Studi Akuntansi, Keuangan, dan Manajemen (SAKMAN)
ISSN 2798-0251, Vol 6, No 1, 2026, 53-71 https://doi.org/10.35912/sakman.v6i1.6670

The Determinants of Investment Decision on High-Risk Asset: A Cross-Generational Perspective

Isnaini Nuzula Agustin[1*], Jefri Ariffendi[2], Novita Ratna Satiti[3], Ria Karina[4]
Universitas Internasional Batam, Batam, Indonesia[1,2,4]
Universitas Muhammadyah Malang, Malang, Indonesia[3]
isnaini.nuzula@uib.ac.id[1*], 24.jefri@uib.edu[2], satiti@umm.ac.id[3], ria@uib.ac.id[4]

Article History
Received on 22 May 2026
1st Revised on 04 June 2026
2nd Revised on 05 June 2026
3rd Revised on 08 June 2026
Accepted on 09 June 2026

Abstract
Purpose: This study investigates the determinants of investment decisions in high-risk assets across generational cohorts in Indonesia, focusing on the roles of overconfidence and gambler's fallacy.
Methodology: Using survey data from 340 individual investors, Partial Least Squares-Structural Equation Modeling (PLS-SEM) was employed to examine direct and mediating relationships, including cross-generational comparisons.
Results: The results indicate that overconfidence and gambler's fallacy significantly increase risk propensity while reducing financial literacy, both of which subsequently influence investment decisions. Risk propensity serves as a positive mediator, whereas financial literacy functions as a negative mediator, suggesting that cognitive biases may weaken the rational application of financial knowledge to gambling decisions. Cross-generational differences were also observed, with varying relationship strengths across the age groups.
Conclusions: This study concludes that behavioral biases are critical determinants of investment decisions in high-risk assets among Indonesian investors, whereby younger generations tend to be more influenced by heuristic-driven biases in digital investment environments, whereas older generations display more experience-based decision patterns.
Limitations: This study is limited by its focus on Indonesian investors, which may reduce generalizability across broader contexts, and its reliance on self-reported data and cross-sectional design.
Contributions: By integrating Prospect Theory, the Theory of Planned Behavior, and Human Capital Theory in an emerging market context, this study contributes to the behavioral finance literature by identifying the dual and asymmetric mediating roles of risk propensity and financial literacy in shaping investment decisions across generations.

Keywords: *Financial Literacy, Gambler's Fallacy, Investment Decision, Overconfidence, Risk Propensity*

How to Cite: Agustin, I. N., Ariffendi, J., Satiti, N. R., Karina, R. (2026). The Determinants of Investment Decision on High-Risk Asset: A Cross-Generational Perspective. *Studi Akuntansi, Keuangan, dan Manajemen,* 6(1), 53-71.

1. Introduction

Indonesian investor participation has substantially increased in recent years. Statistical data indicate that the number of capital market investors grew from 10,311,152 in 2022 to 20,347,147 by December 2025, representing an increase of approximately 97.3%, indicating a rapid acceleration in market involvement (Indonesia Central Securities Depository, 2025). Similarly, the number of crypto asset consumers reached 19,557,205 by November 2025, with cumulative monthly transactions totaling IDR 449,55 trillion (Financial Services Authority, 2025). Campino and Yang (2024) show that profit-

seeking through trading is the primary motivation for crypto users, whereas price volatility and regulatory uncertainty remain key challenges. Both stocks and cryptocurrency assets are widely recognized as high-risk instruments owing to their high price volatility and substantial uncertainty.

Empirical evidence suggests that volatility in financial markets influences investor risk evaluation and investment behavior, whereas collective trading patterns contribute to heightened market fluctuations (Gong, 2024). Under such volatile market conditions, investors tend to base investment decisions more on personal judgment rather than purely rational evaluation, increasing the relevance of behavioral biases, such as overconfidence and gambler's fallacy, in shaping investment decision quality across generations. Therefore, risk propensity is a crucial factor in the context of high-risk assets. Prospect Theory proposed by Kahneman and Tversky (1979) explains that people make decisions under risk by incorporating psychological biases. In contrast, traditional financial theories presume that investors behave rationally and rely on accessible information. However, in practice, behavioral biases frequently lead investors away from fully rational investment choices (Islam, Bhat, Lone, Darzi, & Malik, 2024).

Prior research has extensively examined the behavioral biases in investment decision-making. Several studies have reported that overconfidence has a positive and significant effect on investment decisions, leading investors to trade more frequently and adopt more aggressive strategies (Al Rahahleh, 2024; Chaudhary, 2025; Kaur, Jain, & Sood, 2024; Kumar, Rani, Rani, & Rani, 2024). Overconfidence is also linked to anchoring bias, whereby excessive reliance on initial information reinforces inflated self-beliefs and results in irrational investment behavior (Al Rahahleh, 2024). Conversely, other studies document a negative and significant effect of overconfidence on investment decision, suggesting that excessive confidence may reduce decision quality due to poor risk management and irrational behavior (Addo, Cúg, Keelson, Amoah, & Petráková, 2025; M. Ahmad & Shah, 2022). These inconsistent findings indicate the need to further examine the mechanisms through which overconfidence affects investment decisions.

The gambler's fallacy constitutes another important cognitive bias in investment contexts. It describes the erroneous assumption that previous random outcomes can shape future results, leading investors to expect irrational trend reversals (Aziz, Mehmood, Asif Khan, & Tangl, 2024; Chowdhury, Mahdzan, & Rahman, 2024). Despite its relevance, empirical studies that simultaneously investigate the gambler's fallacy, risk propensity, and financial literacy in shaping investment decisions remain limited. Most behavioral finance studies have focused on developed economies (Kim, Koo, & Kang, 2024; Maheshwari, Samantaray, Panigrahi, & Jena, 2025; Zhang & Huang, 2024), while evidence from emerging markets such as Indonesia is scarce. Moreover, although risk propensity and financial literacy are widely recognized as important determinants of investment decisions (M. Ahmad & Shah, 2022; ul Abdin, Qureshi, Iqbal, & Sultana, 2022), studies examining the dual mediating roles in transmitting the effects of behavioral biases remscarcerare.

Theoretical support for cross-generational analysis is drawn primarily from the life-cycle hypothesis and cohort effect theories. The life cycle hypothesis theory posits that individuals adjust their saving and investment behavior over their lifetime to maintain stable consumption (Modigliani & Brumberg, 1954), which in investment contexts, is reflected in life cycle asset allocation strategies that adjust risk exposure according to age (Yang, Li, Li, & Lu, 2024). However, this approach does not fully capture the behavioral differences arising from cohort-specific experiences. Cohort effect theory argues that generations are shaped by distinct historical, social, and economic contexts, leading to systematic behavioral differences (Ryder, 1965). In line with this view, Altaf and Jan (2023) emphasized that each generation represents a distinct group of investors with unique characteristics.

