect investors in making rational investment decisions in financial markets.

Whereas it lacks the detailed examination of the interaction of multiple biases collectively affecting the investors' decisions.

Additionally, the following are the criticisms faced by behavioral finance:

- Lack of a unified theory comparable to the EMH that makes it challenging to apply across different market contexts.
- Additionally, it has limited external validity, raising questions about the generalizability of findings to real-world financial markets.

In conclusion, incorporating behavioral insights into finance has enriched our understanding of market dynamics and investor behavior. However, ongoing research and refinement of these theories are necessary to address their limitations and enhance their applicability to diverse financial contexts.

Major Findings

The study provides a comprehensive overview of the impact of various psychological (cognitive and emotional) biases on investment decisions. It incorporates classical financial theories with behavioral finance. Including the theoretical foundations presented in Section 4, this section also synthesizes the evidence extracted from the 29 included studies (Tables 4 and 5) to highlight the following major findings:

- Overconfidence, herding, and representativeness are the most consistently reported biases across the reviewed literature that significantly affect investment decisions, thus leading to deviations from rational decision-making and the efficient market hypothesis.
- Loss-related biases like loss aversion, the disposition effect, and regret aversion are the second most frequently evidenced biases, and studies consistently link them to the same underlying mechanism: investors are more sensitive to losses than gains.
- Similarly, different moderators like gender and financial literacy also affect investors' investment decision-making.

Thus, this imbalance provides abundant evidence that biases exist, but still has limited evidence on what increases or reduces them; it is itself a notable gap in the current literature rather than a settled finding.

- Similarly, in the study of Iran, Indonesia, and Kenya, Market anomalies like the January Effect and momentum effect also challenged the concept of rational investors and efficient markets.
- It is likely that investor behavior under acute market stress (COVID-19) produces different psychological resilience that affects decision-making; thus, it should be treated as a preliminary rather than an established pattern, and it should be taken as a priority for further research.

Thus, the literature reviewed here supports two firm conclusions and one open question:

- Behavioral biases are consistently present across markets of very different maturity and regulatory strength;
- Loss-related biases are the most robustly evident;
- The open question is to identify the strength of which contextual factors determine the strength of these biases in a given market (a question the current literature has only begun to address).

Proposed Study Model

The proposed study model involves a systematic exploration of the literature and combines existing research in finance, behavioral finance, and psychology to identify the effect of behavioral biases on investment decisions. As highlighted in the prior critical analysis, a significant constraint of the current behavioral finance literature is the absence of a detailed review of the interplay of several biases influencing investors' decisions.

Thus, the Proposed Study Model is designed to fill this gap by applying a holistic approach merging behavioral biases into a single investigative framework. This model aims to provide a unified framework to study the co-existence of the biases and their cumulative effects on market outcomes, rather than simply listing out the individual psychological factors. This integration is a direct response to the need for a broader framework that can be applied to a wide range of market contexts.

Based on the above major findings and conclusions, the conceptual framework is derived. This framework shows the interrelationships between various behavioral biases and their impact on investment decisions. It is important to note that this framework is a conceptual synthesis built on the conclusions and relationships identified across the reviewed literature; however, it has not itself been empirically tested, and the arrows in Figure 2 represent the directional relationships reported by the cited studies rather than relationships estimated from original data collected for this review.

