

Determinants of Investment Decision-Making Among Investors in Sabah

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ABSTRACT

Retail investor participation in Sabah has grown across Baby Boomers, Generation X, and Millennials, yet capital market involvement remains relatively low compared with the state population. Investment decisions in this context are often made under uncertainty, where limited information, market volatility, emotions, and social influence may affect investor judgment. Existing behavioural finance studies have widely examined behavioural biases and investment decision-making, but many treat loss aversion, overconfidence, herding, and risk perception as separate factors. This limits understanding of how behavioural biases influence investment decisions through investors' perception of risk. Therefore, this study examines the influence of loss aversion, overconfidence, and herding on investment decision-making among retail investors in Sabah. It further investigates risk perception as a mediating mechanism in the relationship between behavioural biases and investment decision-making. A quantitative cross-sectional design was used, and data were collected through an online questionnaire from 160 retail investors in Kota Kinabalu, Sandakan, and Tawau using purposive and snowball sampling. The data were analysed using Partial Least Squares Structural Equation Modeling through SmartPLS 4.1.1.7. The findings show that loss aversion and overconfidence do not significantly influence investment decision-making directly, while herding has a significant positive effect, although the direction differs from the hypothesised relationship. All three behavioural biases significantly influence risk perception, and risk perception significantly predicts investment decision-making. The mediation results confirm that risk perception mediates the relationships between loss aversion, overconfidence, herding, and investment decision-making. This study contributes to behavioural finance by showing that behavioural biases shape investment decisions primarily through risk perception. The findings also offer practical insight for investor education, financial institutions, and policy initiatives aimed at improving investment decision quality in Sabah.

Keywords: Investment Decision-Making, Behavioural Biases, Prospect Theory, Social Learning Theory, Sabah

INTRODUCTION

Sabah presents a clear participation gap in capital markets. Despite a population exceeding three million, only about 30,000 individuals hold Central Depository System accounts, or roughly 1% of the population (Bursa Malaysia, 2024). This low participation persists alongside the expansion of digital trading platforms and financial products. At the same time, investors face rapid information flows and volatile conditions, which increase decision complexity under uncertainty (Kumar & Goyal, 2016). This raises a central question. Why do retail investors in Sabah make suboptimal or inconsistent investment decisions under similar market conditions? Traditional finance assumes that investors act rationally based on complete information. However, behavioral finance shows that actual decisions reflect cognitive biases and subjective judgment, especially when information is incomplete and time is limited (Kahneman & Tversky, 1979; Haidari, 2023).

Prior studies identify key behavioral drivers, including loss aversion, overconfidence, and herding, alongside risk perception. Yet, existing models often examine these factors in isolation. This limits the ability to explain how biases translate into actual decision outcomes. In addition, empirical evidence remains limited in Sabah, and generational differences in behavior are not well established (Yanti & Endri, 2024; Hashim et al., 2026).

This study addresses these gaps by examining the direct effects of loss aversion, overconfidence, and herding on investment decision-making. It further tests risk perception as a mediating mechanism that links behavioral biases to decisions. The analysis incorporates generational cohorts, namely Baby Boomers, Generation X, and Millennials, to capture variation in decision patterns across age groups.

PROBLEM STATEMENT

Although access to investment products and digital trading platforms has increased, capital market participation in Sabah remains low. Despite having a population of more than three million, only about 30,000 individuals hold Central Depository System accounts, representing approximately 1% of the population (Bursa Malaysia, 2024). This shows a clear participation gap and highlights the need to understand how retail investors in Sabah make investment decisions, especially under uncertain market conditions, rapid information flows, and limited information. In such situations, investors may not depend only on rational evaluation, but may also be influenced by behavioural biases such as loss aversion, overconfidence, and herding.

However, many previous studies examine behavioural biases, risk perception, and investment decision-making separately. This limits the understanding of how behavioural biases influence investment decisions through investors' perception of risk. In addition, empirical evidence on retail investors in Sabah remains limited, particularly across Baby Boomers, Generation X, and Millennials. Therefore, this study examines the influence of loss aversion, overconfidence, and herding on investment decision-making among retail investors in Sabah, with risk perception as the mediating mechanism.