Based on these gaps, this study aims to examine the effects of overconfidence and gambler's fallacy on investment decisions across generations in Indonesia, with risk propensity and financial literacy acting as mediating variables. This study contributes theoretically by integrating Prospect Theory, the Theory of Planned Behavior, and Human Capital Theory to explain how behavioral biases influence cross-generational investment decisions. Practically, the findings are expected to inform the design of

generation-specific financial literacy programs, support investor protection policies, and assist financial advisors in tailoring investment strategies according to generational characteristics.

2. Literature Review and Hypotheses Development

2.1 Theoretical Framework

This research integrates several complementary theories to explain how behavioral biases, risk propensity, financial literacy, and investment decision. First, prospect theory proposed by Kahneman and Tversky (1979) explains that people evaluate investment outcomes based on subjective reference points rather than absolute wealth, causing decision-making to be influenced by loss aversion and probability weighting. These characteristics indicate that investors may distort risk perception under uncertainty. In this study, overconfidence and gambler's fallacy are viewed as cognitive distortions consistent with Prospect Theory. Overconfidence reflects excessive confidence in one's reasoning and investment abilities (Yanti & Endri, 2024) while gambler's fallacy describes an erroneous assumption that previous random outcomes can shape future events (Aziz et al., 2024).

Second, the theory of planned behavior proposed by Ajzen (1991) provides a theoretical basis for explaining how cognitive biases influence investment behavior through behavioral intentions and perceived behavioral control. Within this framework, risk propensity is positioned as a mediating variable linking overconfidence and the gambler's fallacy to investment decisions. Risk propensity refers to a person's tendency to take risks to obtain higher investment returns (ul Abdin et al., 2022). The theory of planned behavior explains how behavioral biases affect investment decisions through intention and risk-taking tendencies.

Third, human capital theory developed by Becker (1964) and the financial capability framework introduced by the OECD (2013) provide the theoretical basis for the role of financial literacy in this research. Human capital theory views knowledge, skills, and experience as assets that enhance the quality of decision-making. In the financial context, financial literacy is viewed as a cognitive asset that enables individuals to evaluate risks, understand financial information, and manage financial resources more effectively. The financial capability framework extends this concept by emphasizing that financial literacy encompasses not only knowledge but also financial attitudes and behavior. Individuals with stronger financial literacy are therefore expected to better recognize and manage the influences of cognitive bias, resulting in more rational investment decisions, particularly when engaging with highly volatile assets such as stocks and cryptocurrencies.

Finally, a cross-generational perspective is incorporated by drawing on life cycle hypothesis theory and cohort effect theory. The life cycle hypothesis theory proposed by Modigliani and Brumberg (1954) explains that individuals adjust their saving and investment behavior across different stages of life to smoothen consumption over time. Consequently, investment preferences and risk tolerance vary according to age and financial circumstances. Meanwhile, the cohort effect theory introduced by Ryder Ryder (1965) suggests that individuals belonging to the same generation share formative experiences shaped by specific economic, technological, and social conditions, which influence long-term financial attitudes and behavior. By integrating these two theories, this study distinguishes between age-related investment behavior and generational characteristics, providing a stronger theoretical foundation for examining cross-generational differences in the effects of behavioral biases, risk propensity, and financial literacy on investment decisions.

2.2 Overconfidence and Risk Propensity

Overconfidence refers to an individual's tendency to overestimate their personal abilities, knowledge, and control over outcomes while underestimating uncertainty and risk in decision-making contexts (Islam et al., 2024; ul Abdin et al., 2022). Overconfident investors tend to underestimate investment risk due to excessive optimism, leading to suboptimal investment decisions and stronger preferences for high-risk assets (Islam et al., 2024). Overconfidence increases risk propensity through self-attribution, optimism, and the illusion of control. These dimensions encourage investors to overestimate their personal abilities, focus primarily on potential gains while downplaying losses, and perceive investment outcomes as controllable. Consequently, investors are more inclined to engage in risk-taking

behavior and maintain poorly diversified portfolios (ul Abdin et al., 2022). Moreover, overconfidence reduces investors' willingness to seek professional advice, which further exacerbates portfolio risks and negatively affects investment performance (Broekema & Kramer, 2021). Prior studies have demonstrated that overconfidence has a positive and significant effect on risk propensity (Islam et al., 2024; ul Abdin et al., 2022). Therefore, the following hypothesis is proposed:

H_1: Overconfidence has a positive and significant effect on risk propensity

2.3 Overconfidence and Financial Literacy

Overconfidence refers to excessive confidence in financial decision-making, leading individuals to overestimate their personal knowledge while underestimating the available information and associated risks (Yanti & Endri, 2024). This cognitive bias may distort self-assessments and reduce motivation to acquire or update financial knowledge. Empirical evidence suggests that overconfidence undermines financial literacy. Yanti and Endri (2024) report no significant relationship between overconfidence and financial literacy, whereas Pearson and Korankye (2023) document a negative association between overconfidence and objective financial literacy. Individuals with higher levels of overconfidence tend to perform worse on objective financial literacy measures despite reporting higher levels of perceived financial satisfaction. Such perceived satisfaction may mask underlying financial vulnerabilities, including weak investment performance, elevated debt exposure, and reduced tendency to seek professional financial advice. Accordingly, the following hypothesis is proposed:

H_2: Overconfidence has a negative and significant effect on financial knowledge

2.4 Overconfidence and Investment Decision

Overconfidence, defined as excessive confidence in one's financial knowledge and judgment (Islam et al., 2024; ul Abdin et al., 2022), influences how investors evaluate and select investment alternatives. Prior studies have documented a significant relationship between overconfidence and investment decisions. A substantial body of literature reports a positive and significant effect of overconfidence on investment decisions, indicating that higher levels of overconfidence are associated with more frequent trading and more aggressive decision-making (Al Rahahleh, 2024; Chaudhary, 2025; Kaur et al., 2024; Kumar et al., 2024; Shunmugasundaram & Sinha, 2024; Syarkani & Tristanto, 2022). Overconfidence is also linked to anchoring bias, whereby excessive reliance on initial information reinforces inflated self-beliefs and encourages irrational investment behaviors (Al Rahahleh, 2024).

Overconfidence is closely associated with high-risk investment behavior, as excessive confidence creates the perception that market timing and asset selection can be effectively controlled. This condition often leads to excessive trading, concentration in risky instruments, and inadequate risk management, which may ultimately reduce portfolio performance (Chaudhary, 2025; Kaur et al., 2024; Kumar et al., 2024). However, other studies report a negative and significant effect of overconfidence on investment decision quality, suggesting that excessive confidence may encourage irrational behavior, poor risk assessment, and suboptimal portfolio management, resulting in lower long-term investment returns (Addo et al., 2025; M. Ahmad & Shah, 2022; Budiman, Yodiputra, Candy, & Agustin, 2025a). Moreover, a study reports that overconfidence does not significantly influence investment decisions (Budiman, Ong, & Yuwono, 2025b). Despite mixed empirical evidence regarding investment outcomes, overconfidence consistently influences the intensity and aggressiveness of investment decision making. Thus, the following hypothesis is proposed:

H_3: Overconfidence has a positive and significant effect on investment decisions

2.5 Gambler's Fallacy and Risk Propensity

The gambler's fallacy is a cognitive bias in which past random outcomes are incorrectly perceived as influencing the probability of future random events. In investment contexts, this bias leads to the belief that prolonged market trends are likely to reverse in the near future. For example, a sequence of losses may be interpreted as an indication that gains are due to occur or vice versa (Aziz et al., 2024; Chowdhury et al., 2024). In this context, risk propensity refers to the degree to which risk is willingly supported in pursuit of higher investment returns, and a higher risk propensity is commonly associated with a preference for more volatile investment instruments (Islam et al., 2024).

