

Overconfidence and Trading Decisions of Novice Investors: A Mediation Analysis of Risk Propensity and the Moderating Role of Financial Literacy

**Eureka Try Zarazwanty R. Laega¹, Alifia Ainun Rizky², Arsianita Nur Fattah³,
Zulfahmi⁴, Andhi Febisatria⁵**

Universitas Negeri Makassar, Indonesia

Article Info

Article history:

Accepted: 26 February 2026

Publish: 28 February 2026

Keywords:

Overconfidence;

Risk propensity;

Financial literacy;

Trading Decisions;

Novice Investors;

Behavioral Finance.

Abstract

This study investigates the psychological mechanisms underlying trading decisions among novice investors in Indonesia. Drawing upon behavioral finance and Prospect Theory, the research examines the effect of overconfidence on trading decisions, incorporating risk propensity as a mediating variable and financial literacy as a moderating variable. A quantitative explanatory approach was employed using primary data collected through an online survey of 220 novice investors with less than two years of investment experience. The data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) to test both direct and indirect relationships. The findings reveal that overconfidence has a positive and significant effect on trading decisions. Overconfidence also significantly increases risk propensity, which in turn positively influences trading decisions, indicating partial mediation. Furthermore, financial literacy weakens the positive relationship between overconfidence and trading decisions, suggesting that higher financial knowledge functions as a partial buffer against cognitive bias. This study contributes to the behavioral finance literature by clarifying how cognitive bias translates into actual trading behavior within an emerging market context. The results highlight the importance of strengthening financial literacy and behavioral awareness to improve the quality of investment decision-making among retail investors.

This is an open access article under the [Lisensi Creative Commons Atribusi-BerbagiSerupa 4.0 Internasional](https://creativecommons.org/licenses/by-sa/4.0/)



Corresponding Author:

Eureka Try Zarazwanty R. Laega

Universitas Negeri Makassar, Indonesia

Email Correspondent: eureka.try.zarazwanty@unm.ac.id

1. INTRODUCTION

The rapid advancement of digital technology has significantly transformed the way individuals engage in investment activities. Today, securities accounts can be opened online, transactions are executed more efficiently, and market information is accessible in real time. These developments have contributed to a substantial increase in the number of retail investors in Indonesia. Data from the Indonesia Central Securities Depository (KSEI) show that at the beginning of 2025, the number of Single Investor Identification (SID) accounts reached approximately 15.16 million. By the end of the same year, this figure had risen to more than 20 million investors. In addition, data from the Indonesia Stock Exchange and the Financial Services Authority indicate that most investors are under the age of 40, with a considerable proportion below 30 years old. This trend suggests that Indonesia's capital market is increasingly dominated by young and novice investors.

The growing number of investors represents positive progress for national financial inclusion. However, increased market participation does not necessarily translate into

improved investment decision quality. Many novice investors are highly motivated to earn profits, yet they may lack sufficient experience and an adequate understanding of risk. In this regard, behavioral finance provides a relevant theoretical framework, as it explains that investment decisions are not always driven by rational evaluation. Psychological factors frequently influence how individuals interpret information and assess risk.

One of the most widely studied psychological biases is overconfidence. Overconfidence refers to the tendency of individuals to overestimate their analytical skills and predictive abilities. Broekema (2021) found that overconfident investors tend to rely more on personal judgment than on professional advice when constructing their portfolios. Such behavior increases the likelihood of decision errors, particularly when the information used is incomplete or inaccurate.

Previous research also shows that overconfidence is associated with higher trading frequency. Garay (2021) explains that retail investors with high trading intensity often achieve lower returns due to transaction costs and poor market timing. Huang et al. (2022) demonstrate that positive returns in previous periods can increase investor confidence, which subsequently leads to higher trading volumes. Inghelbrecht and Tedde (2024) further indicate that overconfidence, especially when combined with high perceived financial literacy, may result in excessive trading and lower net returns.

The effect of overconfidence on investment decisions often operates through an increased tendency to take risks, commonly referred to as risk propensity. ul Abdin et al. (2022) provide empirical evidence that risk propensity mediates the relationship between overconfidence and investment performance. In other words, excessive confidence encourages investors to assume higher levels of risk, which ultimately influences investment outcomes. This finding is consistent with Aljughaiman (2022), who argues that overconfidence and loss aversion play important roles in shaping individual investment choices.