RESEARCH OBJECTIVES

The main objective of this study is to examine the determinants of investment decision-making among retail investors in Sabah by focusing on behavioural biases and risk perception. Specifically, this study aims:

1. To examine the relationship between loss aversion and investment decision-making among retail investors in Sabah.
2. To examine the relationship between overconfidence and investment decision-making among retail investors in Sabah.
3. To examine the relationship between herding and investment decision-making among retail investors in Sabah.
4. To examine the mediating role of behavioral biases in the relationship between loss aversion and investment decision-making.
5. To examine the mediating role of risk perception in the relationship between overconfidence and investment decision-making.
6. To examine the mediating role of risk perception in the relationship between herding and investment decision-making.

LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

Prospect Theory

Prospect Theory explains decision-making under uncertainty through reference dependence and asymmetric evaluation of gains and losses. Loss aversion leads investors to overweight potential losses, which shapes cautious or delayed decisions. At the same time, overconfidence distorts judgment by inflating belief in one's knowledge and control, often reducing sensitivity to risk. These mechanisms influence how investors process uncertainty and form risk perception as a cognitive filter for decision-making.

Empirical evidence shows consistent effects of loss aversion on conservative behaviour and disposition patterns,

while overconfidence often drives excessive trading and risk-taking. However, findings remain mixed across contexts, particularly across investor groups and market conditions. Some studies report weak or insignificant effects, suggesting that behavioural biases do not translate uniformly into decision outcomes. This inconsistency indicates that underlying cognitive mechanisms, such as risk perception, play a critical role in shaping the final decision.

Social Learning Theory

Social Learning Theory explains behaviour through observational learning and interaction. In financial markets, this process manifests as herding, where investors rely on the actions of others when facing uncertainty. Herding reflects the use of social information as a shortcut to interpret complex market signals.

Empirical findings show that herding intensifies under uncertainty and can lead to correlated trading behaviour. However, its effect on decision-making is inconsistent. Some evidence links herding to reduced decision quality, while other findings suggest it may improve decisions when collective information is informative. These mixed results indicate that herding operates through perceptual mechanisms rather than direct behavioural effects alone.

Hypotheses Development

Behavioural biases shape investment decisions through both direct and indirect pathways. Loss aversion is expected to reduce investment engagement due to heightened sensitivity to losses. Overconfidence is expected to increase participation but may lead to suboptimal decisions due to underestimated risk. Herding is expected to influence decisions through reliance on social cues, particularly under uncertainty.

Risk perception functions as the mechanism that translates these biases into action. Loss aversion increases perceived risk, overconfidence reduces it, and herding adjusts it based on group behaviour. This positions risk perception as a mediating pathway between behavioural biases and investment decision-making.

H1: Loss aversion has a negative relationship with investment decision-making.

H2: Overconfidence has a significant relationship with investment decision-making.

H3: Herding has a significant relationship with investment decision-making.

H4: Risk perception mediates the relationship between loss aversion and investment decision-making.

H5: Risk perception mediates the relationship between overconfidence and investment decision-making.

H6: Risk perception mediates the relationship between herding and investment decision-making.

METHODOLOGY

This study adopted a positivist, quantitative design and employed a cross-sectional survey. The target respondents were retail investors in Sabah, specifically in Kota Kinabalu, Sandakan, and Tawau. Data were collected through a structured questionnaire administered via Google Forms and distributed through social media platforms and investor networks. Non-probability purposive and snowball sampling were applied because no comprehensive sampling frame of retail investors in Sabah was available. GPower indicated a minimum sample size of 138, and the final sample comprised 160 valid responses.

All constructs were measured using established multi-item instruments on a five-point Likert scale. The focal constructs were investment decision-making, loss aversion, overconfidence, herding, and risk perception. Data screening covered missing values, inconsistencies, outliers, and multivariate normality. As the data violated normality assumptions, analysis was conducted using PLS-SEM in SmartPLS, supported by SPSS for preliminary analysis. PLS-SEM was appropriate for estimating complex relationships under non-normal conditions. Statistical significance was assessed through bootstrapping at the 0.05 level.

FINDINGS

Respondent Profile

The final sample comprised 160 respondents and was relatively balanced by gender, with 53.75% male and 46.25% female. The sample was concentrated in the 29 to 44 age group (54.37%), with Kota Kinabalu contributing the largest share (41.25%), followed by Sandakan (31.87%) and Tawau (26.88%). Most respondents held a bachelor's degree (45.62%), worked in the private sector (41.88%), and reported income of RM5,249 and below (64.38%). Investment experience was generally limited, with 45.00% reporting two years or less, and monthly investing was the dominant pattern (52.50%).