The heuristics and biases framework proposed by Kahneman and Tversky (1979) explains that individuals often rely on mental shortcuts when making decisions under uncertainty rather than engaging in a fully rational and systematic analysis. Within this framework, the gambler's fallacy represents a heuristic-driven misinterpretation of randomness, whereby past outcomes are incorrectly perceived as influencing future probabilities. When consecutive losses occur, such outcomes are not interpreted as signals to reduce risk exposure but are instead perceived to increase the likelihood of future gains. This distorted probabilistic reasoning elevates tolerance toward uncertainty and strengthens risk propensity, as investment decisions are driven by irrational expectations of trend reversal rather than by objective risk evaluation and fundamental analysis. Accordingly, the following hypothesis is proposed:

H_4: Gambler's fallacy has a positive and significant effect on risk propensity

2.6 Gambler's Fallacy and Financial Literacy

Financial literacy refers to the ability to understand and manage financial concepts effectively, including investment, debt management, and budgeting, to make rational and informed financial decisions (Yanti & Endri, 2024). Higher levels of financial literacy enhance the capacity to evaluate risk objectively and mitigate the influence of cognitive biases in financial decision-making (Agarwal, Rao, & Nogueira, 2025). The gambler's fallacy originates from a misunderstanding of probability and the independence of random events. This bias tends to prevail when decisions are guided by intuitive judgment rather than systematic financial knowledge and analytical reasoning. Individuals exhibiting a stronger gambler's fallacy are more likely to rely on perceived patterns and subjective beliefs instead of fundamental analysis and statistical principles. Consequently, such individuals tend to demonstrate lower levels of effective financial understanding, reflecting weaker financial literacy in practice. Based on these theoretical arguments, the following hypothesis is proposed:

H_5: The gambler's fallacy has a negative and significant effect on financial literacy

2.7 Gambler's Fallacy and Investment Decision

Gambler's fallacy, defined as the erroneous belief that past random outcomes influence future probabilities, distorts investors interpretation of market movements and evaluation of investment opportunities (Aziz et al., 2024; Chowdhury et al., 2024). Prior studies provide substantial evidence that gambler's fallacy has a positive and significant effect on investment decision-making (Aziz et al., 2024; Chishti, Bashir, Mancinelli, & Hussain, 2023; Chowdhury et al., 2024; Gonsalves & Costa, 2024; Quaicoe & Eleke-Aboagye, 2021). This bias reflects a systematic misinterpretation of random market movements, leading investors to overestimate the likelihood of future gains after prior losses. Consequently, investors tend to engage in excessive risk-taking and make suboptimal investment decisions (Aziz et al., 2024; Chowdhury et al., 2024).

The gambler's fallacy further distorts investment decision-making by encouraging incorrect expectations of trend reversals. Investors influenced by this bias are more likely to hold losing stocks or increase their exposure to risky assets based on the belief that negative outcomes will be followed by positive corrections (Gonsalves & Costa, 2024). Given the inherent unpredictability of financial markets, investors are generally unable to accurately anticipate turning points during uptrend and downtrend conditions (Chishti et al., 2023). Consequently, reliance on perceived patterns rather than objective market information leads to biased investment decisions driven by erroneous probabilistic reasoning (Darwis, Suwito, & Zainuddin, 2021; Quaicoe & Eleke-Aboagye, 2021).

Although Cascão, Quelhas, and Cunha (2023) reported no significant effect of the gambler's fallacy on investment decisions, their findings indicate that the influence of this bias may be attenuated in contexts characterized by a strong reliance on fundamental analysis, high capital commitment, and long-term investment orientation. Nonetheless, prevailing empirical evidence indicates that the gambler's fallacy remains a salient behavioral bias that positively influences investment decision-making, particularly in settings where heuristic-based judgments dominate. Consequently, the following hypothesis is proposed.

H_6: Gambler's fallacy has a positive and significant effect on investment decisions

2.8 Risk Propensity and Investment Decision

Risk propensity refers to an individual's tendency to accept uncertainty and engage in behaviors involving higher levels of financial risk in pursuit of greater returns (Islam et al., 2024). Prior studies provide consistent evidence that risk propensity plays an important role in shaping investment decisions. Manocha, Bhullar, and Sachdeva (2023) further demonstrate that financial risk propensity significantly affects investment intention, highlighting risk-taking orientation as a key behavioral driver in financial decision-making. Empirical evidence from ul Abdin et al. (2022) shows that a higher risk propensity is associated with a preference for risky instruments such as stocks, reflecting expectations of higher potential returns. This orientation reinforces active participation in investment markets and shapes the subsequent investment decisions.

In addition, Chaudhary (2025) finds that individuals who tolerate higher levels of risk are more likely to select investments with greater return potential, despite increased volatility. Islam et al. (2024) document a positive relationship between risk propensity and investment decisions, indicating that individuals with higher risk-taking tendencies are more inclined to engage in investment activities involving greater uncertainty. Risk propensity becomes particularly salient when investors face alternatives with varying risk levels, as the willingness to accept uncertainty influences evaluation and selection processes. Based on the above explanation, the following hypothesis is proposed:

H_7: Risk propensity has a positive and significant effect on investment decisions

2.9 Overconfidence and Investment Decision Mediated by Risk Propensity

Overconfidence refers to an individual's excessive confidence in their personal knowledge, judgment, and control over financial outcomes, which often leads to an underestimation of risk (Islam et al., 2024; ul Abdin et al., 2022). Prior research provides evidence that the effect of overconfidence on investment decisions operates through risk-related behavioral tendencies. Islam et al. (2024) demonstrate that overconfidence positively influences investment decisions through risk propensity, indicating that excessive confidence leads investors to underestimate risk and favor riskier investment choices. Overconfident individuals tend to rely on subjective judgments and perceived control, which amplifies their willingness to accept uncertainty in financial decisions.

Supporting this mechanism, Singh, Khan, and Bhat (2024) show that risk propensity plays a central role in shaping investment intentions, as a stronger inclination toward risk increases confidence in engaging in investment activity. ul Abdin et al. (2022) further explain that dimensions of overconfidence, including self-attribution, optimism, and the illusion of control, foster higher risk-taking tendencies. This elevated risk propensity serves as a behavioral channel through which overconfidence translates into more aggressive and risk-oriented investment decisions than those of men. Accordingly, the following mediation hypothesis is proposed:

H_8: Risk propensity has a positive and significant mediating effect on the relationship between overconfidence and investment decisions

2.10 Gambler's Fallacy and Investment Decision Mediated by Risk Propensity

The gambler's fallacy is a cognitive bias in which past random outcomes are incorrectly perceived as influencing future probabilities. In investment contexts, this bias generates the belief that prolonged market movements are likely to reverse, prompting expectations of imminent gains following sequences of losses, or vice versa (Aziz et al., 2024; Chowdhury et al., 2024). Such distorted beliefs encourage greater acceptance of uncertainty and motivate investors to increase their exposure to risky assets. This behavioral response aligns with the concept of risk propensity, which is defined as the inclination to accept higher levels of risk in pursuit of superior investment returns (Islam et al., 2024).

