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Behavioral Biases and Investment Risk: Insights from Retail Investors

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Abstract

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This study examines how behavioral biases influence investment risk among retail investors by employing a Systematic Literature Review approach. The rapid growth of retail investor participation has intensified the relevance of behavioral finance, which argues that individuals often deviate from rational decision-making due to psychological factors. The findings reveal that biases such as overconfidence, loss aversion, herding behavior, and heuristic-driven judgments significantly affect how investors perceive and manage risk. Overconfidence leads to excessive trading and underestimation of downside risk, while loss aversion creates overly conservative or emotionally reactive investment patterns. Herding behavior contributes to increased market volatility, though its influence varies across different market environments. Heuristic biases, including representativeness and anchoring, further distort risk assessment. The review also highlights that financial literacy acts as an important moderating factor, reducing the negative impact of cognitive and emotional biases by improving information processing and decision quality. Overall, the results underscore those behavioral biases play a central role in shaping investment behavior in modern financial markets, emphasizing the need for investor education, behavioral-based advisory strategies, and policy measures that accommodate the psychological realities of retail investors.

1. Introduction

The rapid growth of retail investor participation in global financial markets has brought renewed attention to the role of behavioral factors in shaping investment decisions. Unlike institutional investors, retail investors often rely on heuristic-driven judgments that can lead to systematic deviations from rational decision-making (Barberis, 2018). Behavioral finance argues that individuals are not always rational utility maximizers; instead, they exhibit psychological biases that influence their perceptions of risk, expected returns, and portfolio choices. These biases such as overconfidence, loss aversion, herding, and representativeness can significantly affect investors' risk-taking behaviors and ultimately their financial outcomes (Cao et al., 2021).

Overconfidence, one of the most widely studied biases, often causes retail investors to overestimate their knowledge and underestimate investment risks, leading to excessive trading and suboptimal returns (Glaser et al., 2019). Similarly, loss aversion where investors experience losses more intensely than equivalent gains shapes risk attitudes by encouraging overly conservative or excessively reactive investment behavior. Herding behavior further amplifies market volatility, as retail investors tend to mimic others' actions, particularly during periods of uncertainty or speculative market movements. These behavioral tendencies collectively influence how individuals perceive and manage investment risk, making them critical determinants of financial decision-making.

Recent evidence emphasizes that behavioral biases have more pronounced effects on retail investors due to limited financial literacy, emotional susceptibility, and exposure to information asymmetry (Stolper et al., 2017). In emerging markets where retail participation is increasing these biases can shape market dynamics and exacerbate volatility (Hayat et al., 2016). Understanding how psychological factors interact with investment risk is therefore essential, not only for investors themselves but also for policymakers, financial advisors, and institutions seeking to promote stable and resilient capital markets.

Given these considerations, this study aims to explore the relationship between behavioral biases and investment risk from the perspective of retail investors. By synthesizing empirical insights and theoretical frameworks, the study provides a comprehensive understanding of how cognitive and emotional biases influence risk perceptions and investment behavior in modern financial environments.

2. Literature Review

Behavioral finance literature increasingly shows that retail investors' decisions are systematically shaped by cognitive and emotional biases rather than by fully rational assessments of risk and return. A large body of review work documents how biases such as overconfidence, loss aversion, herding, and heuristic-based judgments lead investors to deviate from normative models of utility maximization and mean variance optimization Grežo (2021), for instance, synthesize more than three decades of research and conclude that these biases affect trading volume, portfolio diversification, and market volatility, with particularly strong effects among individual investors. Similarly, Zahera and Bansal (2018) show that behavioral biases are pervasive across countries and investor types, reinforcing the view that psychological factors are integral to understanding real-world investment behavior.

A first strand of empirical studies focuses on overconfidence as a key driver of excessive risk-taking. Overconfident investors tend to overestimate their informational advantage and predictive ability, which encourages frequent trading and underestimation of downside risk. Evidence from emerging markets indicates that overconfidence significantly influences stock investment decisions: Alquraan et al. (2016) find that overconfidence, together with loss aversion and risk perception, has a significant positive effect on the stock choices of individual investors in the Saudi stock market. In the Indonesian context, Pratiwi and Leon (2019) show that both overconfidence and optimism bias increase the propensity of individual investors to reinvest in equities they expect to perform well, indicating a tendency to ignore unfavorable information and to take on higher investment risk.