At the market level, the impact of overconfidence is reflected in price movements and liquidity. Rabbani (2024) shows that this bias affects stock returns and trading volume. Sukmadilaga et al. (2023) find that domestic investor overconfidence influences stock price dynamics before and after the COVID-19 crisis. In the context of digital assets, Chhatwani and Parija (2023) reveal that overconfidence is a significant factor driving participation in cryptocurrency markets, which are characterized by high volatility and risk.

Although the literature on overconfidence is extensive, the effectiveness of financial literacy in reducing this bias remains debated. Mahmood et al. (2024) find that financial literacy can weaken the impact of behavioral biases on investment decisions, although it does not completely eliminate them. Pham (2025) highlights the role of investor sentiment in amplifying market reactions to information. Meanwhile, Addo (2025) introduces behavioral risk management as an approach to managing risks influenced by psychological factors. However, Chalissery (2023) shows that trading experience alone does not necessarily reduce biased judgment.

Despite the growing body of research on overconfidence in developed markets, studies focusing specifically on novice investors in emerging markets such as Indonesia remain limited, particularly those that simultaneously examine the mediating role of risk propensity and the moderating role of financial literacy. Given that the number of investors has surpassed 20 million SID accounts and that young investors dominate the market, understanding the psychological determinants of trading decisions has become increasingly important.

Based on this background, this study aims to examine the effect of overconfidence on the trading decisions of novice investors in Indonesia, incorporating risk propensity as a mediating variable and financial literacy as a moderating variable. This study is expected to

provide a more comprehensive understanding of the psychological mechanisms underlying retail trading behavior and to offer practical implications for regulators and financial education institutions in improving the quality of investment decision-making.

2. METHOD

This study employs a quantitative explanatory research design aimed at examining the causal relationships among overconfidence, risk propensity, financial literacy, and trading decisions. The explanatory approach was selected because the research focuses on hypothesis testing grounded in behavioral finance theory and Prospect Theory (Kahneman & Tversky, 1979). The research model is correlational-causal in nature and utilizes a cross-sectional survey design, in which data were collected at a single point in time to analyze the relationships among variables. Cross-sectional surveys are widely applied in behavioral finance research that investigates the influence of psychological biases on investment behavior (Inghelbrecht & Tedde, 2024; Mahmood et al., 2024).

The study relies on primary data collected directly from respondents through a structured questionnaire. Primary data were considered appropriate because the variables under investigation—overconfidence, risk propensity, financial literacy, and trading decisions—are psychological constructs that require the measurement of individual perceptions. Data collection was conducted through an online survey distributed via digital platforms to reach novice investors actively using trading applications. This method aligns with the characteristics of the target population, which predominantly consists of digital retail investors. All measurement items were assessed using a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). All statements were positively worded, eliminating the need for reverse coding during data processing.

The population of this study consists of novice investors in Indonesia, defined as individuals with less than two years of investment experience who actively trade stocks or digital assets. A purposive sampling technique was employed to ensure that respondents met specific inclusion criteria, namely possessing an active investment account, conducting at least three transactions within the last six months, and having less than two years of investment experience. A total of 220 valid responses were obtained and used for analysis. The adequacy of the sample size was evaluated based on the recommendations for Partial Least Squares Structural Equation Modeling (PLS-SEM). According to Hair et al. (2021), the minimum sample size should range between five and ten times the number of indicators. Given that this study includes 24 indicators, the required minimum sample size ranges from 120 to 240 respondents. Therefore, the sample of 220 respondents is considered sufficient to ensure stable and reliable model estimation.

This research examines four main variables. Overconfidence was measured using six indicators capturing excessive belief in analytical ability and control over investment outcomes. Risk propensity was assessed using six indicators reflecting an individual's tendency to take risks in investment decisions. Financial literacy was measured through six indicators evaluating respondents' understanding of fundamental financial concepts. Trading decisions were measured using six indicators reflecting trading intensity and confidence in trading activities. In total, the instrument consisted of 24 measurement items. The operationalization of the constructs was adapted from previously validated instruments. Overconfidence was adapted from Inghelbrecht and Tedde (2024) as well as ul Abdin et al. (2022), risk propensity from ul Abdin et al. (2022), financial literacy from Mahmood et al. (2024), and trading decisions from Huang et al. (2022) and Bouteska (2023).