From a theoretical perspective, risk propensity functions as a mediating mechanism through which the gambler's fallacy influences investment decisions. When erroneous beliefs about trend reversal elevate risk tolerance, a higher risk propensity subsequently drives the selection of more aggressive investment instruments. This process indicates that the effect of the gambler's fallacy on investment decisions operates not only directly but also indirectly by strengthening risk-taking tendencies that shape investment choices. Therefore, the following mediation hypothesis is proposed:

H_9: Risk propensity has a positive and significant mediating effect on the relationship between the gambler's fallacy and investment decisions

2.11 Financial Literacy and Investment Decision

Financial literacy refers to an individual's ability to make careful financial considerations and take effective action in managing money, both in the present and future (Yanti & Endri, 2024). Prior studies consistently demonstrate that financial literacy has a positive and significant effect on investment decision (Agarwal et al., 2025; M. Ahmad & Shah, 2022; Johri, Islam, & Kamal, 2023; Syarkani & Tristanto, 2022; Yanti & Endri, 2024). A higher level of financial literacy supports rational investment decision-making by enhancing the ability to evaluate information, assess risk, and avoid systematic decision-making errors, thereby reducing the likelihood of financial losses (Yanti & Endri, 2024). Financial literacy also improves decision quality and contributes to superior investment outcomes through more informed and strategic asset selection (M. Ahmad & Shah, 2022).

Financial literacy equips investors with analytical skills to objectively evaluate risks, critically process financial information, and base investment decisions on logical reasoning rather than intuition or external influence (Agarwal et al., 2025). It functions as a fundamental cognitive resource in investment decision-making, enabling effective financial planning, prudent risk management, and the selection of investment instruments aligned with return expectations and risk tolerance (Johri et al., 2023; Syarkani & Tristanto, 2022). Empirical evidence suggests that higher financial literacy enhances risk assessment capability, allowing investors to engage with investment risk more strategically and selectively in pursuit of optimal returns (Basana, Tarigan, Siagian, & Jie, 2024). Based on the preceding discussion, the following hypothesis is proposed:

H_{10}: Financial literacy has a positive and significant effect on investment decisions

2.12 Overconfidence and Investment Decision Mediated by Financial Literacy

Empirical evidence indicates that overconfidence exerts a positive influence on investment decisions through the mediating role of financial literacy. Yanti and Endri (2024) show that financial literacy functions as a channel through which confidence is translated into investment behaviors. While overconfidence reflects an investor's belief in their personal judgment, financial literacy determines the extent to which such confidence is supported by financial knowledge and analytical reasoning. From this perspective, overconfidence alone does not guarantee effective investment decision making. Instead, financial literacy shapes confidence in evaluating information, assessing risk, and selecting investment instruments. Agarwal et al. (2025) argue that higher financial literacy strengthens rational evaluation and information processing, allowing confidence to contribute positively to investment decisions rather than leading to irrational behavior. In accordance with the theoretical framework, the following mediation hypothesis was developed:

H_{11}: Financial literacy has a positive and significant mediating effect on the relationship between overconfidence and investment decisions

2.13 Gambler's Fallacy and Investment Decision Mediated by Financial Literacy

The gambler's fallacy is a cognitive bias that causes investors to misinterpret random market movements and assume that past outcomes influence future returns (Chowdhury et al., 2024; Gonsalves & Costa, 2024). This bias distorts probabilistic reasoning and affects how investors process financial information when making investment decisions. Financial literacy functions as a cognitive mechanism through which the gambler's fallacy is translated into investment decision-making. Biased beliefs associated with the gambler's fallacy can impair the application of financial knowledge, limiting investors' ability to evaluate risk, diversification, and market fundamentals objectively (Agarwal et al., 2025). Consequently, lower financial literacy strengthens the transmission of the gambler's fallacy into irrational investment decisions, whereas higher financial literacy reflects more structured financial reasoning that reduces decision-making errors. Thus, the following mediation hypothesis is proposed:

H_{12}: Financial literacy has a negative and significant mediating effect on the relationship between the gambler's fallacy and investment decisions

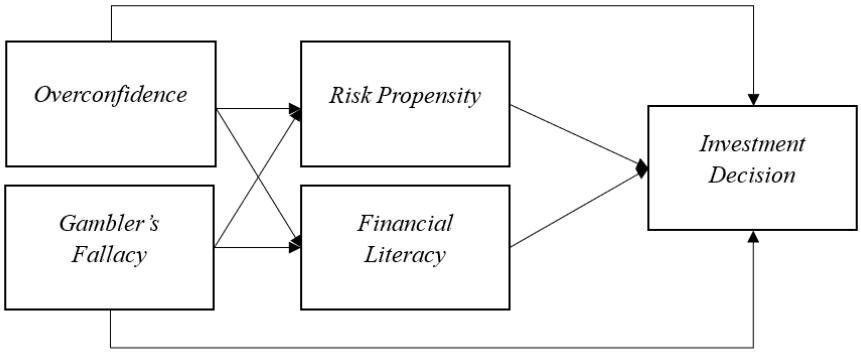

Figure 1. Research model

Figure 1 illustrates the research model developed to examine the relationships among overconfidence, gambler's fallacy, risk propensity, financial literacy, and investment decisions. The model proposes that behavioral biases, represented by overconfidence and gambler's fallacy, influence investment decisions both directly and indirectly through psychological and cognitive mechanisms. Risk propensity represents the psychological pathway through which investors' willingness to take risks affects their investment decisions, while financial literacy represents the cognitive pathway that reflects investors' knowledge and understanding of financial management and investment practices. Furthermore, the model suggests that overconfidence and gambler's fallacy may influence risk propensity and financial literacy, which subsequently affect investment decisions. This framework aims to explain how behavioral and cognitive factors interact in shaping investors' decision-making processes.

3. Methodology

This study adopted a quantitative approach with a causal-comparative research design. A quantitative approach was employed to test hypotheses regarding the causal relationships between the independent variables (overconfidence and gambler's fallacy) and the dependent variable (investment decision), while considering the mediating roles of risk propensity and financial literacy. The causal-comparative design enables the examination of the effects of these variables without direct manipulation, relying on the observation of existing conditions. In addition, this study incorporates a cross-generational perspective to analyze differences in investment decision-making. The population of this study consisted of individual investors in Indonesia from various generational cohorts, including Baby Boomers, Generation X, Generation Y, and Generation Z, who were actively engaged in investment activities. Purposive sampling was employed. The inclusion criteria were individuals residing in Indonesia and individuals with investment experience, particularly in high-risk investment instruments such as stocks or cryptocurrencies. The sample size was determined using the 10 Times Rule in Partial Least Squares–Structural Equation Modeling (PLS-SEM), which requires a minimum sample size equal to ten times the number of indicators analyzed (Hair et al., 2021). This study includes 34 measurement indicators, resulting in a minimum required sample size of 340 respondents (34 × 10). Primary data were collected through an online questionnaire distributed via social media platforms and investor networks. The collected data were analyzed using SmartPLS statistical software.