Loss aversion the tendency to weigh losses more heavily than equivalent gains also features prominently in the literature as a determinant of risk attitudes and portfolio choices. Studies in emerging markets confirm that investors' reluctance to realize losses can lead to holding losing stocks too long and avoiding new risky positions even when expected returns are attractive. Alquraan et al. (2016) document that loss-averse investors in the Saudi market exhibit stronger reactions to potential losses than to prospective gains, which translates into cautious but often suboptimal investment decisions. In Indonesia, Addinpujoartanto and Darmawan (2020) provide further evidence that loss aversion, together with overconfidence, regret aversion, and herding bias, significantly shapes investment decisions; their findings suggest that these intertwined biases can simultaneously encourage both excessive risk-taking (via overconfidence) and excessive conservatism (via loss and regret aversion), depending on market conditions.

Herding behavior, where investors imitate the actions of others rather than relying on their own information, is another recurring theme in the literature on behavioral biases and investment risk. Prior work finds mixed evidence regarding the impact of herding on individual decision-making. Alquraan et al. (2016) report that, after controlling for other behavioral factors, herding does not significantly affect stock investment decisions in the Saudi market, suggesting that some individual investors still rely on their private assessments. By contrast, Indonesian evidence from Addinpujoartanto and Darmawan (2020) shows that herding bias significantly influences investment choices, indicating that many investors prefer to follow perceived "market leaders" or the majority during periods of uncertainty. These divergent results highlight that the strength and direction of herding effects may depend on market structure, information environments, and investor sophistication.

Beyond single biases, a more recent stream of research emphasizes heuristic-based decision processes such as representativeness and availability as well as the combined effect of multiple biases on investment risk. Khan et al. (2021) analyze Pakistani stock market investors and show that heuristic biases (including representativeness and anchoring) have a significant impact on investment decisions, and that long-term orientation can partially mitigate their negative effects. Sattar et al. (2020) similarly argue that clusters of behavioral biases overconfidence, herding, disposition effect, and mental accounting jointly undermine rational decision making and can expose investors to higher portfolio risk and performance volatility.

Finally, several studies underline the role of financial literacy as a moderating factor that links behavioral biases to investment risk. While biases tend to be more pronounced among less informed investors, higher financial literacy can dampen their adverse impact by improving risk comprehension and information processing. Novianggie and Asandimitra (2019) show that financial literacy moderates the relationship between behavioral, cognitive, and emotional biases and investment decisions among Indonesian college students, indicating that educated investors are better able to recognize and control their own biases. Taken together, these findings suggest that behavioral biases are central to understanding how retail investors perceive and manage investment risk, and that investor education and long-term orientation are crucial levers for reducing the distortive effects of these biases on capital market outcomes.

3. Methods

This study employs a Systematic Literature Review (SLR) to obtain a comprehensive and structured understanding of how behavioral biases influence investment risk among retail investors. The SLR approach is selected because it enables the researcher to synthesize theoretical and empirical findings from a wide range of scholarly works while ensuring transparency, rigor, and replicability in the review process. The research begins by designing a clear strategy for identifying relevant studies. A systematic search is conducted using combinations of keywords such as behavioral finance, behavioral biases, overconfidence, loss aversion, herding behavior, heuristic biases, investment decision, and investment risk. These keywords are applied through logical operators to capture various conceptual and empirical discussions related to the topic.

The collected literature is then screened carefully through an examination of titles, abstracts, and core content to determine its relevance to the relationship between behavioral biases and investment risk. Only studies that directly address individual or retail investors and discuss behavioral factors affecting investment decisions are included, while works that fall outside the scope of behavioral finance or unrelated domains are excluded. After the screening stage, each selected publication is analyzed in depth, and essential information is extracted, including types of behavioral biases studied, their mechanisms of influence on risk-taking, contextual factors such as market environment, and key conclusions drawn by the authors.

The extracted data is synthesized through thematic analysis, an approach that allows the identification of recurring patterns and major themes across the literature. This thematic synthesis highlights the dominant behavioral biases that shape investor behavior such as overconfidence, loss aversion, herding tendencies, and heuristic-driven judgments as well as the moderating role of financial literacy in reducing the impact of these biases. Through this structured and iterative process, the SLR method provides an integrated and holistic perspective on how cognitive and emotional factors affect risk perception and investment outcomes. To ensure the credibility of the review, each step of the SLR process is carried out systematically, allowing the findings to be reliable, traceable, and replicable for future research.