Measurement Model Assessment

The measurement model demonstrated acceptable quality. Outer loadings ranged from 0.529 to 0.896 after deleting LAB4 and RP6 due to low loadings. Cronbach's alpha ranged from 0.797 to 0.879, composite reliability ranged from 0.862 to 0.909, and AVE ranged from 0.559 to 0.669, supporting internal consistency and convergent validity. Discriminant validity was also adequate, as all HTMT values were below 0.85 and all bootstrapped confidence intervals remained below 1.00. Collinearity was not a concern, with VIF values ranging from 1.257 to 2.194.

Structural Model Assessment

The direct effects on investment decision-making were mixed. Loss aversion did not predict investment decision-making ($\beta = -0.005$, $p = 0.940$), and overconfidence was also non-significant ($\beta = -0.038$, $p = 0.545$). Herding showed a positive and significant effect ($\beta = 0.143$, $p = 0.023$), but the direction was opposite to the hypothesised relationship and therefore remained unsupported. In contrast, all three behavioural biases significantly predicted risk perception, namely loss aversion ($\beta = 0.299$, $p < 0.001$), overconfidence ($\beta = 0.249$, $p < 0.001$), and herding ($\beta = 0.332$, $p < 0.001$), while risk perception significantly predicted investment decision-making ($\beta = 0.302$, $p < 0.001$). Effect sizes were small to modest, with the largest effects observed for herding on risk perception ($f^2 = 0.142$), risk perception on investment decision-making ($f^2 = 0.133$), and loss aversion on risk perception ($f^2 = 0.132$).

Mediation Analysis

Risk perception significantly mediated all three indirect relationships. The indirect effect of loss aversion on investment decision-making through risk perception was significant ($\beta = 0.090$, $p = 0.022$, 95% CI [0.031, 0.183]) and indicated partial mediation. Overconfidence also showed a significant indirect effect ($\beta = 0.075$, $p = 0.006$, 95% CI [0.032, 0.139]), indicating full mediation, while herding produced a significant indirect effect ($\beta = 0.100$, $p = 0.007$, 95% CI [0.043, 0.183]), also indicating full mediation. These findings position risk perception as the primary mechanism through which behavioural biases translate into investment decision-making.

DISCUSSION

Behavioural biases did not exert uniform direct effects on investment decision-making. Risk perception emerged as the central mechanism, while herding was the only bias with a significant direct effect. This pattern shifts attention from assumptions of direct bias-to-action links to the way investors interpret uncertainty before acting.

Loss aversion did not directly influence investment decision-making, despite its negative sign. Within Prospect Theory, loss aversion shapes how investors frame potential outcomes rather than mechanically suppressing action. Loss-sensitive investors may remain active, but through cautious evaluation, monitoring, and risk appraisal. Overconfidence was also non-significant. In this setting, self-reported overconfidence may capture perceived competence rather than observable miscalibration, which helps explain why prior studies report inconsistent direct effects across contexts and measurement designs.

Herding showed a significant positive effect, but opposite to the hypothesised direction. This does not imply better decision quality. It indicates that reliance on social cues may increase investment engagement under uncertainty. Social Learning Theory explains this pattern by viewing others' actions as informational shortcuts that reduce ambiguity and keep investors active, although the practical effect remains small.

The mediation results provide the clearest explanation. Risk perception transmitted the effects of loss aversion, overconfidence, and herding to investment decision-making, showing that behavioural biases operate by shaping how uncertainty is interpreted. In emerging settings such as Sabah, investor behaviour appears less driven by isolated biases than by the cognitive and social processes through which risk is perceived and acted upon. This mechanism-based framing offers a more precise explanation of mixed evidence.

IMPLICATIONS

The findings favor a mechanism-based view of investment decision-making in Sabah. Behavioral biases did not operate as stable direct predictors. Instead, risk perception emerged as the main channel through which loss aversion, overconfidence, and herding shaped decision behavior, while financial literacy reduced the extent to which perceived risk translated into reactive decisions. This pattern refines behavioral finance by showing that investor action depends less on isolated biases than on how uncertainty is interpreted and regulated.