To examine cross-generational differences, this study employs a Multigroup Analysis (MGA) approach within the Partial Least Squares Structural Equation Modeling (PLS-SEM) framework. Respondents were classified into three main categories: Generation Z, Generation Y, and a combined group of Baby Boomers and Generation X. The decision to combine Baby Boomers and Generation X is based on methodological considerations to ensure adequate statistical power in the multigroup analysis, given that the proportion of older investors tends to be smaller in the current population of digital investors. From a substantive perspective, these two cohorts are categorized as relatively more experienced investors, sharing similar exposure to pre-digital or early digital market environments. This characteristic distinguishes these cohorts from younger, more digitally oriented investors, such as Generation Y and Generation Z.

The questionnaire consisted of two main sections.

1. Demographic Data: This section captures respondents' characteristics, including gender, generational cohort, highest level of education, primary occupation, type of investment, length of investment experience, income level, and region of residence.
2. Research Variable Data: This section measures the research variables using a five-point Likert scale, where 1 = Strongly Disagree, 2 = disagree, 3 = neutral, 4 = agree, and 5 = Strongly Agree.

The variables were measured using the following indicators, as can be seen in Table 1.

Table 1. Indicator variables

No.	Variables	Items	Source
1	Overconfidence (5 Indicators)	I can predict the direction of my future investment trends with a high level of accuracy.	(Costa, Soares, de Melo Moreira, & Tonelli, 2025)
		I know the best timing to enter and exit my investment positions in the market.	
		I always feel optimistic about my future investment returns.	
		I am confident in my ability to control the direction of my future investments.	
		I believe that I can make better investment decisions than other investors.	
2	Gambler's Fallacy (4 Indicators)	I believe that high liquidity in a portfolio triggers a market trend reversal.	(Mahadwartha, Ismiyanti, & Zunairoh, 2023)
		I reduce investment after inflation increases for three consecutive months because a decline is expected.	
		I select investment instruments based on the past three-month trend rather than through fundamental analysis.	
		I increase the trading volume after experiencing consecutive losses.	
3	Risk Propensity (4 Indicators)	I am willing to take higher risks in my investment portfolio in exchange for greater potential returns.	(Addo et al., 2025)
		I actively seek investment opportunities that offer high potential returns, despite the high risk.	
		I feel comfortable investing in high-risk assets, such as stocks or cryptocurrencies.	
		I do not mind taking substantial risks as long as the potential gains are high.	
4	Financial Literacy (15 Indicators)	I have good knowledge of investment and digital financial products.	(Hasavari, Maddah, & Esmaeilzadeh, 2025)
		I possess strong capabilities in managing investments using technology-based financial instruments.	
		I have a good understanding of financial products related to modern investments.	
		I know how to adjust the privacy settings on investment platforms to enhance account security.	
		I know how to manage privacy settings on social media to protect my personal information when discussing investment-related topics.	
		I know how to securely store important investment-related documents and information using cloud storage services, such as Google Drive or iCloud.	
		I am familiar with the various financial products offered by financial institutions.	(N. L. Ahmad, Mohamad

		I tracked changes in economic conditions, such as interest rates, borrowing costs, and tax rates.	Fazil, & Yusof, 2025)
		I have sufficient knowledge to follow the recent developments in business financing options.	
		I understand how inflation affects the value of money over time.	
		I am familiar with various types of credit agreements available in the market, such as credit cards and personal loans.	
		I always ensure that my personal spending aligns with my established budget.	
		I carefully consider affordability before purchasing.	
		I always pay my bills on time.	
		I set long-term financial goals and consistently work toward achieving them.	
5	Investment Decision (6 Indicators)	I consider the level of risk associated with a particular stock before investing in the stock market.	(Mahat & Lau, 2023)
		If unexpected additional income is received, a portion of the funds is allocated to stock investments.	
		Trend analysis from several representative stocks is used to make investment decisions across all invested stocks.	
		I carefully consider stock price movements before making any investment decisions.	
		I analyze the fundamental performance of the underlying stocks before making investment decisions.	
		Investment activities are conducted to obtain stable returns and income.	

4. Results and Discussions

4.1 Respondent Characteristics

The study involved 340 respondents with diverse demographic and investment backgrounds. The sample comprised four generational cohorts, with Generation Y representing the largest group (120 respondents; 35.29%), followed by Generation Z (111 respondents; 32.65%), Generation X (77 respondents; 22.65%), and Baby Boomers (32 respondents; 9.41%). Male respondents accounted for 55.59% of the sample, while female respondents represented 44.41%. Regarding educational background, most respondents held a bachelor's degree (49.12%), followed by high school or equivalent (23.24%). In terms of occupation, private sector employees constituted the largest group (33.82%), followed by professionals (22.35%) and entrepreneurs (14.12%). With respect to investment characteristics, stocks were the most commonly held investment instruments (43.53%), followed by cryptocurrencies (29.41%). The majority of respondents reported investment experience between one and three years (31.47%), while the remaining respondents were relatively evenly distributed across the other experience categories.

Based on Table 2, the number of respondents from the Baby Boomer and Generation X groups was relatively smaller than that of Generation Y and Generation Z. This condition supports the methodological approach adopted in this study, in which both groups were combined in the multigroup analysis to maintain the stability of the model estimation and improve the reliability of the comparisons across groups.

Table 2. Demographic respondents

Characteristics	Category	Count	Percentage (%)
Gender	Male	189	55.59
	Female	151	44.41
Generation	Baby Boomers	32	9.41

	Generation X	77	22.65
	Generation Y	120	35.29
	Generation Z	111	32.65
Education	Elementary School	1	0.29
	Junior High School / Equivalent	21	6.18
	Senior High School / Vocational School / Equivalent	79	23.24
	Diploma (D1–D4)	35	10.29
	Bachelor's Degree (S1)	167	49.12
	Master's Degree (S2)	27	7.94
	Doctorate (S3)	10	2.94
Occupation	Student	33	9.71
	Working Student	35	10.29
	Government Employee	12	3.53
	Private Employee	115	33.82
	Entrepreneur	48	14.12
	Professional	76	22.35
	Unemployed	21	6.18
Type of Investment	Stocks	148	43.53
	Cryptocurrency	100	29.41
	Stocks & Cryptocurrency	47	13.82
	Gold / Property / Mutual Funds	45	13.24
Investment Experience	<1 Year	89	26.18
	1–3 Years	107	31.47
	4–6 Years	57	16.76
	>6 Years	87	25.59

4.2 Measurement Model Evaluation

The results of the measurement model evaluation are presented in Table 3. All constructs demonstrated satisfactory reliability, with Cronbach's alpha and composite reliability values exceeding the recommended threshold of 0.70. Convergent validity was also established, as all Average Variance Extracted (AVE) values were above 0.50. Furthermore, discriminant validity, as shown in Table 4, is confirmed because all HTMT values are below the recommended threshold of 0.9 (Henseler, Ringle, & Sarstedt, 2015). In addition, the VIF values indicated no collinearity issues, as all values were within the acceptable limits.