4. Results and Discussion

The findings of this systematic literature review reveal that behavioral biases consistently play a central role in shaping investment risk among retail investors, reaffirming the foundational arguments of behavioral finance theory. The literature shows that retail investors frequently deviate from rational decision-making due to cognitive and emotional distortions, as originally conceptualized. Across the studies reviewed, overconfidence emerges as one of the most dominant and influential biases. Evidence indicates that overconfident investors tend to overestimate their abilities and informational advantages, leading them to engage in excessive trading and underestimate risk exposure, as suggested by Glaser et al. (2019). Empirical studies further support this pattern: Alquraan et al. (2016) demonstrate that overconfidence significantly increases risk-taking tendencies in the Saudi stock market, while Pratiwi and Leon (2019) confirm similar effects in Indonesia, where optimistic and overconfident investors reinvest aggressively despite unfavorable signals.

The review also finds strong and consistent evidence for the influence of loss aversion on investment risk. In line with behavioral theory that individuals feel losses more intensely than equivalent gains, studies show that loss-averse investors prefer to avoid realizing losses even when doing so leads to suboptimal outcomes. Alquraan et al. (2016) provide clear support for this mechanism, showing that loss-averse investors in emerging markets often maintain losing positions longer than is rationally optimal. This result is echoed by Addinpujoartanto and Darmawan (2020), who find that Indonesian investors subject to loss aversion, regret aversion, and overconfidence exhibit conflicting patterns of risk-taking alternating between excessive conservatism and overly risky behavior depending on their emotional response to market conditions.

The role of herding behavior also appears prominently in the findings, though the evidence varies across markets. Herding is often amplified during periods of uncertainty, as predicted by the broader behavioral finance framework. However, empirical outcomes differ: Alquraan et al. (2016) report that herding is not a significant determinant of investment decisions in the Saudi market, suggesting that some investors maintain reliance on personal analysis. In contrast, Addinpujoartanto and Darmawan (2020) present strong evidence that herding significantly shapes investment choices in Indonesia, where retail investors tend to follow the majority or perceived market leaders. These contrasting results highlight that herding may depend heavily on cultural, informational, and market structure differences, reinforcing the idea that behavioral responses are context-dependent.

Beyond individual biases, the review identifies that heuristic-based decision-making including representativeness, anchoring, and availability heuristics also contributes meaningfully to risk misperception. Khan et al. (2021) demonstrate that heuristic biases significantly influence investment decisions in Pakistan, but that long-term orientation can reduce their negative effects. Similarly, Sattar et al. (2020) argue that clusters of behavioral biases including overconfidence, herding, the disposition effect, and mental accounting act simultaneously to undermine rationality and elevate investment risk. This suggests that behavioral distortions rarely operate in isolation; instead, they interact in complex ways that compound risk exposure for retail investors.

Another important result concerns the moderating role of financial literacy, which is consistently identified as a protective factor against the adverse effects of behavioral biases. Stolper et al. (2017) emphasize that limited financial literacy increases susceptibility to psychological distortions, especially among retail investors facing information asymmetry. Complementing this, Novianggie and Asandimitra (2019) show that individuals with higher financial literacy are better able to control emotional and cognitive biases, allowing them to make more informed and rational investment decisions. These findings collectively highlight that the relationship between behavioral biases and investment risk is not fixed; it can be mitigated through improved knowledge, investor education, and structured financial guidance.

Overall, the results of this review illustrate that behavioral biases specifically overconfidence, loss aversion, herding, and heuristic responses substantially influence retail investors' risk-taking behavior, often leading to deviations from optimal financial decisions. These findings align with the early conceptualizations of Barberis (2018), Cao et al. (2021), and others who emphasize the psychological foundations of investment behavior. At the same time, the review underscores the importance of contextual factors such as market structure, investor sophistication, and financial literacy in shaping how these biases manifest across different environments. The discussion thus reinforces the need for policymakers, financial advisors, and educators to incorporate behavioral insights into investment programs to reduce the harmful impacts of biased decision-making and to promote more stable and resilient financial markets.