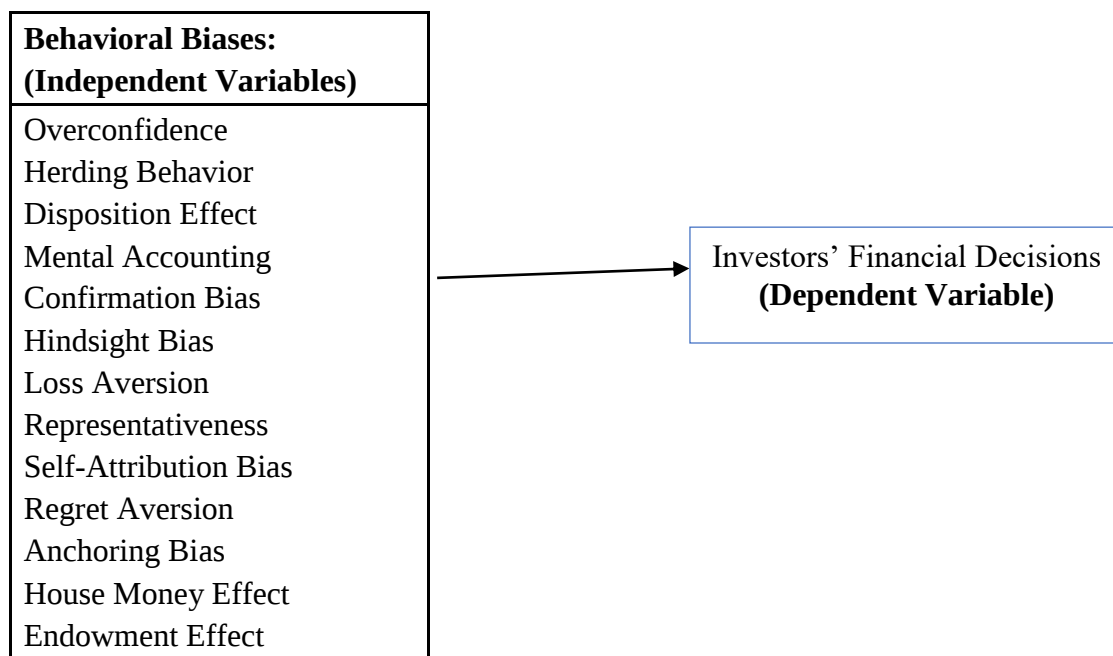


Figure 2: Conceptual framework

Investors should behave rationally to maximize the profit from their investment. But they also need to recognize their own psychological biases to behave rationally. Thus, behavioral finance should be considered alongside traditional finance to better understand how and why investors make investment decisions.

Agenda for Future Research

The document provides a solid foundation by identifying and explaining various biases in financial decision-making. However, it could benefit from a deeper analysis of how these biases interact collectively and their combined impact on market dynamics. For instance, exploring how overconfidence might amplify the effects of the herding bias. Additionally, the paper would be strengthened by a more detailed discussion on the practical implications of these biases for investors and financial advisors and suggestions on how to mitigate these biases in the real world. Furthermore, incorporating more quantitative analysis to measure the extent and impact of these biases could provide a clearer picture of their significance.

Thus, the following further research questions that need to be answered are as follows:

- How do multiple biases work together? Does it change the way a single bias affects the investor's decisions?
- How can policies affect behavioral finance?
- How to combine psychological biases with other factors to better understand investors' investment decisions?
- How do behavioral biases evolve over an investor's lifetime, and what can longitudinal studies reveal that cross-sectional designs cannot?

- What do controlled experimental and laboratory studies reveal about the causal, rather than merely correlational, impact of specific biases on investment choices?
- How can artificial intelligence and machine learning be used to detect behavioral biases in real time from trading data and support debiasing interventions?
- How do behavioral biases and their relative influence differ across countries and cultures, and what role do cultural dimensions play in shaping investor psychology?

Conclusion

This review demonstrates the integration of behavioral finance and traditional finance and its implications for investment decision-making. The review shows how psychological factors and biases shape investor behavior, challenging the assumption that markets are efficient and investors are rational.

Prospect Theory by Kahneman & Tversky (1979) states that individuals make decisions under risk and uncertainty. It explains that investors' investment decisions are affected by psychological biases like loss aversion and framing effects, leading to irrational decisions. But the theory fails to incorporate the real financial world complexities while explaining the impact of behavioral biases in investment decision-making.

Behavioral biases like overconfidence and loss aversion affect investors' rational investment decisions in financial markets. However, it lacks the detailed examination of the interaction of multiple biases affecting investors' decisions (Barberis and Huang, 2001).

Behavioral biases such as overconfidence, loss aversion, and herding behavior have similarly deepened the understanding of market anomalies: overconfidence leads to poor investment choices by causing investors to overestimate their knowledge and underestimate risk (Barber & Odean, 2008), while loss aversion explains why investors are more sensitive to losses than to equivalent gains (Benartzi & Thaler, 1995).

The evidence from Kahneman and Tversky (1979) and Shefrin and Statman (1985) highlights the importance of emotions (fear and regret) in shaping investor investment behavior. Market anomalies such as the January Effect and the Momentum Effect further illustrate how investor behavior departs from the predictions of the Efficient Market Hypothesis.

In conclusion, integrating behavioral finance into the study of investment decisions provides a more comprehensive framework for understanding the complexities of investor psychology. This approach enhances the understanding of market dynamics and offers valuable insights for improving investment strategy and financial education. By acknowledging and addressing these behavioral biases, investors, advisors, and policymakers can work toward more informed and rational decision-making, ultimately supporting better financial outcomes.

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