Table 3. Convergent validity and reliability

Construct	Outer Loading	AVE	Cronbach Alpha	Composite Reliability
FL1 <- Financial Literacy	0.855	0.721	0.972	0.975
FL10 <- Financial Literacy	0.862			
FL11 <- Financial Literacy	0.878			
FL12 <- Financial Literacy	0.863			
FL13 <- Financial Literacy	0.855			
FL14 <- Financial Literacy	0.851			
FL15 <- Financial Literacy	0.850			
FL2 <- Financial Literacy	0.862			
FL3 <- Financial Literacy	0.842			
FL4 <- Financial Literacy	0.825			
FL5 <- Financial Literacy	0.826			
FL6 <- Financial Literacy	0.836			
FL7 <- Financial Literacy	0.829			
FL8 <- Financial Literacy	0.843			

FL9 <- Financial Literacy	0.863			
GF1 <- Gambler's Fallacy	0.843	0.685	0.847	0.897
GF2 <- Gambler's Fallacy	0.817			
GF3 <- Gambler's Fallacy	0.789			
GF4 <- Gambler's Fallacy	0.861			
ID1 <- Investment Decision	0.774	0.588	0.860	0.895
ID2 <- Investment Decision	0.756			
ID3 <- Investment Decision	0.762			
ID4 <- Investment Decision	0.778			
ID5 <- Investment Decision	0.795			
ID6 <- Investment Decision	0.735			
OC1 <- Overconfidence	0.813	0.671	0.877	0.911
OC2 <- Overconfidence	0.809			
OC3 <- Overconfidence	0.822			
OC4 <- Overconfidence	0.826			
OC5 <- Overconfidence	0.824			
RP1 <- Risk Propensity	0.826	0.715	0.867	0.909
RP2 <- Risk Propensity	0.854			
RP3 <- Risk Propensity	0.843			
RP4 <- Risk Propensity	0.858			

Table 4. Discriminant Validity – HTMT Ratio

Construct	Financial Literacy	Gambler's Fallacy	Investment Decision	Overconfidence
Financial Literacy				
Gambler's Fallacy	0.737			
Investment Decision	0.501	0.54		
Overconfidence	0.687	0.226	0.646	
Risk Propensity	0.506	0.295	0.635	0.724

4.3 Inner Model Assessment

Subsequently, an inner model assessment was conducted, including hypothesis testing, which presented the model's goodness of fit. Table 5 presents the results of the direct and indirect hypothesis tests. The results show that overconfidence has a positive and significant effect on risk propensity; therefore, H_1 is supported. Overconfidence also has a negative and significant effect on financial literacy; thus, H_2 is supported. In addition, overconfidence positively and significantly influences investment decisions; therefore, H_3 is supported. Furthermore, the gambler's fallacy shows a positive and significant effect on risk propensity, indicating that H_4 is supported, and a negative and significant effect on financial literacy, supporting H_5. Gambler's fallacy also exerts a positive and significant influence on investment decisions; therefore, H_6 is supported. Meanwhile, risk propensity has a positive and significant effect on investment decisions; thus, H_7 is supported. Finally, financial literacy positively and significantly influences investment decisions; therefore, H_{10} is supported.

Table 5. Hypothesis testing-All Generations

	Coefficient	Standard deviation	T statistics	P values
FL → ID	0.336	0.062	5.380	0.000
GF → FL	-0.567	0.027	21.293	0.000
GF → ID	0.526	0.052	10.116	0.000
GF → RP	0.137	0.050	2.767	0.006
OC→ FL	-0.523	0.029	18.246	0.000
OC → ID	0.518	0.063	8.185	0.000
OC → RP	0.606	0.037	16.358	0.000
RP → ID	0.242	0.057	4.256	0.000

OC → RP → ID	0.147	0.037	3.969	0.000
GF → FL→ ID	-0.191	0.037	5.191	0.000
OC → FL→ ID	-0.176	0.033	5.258	0.000
GF → RP→ ID	0.033	0.015	2.258	0.024

Meanwhile, the indirect effect analysis noted that risk propensity has a positive and significant mediating effect on the relationship between overconfidence and investment decisions; therefore, H_8 is supported. Risk propensity also positively and significantly mediates the relationship between gambler's fallacy and investment decisions; thus, H_9 is supported. Furthermore, financial literacy significantly mediates the relationship between overconfidence and investment decisions. However, the indirect effect was negative and contrary to the hypothesized positive direction. Accordingly, H_{11} was not supported. Finally, financial literacy negatively and significantly mediates the relationship between the gambler's fallacy and investment decisions; therefore, H_{12} is supported.

Next, this study examines the relationships between variables across several age groups, namely Generation Z, Generation Y, Generation X, and Baby Boomers. The analysis was conducted using Multigroup Analysis on Smart PLS, as presented in Table 6.

Table 6. Hypothesis testing-Cross Generation Analysis

	Coeff. (p value (Baby Boomers Gen X)	**Coeff. (Generation Y)**	**Coeff. (Generation Z)**	**p value (Baby Boomers and Gen X)**	**p value (Generation Y)**	**p value (Generation Z)**
FL → ID	0.177	0.379	0.518	0.178	0.001	0.000
GF→ FL	-0.544	-0.560	-0.598	0.000	0.000	0.000
GF→ ID	0.370	0.365	0.377	0.000	0.000	0.000
GF → RP	0.161	0.070	0.169	0.054	0.460	0.045
OC → FL	-0.503	-0.528	-0.528	0.000	0.000	0.000
OC → ID	0.497	0.436	0.515	0.000	0.000	0.000
OC → RP	0.664	0.607	0.543	0.000	0.000	0.000
RP → ID	0.259	0.209	0.227	0.022	0.049	0.015
OC → RP → ID	0.172	0.126	0.123	0.023	0.064	0.029
GF → FL → ID	-0.096	-0.212	-0.309	0.187	0.002	0.000
OC → FL → ID	-0.089	-0.200	-0.274	0.181	0.001	0.000
GF → RP → ID	0.042	0.015	0.038	0.172	0.528	0.140

Based on the results of the multi-group analysis presented in Table 5, variations in the significance of direct relationships across generational groups (Baby Boomers, Generation X, Generation Y, and Generation Z) were observed. Overall, most structural paths exhibited consistent directions across

generations, although differences in statistical significance and effect magnitudes were evident. Overconfidence has a positive and significant effect on risk propensity in all generational groups. In addition, overconfidence has a negative and significant effect on financial literacy and a consistently positive and significant effect on investment decisions across Baby Boomers, Generation X, Generation Y, and Generation Z.