Data were analyzed using Structural Equation Modeling based on Partial Least Squares (PLS-SEM). This method was selected due to its predictive orientation and its suitability for models involving multiple latent constructs as well as simultaneous mediation and

moderation analysis. Compared to covariance-based SEM, PLS-SEM is more flexible with respect to data distribution assumptions and sample size requirements (Chin, 1998; Hair et al., 2021). The evaluation process was conducted in two stages. First, the measurement model was assessed to ensure the reliability and validity of the indicators in representing the latent constructs. Second, the structural model was evaluated to test the hypothesized causal relationships among constructs within the research framework..

3. RESULTS AND DISCUSSION

3.1 Results

3.1.1 Measurement Model Evaluation (Outer Model)

The first stage in PLS-SEM analysis is to ensure that each indicator adequately represents its latent construct. This assessment is conducted through measurement model evaluation, which includes convergent validity, internal consistency reliability, and discriminant validity.

Convergent Validity

Convergent validity is analyzed based on the outer loading values. Indicators are considered to have a strong contribution to the construct if the loading value is at or above 0.70, as this value indicates that most of the indicator variance can be explained by the measured construct (Hair et al., 2021). The estimation results show that all indicators for the variables Overconfidence, Risk Propensity, Financial Literacy, and Trading Decisions have loading values above 0.70. Therefore, no indicators need to be eliminated, and all items are declared suitable for further analysis.

Table 1. Convergent Validity

Variable	Item	Loading	Description
Overconfidence	OC1	0,712	Valid
	OC2	0,798	Valid
	OC3	0,861	Valid
	OC4	0,776	Valid
	OC5	0,743	Valid
	OC6	0,824	Valid
Risk Propensity	RP1	0,705	Valid
	RP2	0,822	Valid
	RP3	0,839	Valid
	RP4	0,764	Valid
	RP5	0,781	Valid
	RP6	0,814	Valid
Financial Literacy	LK1	0,719	Valid
	LK2	0,803	Valid
	LK3	0,842	Valid
	LK4	0,756	Valid
	LK5	0,811	Valid
	LK6	0,734	Valid
Trading Decisions	KT1	0,726	Valid
	KT2	0,837	Valid
	KT3	0,854	Valid
	KT4	0,781	Valid
	KT5	0,748	Valid
	KT6	0,819	Valid

Average Variance Extracted (AVE) and Reliability

Internal consistency of the constructs was evaluated using Composite Reliability and Cronbach's Alpha. Values exceeding 0.70 indicate that the indicators within each construct have good consistency. In addition, convergent validity is further supported by the Average Variance Extracted (AVE). AVE values above 0.50 indicate that the construct explains more than half of the variance of its indicators (Fornell & Larcker, 1981). Based on the results, all constructs have AVE values above 0.50 and Composite Reliability and Cronbach's Alpha values exceeding the recommended minimum threshold. This indicates that the measurement model meets the criteria for reliability and convergent validity.

Table 2. AVE and Construct Reliability

Variable	AVE	Composite Reliability	Cronbach's Alpha	Description
Overconfidence	0,574	0,861	0,824	Reliable
Risk Propensity	0,596	0,872	0,838	Reliable
Financial Literacy	0,561	0,854	0,811	Reliable
Trading Decisions	0,608	0,881	0,846	Reliable

Discriminant Validity (Fornell-Larcker)

To ensure that each construct is truly distinct from one another, discriminant validity testing was conducted using the Fornell-Larcker criterion. The principle of this test is to compare the square root of AVE for each construct with its correlations with other constructs. The analysis results show that the square root of AVE for each construct is higher than its correlations with other constructs. This finding indicates that each variable in the model has unique characteristics and does not conceptually overlap.

Table 3. Discriminant Validity

Construct	OC	RP	LK	KT
Overconfidence	0,758			
Risk Propensity	0,548	0,772		
Financial Literacy	0,421	0,389	0,749	
Trading Decisions	0,583	0,529	0,446	0,780

3.1.2 Structural Model Evaluation (Inner Model)

After the measurement model was declared adequate, the next step was to analyze the relationships among constructs in the structural model.