5. Conclusion

This study concludes that behavioral biases play a critical and consistent role in shaping how retail investors perceive and manage investment risk. The evidence synthesized through the Systematic Literature Review demonstrates that investors rarely make decisions based solely on rational evaluations; instead, their choices are strongly influenced by cognitive and emotional distortions such as overconfidence, loss aversion, herding behavior, and heuristic-driven judgments. Overconfidence encourages excessive risk-taking, while loss aversion often leads to overly cautious or emotionally driven reactions to market fluctuations, as highlighted by studies across emerging markets. Herding behavior further contributes to market volatility, with its influence varying across different financial environments, reflecting differences in information structures and investor sophistication.

The findings also show that behavioral biases rarely operate in isolation but interact in complex ways that can either amplify or counteract each other. These interactions can result in inconsistent risk-taking patterns, particularly among retail investors who possess lower financial literacy or face significant information asymmetry. Importantly, the review underscores that financial literacy serves as a key moderating factor that can reduce the negative effects of these biases by improving risk comprehension and decision-making quality.

Taken together, this study emphasizes that understanding the psychological drivers of investment behavior is essential for developing more effective financial education programs, advisory strategies, and policy interventions aimed at stabilizing capital markets. By acknowledging the persistent influence of behavioral biases, stakeholders including regulators, financial institutions, and educators can design initiatives that align more closely with real-world investor behavior rather than idealized rational models. Ultimately, promoting financial literacy, improving access to reliable information, and incorporating behavioral insights into investment guidance are crucial steps toward reducing biased decision-making and supporting more resilient and informed retail investors in modern financial markets.

References

Addinpujoartanto, N. A., & Darmawan, S. (2020). Pengaruh Overconfidence, Regret Aversion, Loss Aversion, dan Herding Bias terhadap Keputusan Investasi di Indonesia. *Jurnal Riset Ekonomi dan Bisnis*, 13(3), 175–187.

Alquraan, T., Alqisie, A., & Al Shorafa, A. (2016). Do behavioral finance factors influence stock investment decisions of individual investors? (Evidences from Saudi Stock Market). *Journal of American Science*, 12(9), 72–82.

Barberis, N. (2018). Psychology-based models of asset prices and trading volume. In *Handbook of Behavioral Economics: Applications and Foundations 1* (Vol. 1, pp. 79–175). North-Holland.

CAO, M. M., Nguyen, N. T., & Thanh-Tuyen, T. R. A. N. (2021). Behavioral factors on individual investors' decision making and investment performance: A survey from the Vietnam Stock Market. *The Journal of Asian Finance, Economics and Business (JAFEB)*, *8*(3), 845-853.

Glaser, M., Iliewa, Z., & Weber, M. (2019). Thinking about prices versus thinking about returns in financial markets. *The Journal of Finance*, *74*(6), 2997-3039.

Grežo, M. (2021). Overconfidence and financial decision-making: a meta-analysis. *Review of Behavioral Finance*, *13*(3), 276-296.

Hayat, A., & Anwar, M. (2016). Impact of behavioral biases on investment decision; moderating role of financial literacy. *Moderating Role of Financial Literacy*.

Khan, I., Afeef, M., Jan, S., & Ihsan, A. (2021). The impact of heuristic biases on investors' investment decision in Pakistan stock market: Moderating role of long term orientation. *Qualitative Research in Financial Markets*, 13(2), 252–274.

Kiymaz, H., Öztürkkal, B., & Akkemik, K. A. (2016). Behavioral biases of finance professionals: Turkish evidence. *Journal of Behavioral and Experimental Finance*, 12, 101–111.

Novianggie, V., & Asandimitra, N. (2019). The influence of behavioral bias, cognitive bias, and emotional bias on investment decision for college students with financial literacy as the moderating variable. *International Journal of Academic Research in Accounting, Finance and Management Sciences*, 9(2), 92–107.

Pratiwi, R. R., & Leon, F. M. (2019). The impact of overconfidence and optimism on investment decision on individual investor in Indonesia. *Jurnal Akuntansi*.

Sattar, M. A., Toseef, M., & Sattar, M. F. (2020). Behavioral finance biases in investment decision making. *International Journal of Accounting, Finance and Risk Management*, 5(2), 69.

Stolper, O. A., & Walter, A. (2017). Financial literacy, financial advice, and financial behavior. *Journal of business economics*, *87*(5), 581-643.

Zahera, S. A., & Bansal, R. (2018). Do investors exhibit behavioral biases in investment decision making? A systematic review. *Qualitative Research in Financial Markets*, 10(2), 210–251.