Similarly, the gambler's fallacy has a negative and significant effect on financial literacy and a positive and significant effect on investment decisions across all generations in the full sample. Risk propensity also positively and significantly influenced investment decisions in each generation group. However, notable cross-generational differences were observed in two specific relationships. First, the effect of the gambler's fallacy on risk propensity is statistically significant only for Generation Z, whereas the relationship is not significant for Baby Boomers, Generation X, or Generation Y. Second, the effect of financial literacy on investment decisions is significant for Generation Y and Generation Z but not for Baby Boomers and Generation X. Furthermore, multi-group mediation analysis posits that differences in the strength and significance of indirect effects are observed across generational groups (Baby Boomers and Generation X, Generation Y, and Generation Z). Although the directions of several mediation paths remained consistent, their statistical significance varied across generations. The indirect effect of overconfidence on investment decisions through risk propensity is positive and significant for Baby Boomers and Generation X and Generation Z, while the same mediation path is not significant for Generation Y. In contrast, the indirect effect of the gambler's fallacy on investment decisions through risk propensity is not statistically significant across all generational groups.

In addition, the indirect effect of overconfidence on investment decisions through financial literacy is negative and statistically significant for Generation Y and Generation Z, whereas this mediation path is not significant for Baby Boomers and Generation X. Similarly, the indirect effect of the gambler's fallacy on investment decisions through financial literacy is negative and significant for Generation Y and Generation Z, but not significant for the Baby Boomers and Generation X group. Overall, the results indicate that the significance of mediation mechanisms differs across generations, despite the consistent directional patterns observed in several indirect relationships. The model evaluation presented in Table 7 shows that the R-square values for all endogenous variables are 0.711, 0.508, and 0.415, respectively, indicating that the model demonstrates a moderate to strong level of fit. Therefore, it can be concluded that the developed empirical model is capable of effectively explaining investment decisions, as can be seen in Table 7.

Table 7. Goodness of fit model

	R-square	**R-square adjusted**
Financial Literacy	0.713	0.711
Investment Decision	0.514	0.508
Risk Propensity	0.419	0.415

4.4 Discussions

4.4.1 The Role of Overconfidence on Investment Decision

The empirical findings confirm that overconfidence plays a significant role in shaping investment behavior through behavioral and cognitive channels. Overconfidence has a positive and significant effect on risk propensity, indicating that individuals with excessive confidence in their personal judgment tend to tolerate higher levels of investment risk. This finding is consistent with prior studies by Islam et al. (2024); ul Abdin et al. (2022), which show that overconfident investors systematically underestimate uncertainty and overestimate their ability to manage unfavorable outcomes, thereby increasing their willingness to engage in risky investment behavior. In line with H_2, the results also reveal a negative and significant relationship between overconfidence and the financial literacy score.

This finding suggests that excessive confidence may weaken the development and effective application of financial knowledge in the long term. Although individuals with high confidence often perceive a

strong level of financial competence, such perceptions are not necessarily supported by objective financial understanding (Pearson & Korankye, 2023). Furthermore, overconfidence has a positive and significant effect on investment decisions, indicating that higher levels of confidence encourage more active participation in investment decision-making. This implies that overconfident investors are more likely to engage in frequent trading, adopt aggressive investment strategies, and rely excessively on private signals (Al Rahahleh, 2024; Chaudhary, 2025; Kaur et al., 2024; Kumar et al., 2024; Shunmugasundaram & Sinha, 2024; Syarkani & Tristanto, 2022).

4.4.2 The Role of Gambler's Fallacy on Investment Decision

The empirical results indicate that the gambler's fallacy has a positive and significant effect on risk propensity, implying that individuals who are more susceptible to the gambler's fallacy exhibit a higher tolerance toward investment risk. This result is consistent with the behavioral finance literature, suggesting that biased beliefs about random market movements can distort risk perception and encourage risk-seeking behavior. Consequently, investment risk is perceived as more acceptable, thereby increasing the overall risk propensity. Furthermore, the gambler's fallacy shows a negative and significant relationship with financial literacy, indicating that biased probabilistic reasoning may weaken investors' ability to process financial information objectively. Lower literacy levels make individuals more vulnerable to irrational judgment. Additionally, the positive effect of the gambler's fallacy on investment decisions suggests that susceptibility to the gambler's fallacy encourages more active and speculative investment behavior, particularly through expectations of trend reversals following prior gains or losses. This result supports prior empirical evidence indicating that the gambler's fallacy is associated with excessive trading, delayed loss realization, and premature profit-taking (Aziz et al., 2024; Chishti et al., 2023; Chowdhury et al., 2024; Gonsalves & Costa, 2024; Quaicoe & Eleke-Aboagye, 2021).

4.4.3 The Role of Risk propensity as Mediator

Risk propensity has a positive and significant effect on investment decisions, indicating that individuals who are more willing to tolerate uncertainty are more inclined to engage in investment activities involving higher risk levels. Individuals with stronger risk-taking tendencies are more likely to select volatile assets and actively participate in financial markets (Islam et al., 2024). Furthermore, risk propensity positively and significantly mediates the relationship between overconfidence and investment decisions.

Overconfident investors tend to underestimate the downside risk and overestimate their ability to control investment outcomes, which elevates their risk propensity and subsequently encourages more aggressive investment decisions. This result is empirically supported by Islam et al. (2024); ul Abdin et al. (2022), who identify risk propensity as a key behavioral mechanism linking psychological bias to the investment behavior. Similarly, risk propensity also positively and significantly mediated the relationship between gambler's fallacy and investment decisions. Erroneous beliefs regarding trend reversals increase tolerance for uncertainty, which drives speculative investment behavior. Investors influenced by the gambler's fallacy tend to believe that past losses or gains signal imminent reversals, thereby justifying higher exposure to risky assets.

4.4.4 The Role of Financial Literacy as Mediator

Financial literacy has a positive and significant effect on investment decisions, indicating that individuals with higher levels of financial knowledge are better able to process information, evaluate risk, and make informed investment choices. Empirical support for this relationship is well documented in the literature (Agarwal et al., 2025; M. Ahmad & Shah, 2022; Johri et al., 2023; Syarkani & Tristanto, 2022; Yanti & Endri, 2024). Furthermore, financial literacy negatively mediates the relationship between overconfidence and investment decisions. Excessive confidence tends to weaken the effective use of financial knowledge, as investors rely more on intuition and personal judgment rather than objective analysis, thereby limiting the corrective role of financial knowledge. Similarly, financial literacy negatively and significantly mediates the relationship between the gambler's fallacy and investment decisions. Higher financial literacy improves probabilistic reasoning and reduces reliance on illusory patterns, which weakens the influence of biased beliefs and leads to more rational investment

decisions. Conversely, lower literacy increases vulnerability to behavioral biases and encourages speculation.

4.4.5 Cross Generation Differences in Investment Behavior

The cross-generational analysis shows that the positive effect of the gambler's fallacy on risk propensity is significant only for Generation Z, indicating that younger investors are more susceptible to biased probabilistic reasoning when evaluating investment risk. Growing up in a highly digitalized investment environment with real-time trading platforms and speculative assets may increase exposure to short-term market signals and reinforce illusory pattern recognition among investors. This finding supports the cohort effect perspective, which suggests that shared technological and market experiences shape distinct behavioral tendencies across generations (Ryder, 1965). Financial literacy significantly influences investment decisions among Generation Y and Generation Z but not among Baby Boomers and Generation X. This pattern indicates that younger investors rely more on formal financial knowledge, whereas older generations tend to depend on their accumulated experience and established decision-making routines.