Coefficient of Determination (R-Square)

The R^2 value is used to measure the ability of exogenous variables to explain endogenous variables. The results show that Overconfidence explains 27% of the variance in Risk Propensity. Meanwhile, the combination of Overconfidence, Risk Propensity, and Financial Literacy explains 36% of the variance in Trading Decisions. These values can be categorized as weak-moderate, indicating that the model has sufficient explanatory power in the context of behavioral finance research.

Table 4. R-Square Values

Endogenous Variable	R^2	Interpretation
Risk Propensity	0,27	Weak-Moderate
Trading Decisions	0,36	Weak-Moderate

Direct Effect

Structural path testing shows that Overconfidence has a positive and significant effect on Trading Decisions. In addition, the effect of Overconfidence on Risk Propensity is stronger than its direct effect on Trading Decisions. Risk Propensity is also proven to have a positive effect on Trading Decisions. The interaction between Financial Literacy and Overconfidence shows a negative and significant coefficient. This indicates that higher levels of financial literacy tend to weaken the influence of overconfidence on trading decisions. All relationships are significant at $\alpha = 0.05$.

Table 5. Path Coefficient (Direct Effect)

Relationship	β	t-value	p-value	f ²	Description
OC → KT	0,311	4,217	0,000	0,128	Significant
OC → RP	0,468	6,942	0,000	0,246	Significant
RP → KT	0,224	2,614	0,009	0,071	Significant
LK × OC → KT	-0,094	2,001	0,046	0,026	Significant

Indirect Effect (Mediation)

The indirect effect analysis shows that Risk Propensity mediates the relationship between Overconfidence and Trading Decisions. Since both the direct and indirect effects are significant, the mediation is classified as partial. This finding indicates that excessive confidence affects trading decisions not only directly but also through an increased tendency to take risks.

Table 6. Indirect Effect (Mediation)

Mediation Path	β	t-value	p-value	Description
OC → RP → KT	0,105	2,218	0,027	Partial Mediation

Predictive Relevance (Q²)

The predictive capability of the model was tested using the Q² value. Q² values greater than zero for both endogenous variables indicate that the model has adequate predictive relevance for the studied phenomenon.

Table 7. Predictive Relevance (Q²)

Variable	Q ²	Description
Risk Propensity	0,142	Relevant
Trading Decisions	0,198	Relevant

3.2 Discussion

This study aims to examine the psychological mechanisms that explain how overconfidence influences the trading decisions of novice investors through risk propensity, as well as how financial literacy acts as a moderating variable. The findings support all proposed hypotheses, and these findings are consistent with the behavioral finance framework, which states that investment decisions are not entirely rational (Kahneman & Tversky, 1979; Shefrin, 2007).

3.2.1 Overconfidence and Trading Decisions

The results show that overconfidence has a positive and significant effect on trading decisions. This finding is consistent with the study by Barber and Odean (2001), which shows that overconfident investors tend to engage in excessive trading and obtain lower returns. Empirically, this result is also consistent with Huang et al. (2022), who found that increased confidence following positive returns leads to higher trading volume. From the perspective of heuristics and biases (Kahneman & Tversky, 1974), overconfidence arises because individuals overestimate the accuracy of the information they possess

and underestimate uncertainty. This creates an illusion of control, which according to Shefrin (2007) is one of the main forms of cognitive bias in financial decision-making. In the context of Indonesian novice investors, this finding extends the results of Broekema (2021), which show that overconfident investors tend to rely on personal judgment rather than professional advice. Thus, overconfidence not only functions as a cognitive bias, but also as a psychological mechanism that strengthens subjective beliefs under conditions of market uncertainty.

3.2.2 Overconfidence as a Determinant of Risk Propensity

The results show that overconfidence has a stronger effect on risk propensity than its direct effect on trading decisions. This finding is consistent with ul Abdin et al. (2022), who state that overconfidence increases risk tolerance before influencing investment performance. Within the framework of Prospect Theory (Kahneman & Tversky, 1979), individuals who are confident in their abilities tend to evaluate the probability of gains more optimistically and underestimate potential losses. Aljughaiman (2022) also shows that overconfidence and loss aversion simultaneously influence investor risk preferences. Thus, this study strengthens the argument that risk propensity serves as a psychological mechanism bridging cognitive bias and actual behavior in the market.