This sharper framing also clarifies how Prospect Theory and Social Learning Theory travel into retail investment settings. Prospect Theory is more informative here when read as a process of risk framing rather than as a direct script for action, since loss aversion worked through risk appraisal rather than through a direct behavioral effect. Social Learning Theory also becomes more precise when herding is treated as a social information mechanism that can increase decision engagement without necessarily improving decision quality. The mixed direct effects therefore caution against assuming that bias effects will remain stable across contexts, samples, or dependent variable specifications. They also reinforce the value of integrating cognitive and social mechanisms in one explanatory framework.

The results carry an important methodological implication. Testing mediation explicitly is essential because direct paths alone would have understated how behavioral biases influence investment decision-making. The pattern also highlights measurement sensitivity. When investment decision-making is captured through self-reported practices such as research, monitoring, and diversification, the construct may reflect decision engagement more than decision error. That distinction matters for interpreting positive herding effects and non-significant direct effects for loss aversion and overconfidence.

For practice, the evidence points to risk appraisal and capability building rather than simple bias awareness campaigns. Investors need stronger tools for interpreting volatility, downside exposure, and social market signals. Financial institutions should improve risk communication, reduce information ambiguity, and embed investor education into onboarding and advisory processes. Regulators should design segment-sensitive financial literacy programs and monitor herding-prone environments more closely, especially in emerging markets such as Sabah where information access, market maturity, and investor capability vary substantially.

CONCLUSION

This empirical paper reports the core mechanism of the study and shows that loss aversion, overconfidence, and herding do not exert uniform direct effects on investment decision-making among retail investors in Sabah. Instead, risk perception emerges as the main mediating mechanism, while herding is the only bias with a significant direct effect, although the direction is opposite to the hypothesised relationship. The findings therefore support a mechanism-based explanation of investor behaviour and confirm that investment decision-making can be explained through the integration of Prospect Theory and Social Learning Theory.

REFERENCES

1. Adielyani, D., & Mawardi, W. (2020). The Influence of Overconfidence, Herding Behavior, and Risk Tolerance on Stock Investment Decisions: The Empirical Study of Millennial Investors in Semarang City.