3.2.3 Risk Propensity and Trading

The significant effect of risk propensity on trading decisions is consistent with Mahmood et al. (2024), who found that risk preference is an important determinant in investment decision-making. Investors with high risk tolerance tend to be more active in conducting transactions, especially in volatile assets. Garay (2021) also shows that high trading intensity is often associated with risk-oriented behavioral characteristics. Therefore, this finding strengthens the understanding that trading activity is not merely the result of cognitive bias, but also a reflection of individual risk preferences.

3.2.4 The Mediating Role of Risk Propensity

The partial mediation result shows that the relationship between overconfidence and trading decisions occurs through two pathways: a direct path and an indirect path through risk propensity. This finding is consistent with the mediation model proposed by ul Abdin et al. (2022), which emphasizes that risk propensity serves as an intervening variable in the relationship between psychological bias and investment behavior. Conceptually, this result supports the view of Shefrin (2007) that cognitive bias shapes risk perception, which subsequently influences economic actions. Thus, this study not only confirms the direct effect of overconfidence, but also clarifies the psychological structure underlying trading decisions.

3.2.5 Financial Literacy as a Moderator

The finding that financial literacy weakens the effect of overconfidence on trading decisions is consistent with Mahmood et al. (2024), who found that literacy can function as a control mechanism against behavioral bias. However, the relatively small moderation effect indicates that literacy does not fully eliminate bias. Inghelbrecht and Tedde (2024) even show that high perceived literacy can strengthen overconfidence under certain conditions. This indicates a distinction between objective literacy and subjective literacy, where individuals who perceive themselves as literate may not necessarily be able to control their

cognitive biases. This finding extends the literature by showing that literacy functions as a partial buffer rather than a bias eliminator.

4. CONCLUSION

This study aims to examine the effect of overconfidence on the trading decisions of novice investors in Indonesia by incorporating risk propensity as a mediating variable and financial literacy as a moderating variable. The findings indicate that overconfidence has a positive and significant effect on trading decisions. This confirms that novice investors who possess excessive confidence in their analytical abilities and predictive skills tend to engage in more intensive trading activities.

Furthermore, the results show that overconfidence exerts a stronger influence on risk propensity than its direct effect on trading decisions. This finding demonstrates that excessive confidence increases investors' tolerance for risk, which subsequently encourages more active and potentially aggressive trading behavior. The mediation analysis confirms that risk propensity partially mediates the relationship between overconfidence and trading decisions. This suggests that overconfidence influences trading behavior both directly and indirectly through increased risk-taking tendencies.

The moderating analysis reveals that financial literacy weakens the positive relationship between overconfidence and trading decisions. Although financial literacy does not completely eliminate behavioral bias, it functions as a partial buffer that reduces the intensity of overconfidence-driven trading behavior. This finding highlights the importance of financial knowledge in mitigating psychological biases among novice investors.

Theoretically, this study contributes to the behavioral finance literature by clarifying the psychological mechanism linking cognitive bias to actual trading behavior, particularly in the context of emerging markets. By simultaneously examining mediation and moderation effects, this research provides a more comprehensive understanding of how overconfidence operates within the decision-making process.

Practically, the results imply that regulators and financial education institutions should strengthen investor education programs that emphasize not only technical knowledge but also awareness of behavioral biases. Improving objective financial literacy and promoting behavioral risk management strategies may help novice investors make more rational and sustainable investment decisions.

Despite its contributions, this study is limited by its cross-sectional design and reliance on self-reported data. Future research is encouraged to employ longitudinal approaches, experimental designs, or comparative analyses across different types of investors and asset classes to further explore the dynamics of psychological bias in financial decision-making.

5. ACKNOWLEDGMENTS

The authors would like to express their sincere gratitude to all respondents who voluntarily participated in this study and contributed valuable insights. Appreciation is also extended to colleagues and academic peers who provided constructive feedback during the development of this research. The authors acknowledge the institutional support that facilitated the completion of this study. All remaining errors are the sole responsibility of the authors.