2. Adil, M., Singh, Y., & Ansari, M. S. (2022). How financial literacy moderate the association between behaviour biases and investment decision?
3. Ahmed, Z., Shahid, R., Qasim, S., Khan, M. A., & Shamsa, K. (2022). Mediating role of risk perception between behavioral biases and Investor's investment decisions.
4. Amgain, P. N. (2024). Behavioral Biases and Investment Decision: A Systematic Literature Review.
5. Anifa, A. S., & Soegiharto, S. (2023). Does the psychology of investment decisions depend on risk perception and financial literacy?
6. Annamalah, S., Raman, M., Marthandan, G., & Logeswaran, A. K. (2019). An empirical study on the determinants of an investor's decision in unit trust investment.
7. Bakar, S., & Yi, A. N. C. (2016). The impact of psychological factors on investors' decision making in Malaysian stock market: a case of Klang Valley and Pahang.
8. Baker, H. K., Kumar, S., & Goyal, N. (2021). Personality traits and investor sentiment. *Review of Behavioral Finance*, 13(4), 354-369. <https://doi.org/10.1108/RBF-08-2017-0077>
9. Bashar Yaser Almansour, Sabri Elkrghli, Ammar Yaser Almansour. (2023). Behavioral finance factors and investment decisions: A mediating role of risk perception.
10. Bursa Malaysia. (2021). Retail investor participation report. Bursa Malaysia Berhad.
11. Bursa Malaysia. (2023). Annual retail trading report. Retrieved from Bursa Malaysia official website.
12. Bursa Malaysia. (2024). Malaysian retail investor insights. Bursa Malaysia.
13. Devadas, M., & Vijayakumar, T. (2019). Investment decisions, herd behaviour and retail investors.
14. Fatma Satyani. (2024). The influence of financial literacy, herding and overconfidence on investment decision making among indonesian gen z.
15. Haidari, M. N. (2023). Impact of decision-making on investment performance: A comprehensive analysis. *Journal of Asian Development Studies*, 12(4), 980–990. <https://doi.org/10.62345/jads.2023.12.4.78>
16. Haritha, P., & Uchil, R. (2024). An empirical analysis of social and market dynamics influencing investment decision making of equity investors in India.
17. Hoffmann, A. O. I., Post, T., & Pennings, J. M. E. (2015). How investor perceptions drive actual trading and risk-taking behavior.
18. Joharudin, A. (2023). Understanding the nexus of financial literacy and behavioral biases in investment decisions.
19. Kahneman, D., & Tversky, A. (1979). Prospect theory: An analysis of decision under risk. *Econometrica*, 47(2), 263–291. <https://doi.org/10.2307/1914185>
20. Kartini, K., & Nahda, K. (2021). Behavioral biases on investment decision: A case study in Indonesia.
21. Kumar, S., & Goyal, N. (2016). Evidence on rationality and behavioural biases in investment decision making. *Qualitative Research in Financial Markets*, 8(4), 270–287. <https://doi.org/10.1108/QRFM-05-2016-0016>
22. Liang, P., & Guo, S. (2015). Social interaction, Internet access, and stock market participation: An empirical study in China.
23. Loh, T. C. (2016). The Influence of Behavioral Factors on Investment Decisions: Study of Millennial Investors in Kuala Lumpur.
24. Lusardi, A., & Mitchell, O. S. (2014). The economic importance of financial literacy: Theory and evidence.
25. Mahendra, R., Prayudi, N., & Purwanto, E. (2023). The Impact of Financial Literacy, Overconfidence Bias, Herding Bias and Loss Aversion Bias on Investment Decision.
26. Othman, F., Ismail, S., & Bakar, M. H. (2024). Unlocking the Psychology of Retail Investor Decision-Making: An Exploratory Factor Analysis in Malaysia.
27. Palash, B., & Anindita, C. (2021). Influence of risk perception on retail investors' decision making.
28. Pandey, S., & Devi, K. N. (2024). Behavioral Biases and Decision-Making in Investment among working individuals in the education sector.
29. Paul, H. I. S., & Sundaram, N. (2023). Behavioral Biases and their Influence on Investment Decision-Making: A Systematic Literature Review and Future Research Agenda.
30. Puaschunder, J. M. (2018). Nudgitize Me! A Behavioral Finance Approach to Minimize Losses and Maximize Profits from Heuristics and Biases. *International Journal of Management Excellence*, 10(2), 1241-1256. <https://doi.org/10.17722/ijme.v10i2.957>
31. Rahman, M., & Gan, S. S. (2020). Generation Y investment decision: An analysis using behavioural factors. *Managerial Finance*, 46(8), 1023-1041. <https://doi.org/10.1108/MF-10-2018-0534>

32. Sabri, N. A. A. (2016). The Relationship between the Level of Financial Literacy and Investment Decision-Making Millennials in Malaysia.
33. Sarwar, A., & Afaf, G. (2016). A comparison between psychological and economic factors affecting individual investor's decision-making behavior. *Cogent Business & Management*, 3(1), 1232907. <https://doi.org/10.1080/23311975.2016.1232907>
34. Sathya, N., & Gayathiri, R. (2024). Behavioral Biases in Investment Decisions: An Extensive Literature Review and Pathways for Future Research.
35. Sharma, M., Damseth, A., & Shyam, I. (2024). Financial Literacy and Investment Decisions among Youth: An Analysis Using Prism of Age.
36. Tamara, D., Suhardiman, S., Rustam, S. S., & Kurniawan, B. (2022). Indonesian millennial generations' financial literacy in relation to its behavior in investment decision.
37. Wei Liang, K., Kar Jun, D., & Kumar, R. (2023). Determinants of Stock Investment Decision Among Malaysian Youth.
38. Yanti, F., & Endri, E. (2024). Financial behavior, overconfidence, risk perception, and investment decisions: The mediating role of financial literacy. *International Journal of Economics and Financial Issues*, 14(5), 289–298. <https://doi.org/10.32479/ijefi.16811>
39. Yuana, P., Kornitasari, Y., & Manzilati, A. (2024). The behavioral biases on investment decision behavior: Evidence from Indonesia.
40. Zahri, F. A., & Badaruddin, R. F. R. (2024). Demographic determinants of Amanah Saham Bumiputera (ASB) investment choices among Muslim investors in Kelantan, Malaysia.
41. Zakaria, Z., Maisarah, S., Nor, M., & Ismail, M. R. (2017). Financial Literacy and Risk Tolerance towards Saving and Investment: A Case Study in Malaysia.