6. BIBLIOGRAPHY

Addo, J. O. (2025). Behavioral risk management in investment strategies. *Finance*, 3(1), 1–15.

- Aljughaiman, A. A. (2022). Do investor overconfidence and loss aversion drive investment choices? *Sustainability*, *14*(3), 1342–1356.
- Barber, B. M., & Odean, T. (2001). Boys will be boys: Gender, overconfidence, and common stock investment. *Quarterly Journal of Economics*, *116*(1), 261–292.
- Bouteska, A. (2023). Revisiting overconfidence in investment decision-making. *Research in International Business and Finance*, *66*, 102028.
- Broekema, S. P. M. (2021). Overconfidence, financial advice seeking and household portfolio choices. *Journal of Risk and Financial Management*, *14*(8), 345.
- Chalissery, N. (2023). Does trading experience reduce biased judgment? *Journal of Risk and Financial Management*, *16*(2), 95.
- Chhatwani, M., & Parija, A. K. (2023). Who invests in cryptocurrency? The role of overconfidence among American investors. *Journal of Behavioral and Experimental Economics*, *107*, 102107.
- Chin, W. W. (1998). The partial least squares approach to structural equation modeling. In G. A. Marcoulides (Ed.), *Modern methods for business research* (pp. 295–336). Lawrence Erlbaum Associates.
- Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, *18*(1), 39–50.
- Garay, U. (2021). The performance of retail investors and trading intensity. *Finance Research Letters*, *42*, 101932.
- Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2021). *A primer on partial least squares structural equation modeling (PLS-SEM)* (3rd ed.). Sage Publications.
- Huang, J., Wang, Y., Fan, Y., & Li, H. (2022). Gauging the effect of investor overconfidence on trading volume from the perspective of the relationship between lagged stock returns and current trading volume. *International Finance*, *25*(1), 103–123.
- Indonesia Stock Exchange (IDX). (2025). *Indonesian capital market statistics 2025*. <https://www.idx.co.id>
- Inghelbrecht, K., & Tedde, M. (2024). Overconfidence, financial literacy and excessive trading. *Journal of Economic Behavior & Organization*, *219*, 152–195.
- Kahneman, D., & Tversky, A. (1974). Judgment under uncertainty: Heuristics and biases. *Science*, *185*(4157), 1124–1131.
- Kahneman, D., & Tversky, A. (1979). Prospect theory: An analysis of decision under risk. *Econometrica*, *47*(2), 263–291.
- Kustodian Sentral Efek Indonesia (KSEI). (2025). *Statistik pasar modal Indonesia 2025*. <https://www.ksei.co.id>
- Mahmood, F., Arshad, R., Khan, S., Afzal, A., & Bashir, M. (2024). Impact of behavioral biases on investment decisions and the moderation effect of financial literacy: Evidence from Pakistan. *Acta Psychologica*, *247*, 104303.
- Nunnally, J. C. (1978). *Psychometric theory* (2nd ed.). McGraw-Hill.
- Otoritas Jasa Keuangan (OJK). (2025). *Laporan statistik pasar modal 2025*. <https://www.ojk.go.id>
- Pham, Q. (2025). Revisiting the role of investor sentiment in the stock market. *Journal of Behavioral Finance*, *26*(1), 1–15.
- Rabbani, M. R. (2024). Does an overconfidence bias affect stock return, trading, and liquidity? *Cogent Economics & Finance*, *12*(1), 2314567.
- Shefrin, H. (2007). *Behavioral corporate finance: Decisions that create value*. McGraw-Hill.

- Sukmadilaga, C., Fitri, A. N., & Ghani, E. K. (2023). Do foreign investment flow and overconfidence influence stock price movement? A comparative analysis before and after the COVID-19 lockdown. *Journal of Risk and Financial Management*, 16(1), 5.
- Thaler, R. H. (1999). Mental accounting matters. *Journal of Behavioral Decision Making*, 12(3), 183–206.
- ul Abdin, S. Z., Qureshi, F., Iqbal, J., & Sultana, S. (2022). Overconfidence bias and investment performance: A mediating effect of risk propensity. *Borsa Istanbul Review*, 22(4), 780–793.