The mediation analysis revealed distinct generational patterns. Risk propensity significantly mediates the relationship between overconfidence and investment decisions for Baby Boomers, Generation X, and Generation Z, but not for Generation Y. Meanwhile, financial literacy negatively mediates the relationships involving overconfidence and the gambler's fallacy, primarily among Generation Y and Generation Z. These findings suggest that younger generations are more influenced by cognitive and knowledge-based factors, whereas older investors rely more on experience-based judgments. Overall, the results confirm that behavioral biases and decision-making processes operate differently across generations.

5. Conclusions

5.1 Conclusion

This study concludes that overconfidence and the gambler's fallacy significantly influence high-risk investment decisions among Indonesian investors, both directly and indirectly through risk propensity and financial literacy. A key finding is the "dark side" of overconfidence, where excessive confidence weakens the beneficial effect of financial literacy and leads to poorer investment outcomes. The results also show generational differences, with younger investors being more susceptible to heuristic-driven biases in digital environments, while older investors rely more on experience-based judgment. Theoretically, the study extends behavioral finance by integrating Prospect Theory, the Theory of Planned Behavior, and Human Capital Theory with mediating mechanisms of risk propensity and financial literacy, while also incorporating cohort effects into investor behavior analysis. Practically, the findings suggest that financial literacy alone is insufficient; instead, investors need structured decision-making, risk control mechanisms, and bias-awareness training, while educators and policymakers should design generation-sensitive financial education and investor protection strategies.

5.2 Research Limitations

Despite these contributions, this study has several limitations. First, the analysis focused exclusively on Indonesian investors, which may limit the generalizability of the findings to other contexts. Second, the study relied on self-reported data and a cross-sectional design, which may be subject to common method bias and limit causal inference. A key limitation also lies in the measurement of financial literacy, which is predominantly based on self-reports. This approach may introduce perceptual bias, as respondents may overestimate or underestimate their actual financial knowledge. Consequently, this may reduce the accuracy of capturing the true effect of financial literacy on high-risk investment decisions.

5.3 Suggestions and Directions for Future Research

Future research should incorporate a combination of subjective and objective measures of financial literacy, such as standardized financial knowledge tests. The inclusion of objective indicators would provide a more accurate assessment of financial literacy and its role in investment decision-making. Future studies should adopt longitudinal or experimental designs and explore a broader range of behavioral biases across different international settings to enhance the robustness and generalizability

of the findings. Future research should also examine generational differences in investment behavior to better understand how behavioral biases influence investment decisions across different age cohorts and market conditions.

Acknowledgement
The authors gratefully acknowledge the financial support provided by Universitas Internasional Batam through its research grant program, which made this study possible.

Author Contributions
INA contributed to the conceptualization, study design, manuscript drafting and final revision. JA contributed to manuscript drafting, data collection, and statistical analysis. manuscript drafting and revision. NRS contributed to the final revision and supervision, while RK contributed to supervision. All authors have read and approved the final manuscript.

References
Addo, J. O., Cúg, J., Keelson, S. A., Amoah, J., & Petráková, Z. (2025). Behavioral risk management in investment strategies: Analyzing investor psychology. *International Journal of Financial Studies, 13*(2). doi: https://doi.org/10.3390/ijfs13020053

Agarwal, A., Rao, N. V. M., & Nogueira, M. C. (2025). Financially savvy or swayed by biases? The impact of financial literacy on investment decisions: A study on Indian retail investors. *Journal of Risk and Financial Management, 18*(6). doi: https://doi.org/10.3390/jrfm18060322

Ahmad, M., & Shah, S. Z. A. (2022). Overconfidence heuristic-driven bias in investment decision-making and performance: Mediating effects of risk perception and moderating effects of financial literacy. *Journal of Economic and Administrative Sciences, 38*(1), 60-90. doi: https://doi.org/10.1108/jeas-07-2020-0116

Ahmad, N. L., Mohamad Fazil, N. F., & Yusof, R. (2025). The relationship between financial literacy and entrepreneurship spirit with mediating effect of personal financial management. *Pertanika Journal of Social Sciences and Humanities, 33*(2), 873-896. doi: https://doi.org/10.47836/pjssh.33.2.17

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes, 50*(2), 179-211. doi: https://doi.org/10.1016/0749-5978(91)90020-T

Al Rahahleh, N. (2024). The influence of anchoring and overconfidence on investment decision-making in the Saudi stock market: A moderated mediation model. *Review of Middle East Economics and Finance, 20*(1), 45-75. doi: https://doi.org/10.1515/rmeef-2023-0015

Altaf, H., & Jan, A. (2023). Generational theory of behavioral biases in investment behavior. *Borsa Istanbul Review, 23*(4), 834-844. doi: https://doi.org/10.1016/j.bir.2023.02.002

Aziz, S., Mehmood, S., Asif Khan, M., & Tangl, A. (2024). Role of behavioral biases in the investment decisions of Pakistan stock exchange investors: Moderating role of investment experience. *Investment Management and Financial Innovations, 21*(1), 146-156. doi: https://doi.org/10.21511/imfi.21(1).2024.12

Basana, S. R., Tarigan, Z. J. H., Siagian, H., & Jie, F. (2024). The impact of personality traits on financial decisions through financial knowledge and investment risk. *Journal of Competitiveness, 16*(2), 262-279. doi: https://doi.org/10.7441/joc.2024.02.13

Becker, G. S. (1964). *Human Capital: A Theoretical and Empirical Analysis, With Special Reference To Education*. Chicago: University of Chicago Press.

Broekema, S. P. M., & Kramer, M. M. (2021). Overconfidence, financial advice seeking and household portfolio under-diversification. *Journal of Risk and Financial Management, 14*(11). doi: https://doi.org/10.3390/jrfm14110553

Budiman, J., Ong, T., & Yuwono, W. (2025b). Exploring cognitive bias influence on investment decisions in Indonesia: The mediating role of FOMO. *Jurnal Economia, 21*(3), 432-446 doi: https://doi.org/10.21831/economia.v20i1.76879

Budiman, J., Yodiputra, J., Candy, & Agustin, I. N. (2025a). How overconfidence and mental accounting influence investments? The moderating role of financial literacy. *Asian*

Management and Business Review, 5(1), 1-18. doi: https://doi.org/10.20885/AMBR.vol5.iss1.art1
Campino, J., & Yang, S. (2024). Decoding the cryptocurrency user: An analysis of demographics and sentiments. *Heliyon, 10*(5). doi: https://doi.org/10.1016/j.heliyon.2024.e26671
Cascão, A., Quelhas, A. P., & Cunha, A. M. (2023). Heuristics and cognitive biases in the housing investment market. *International Journal of Housing Markets and Analysis, 16*(5), 991-1006. doi: https://doi.org/10.1108/IJHMA-05-2022-0073
Chaudhary, M. K. (2025). Impact of risk perception, overconfidence bias and loss aversion on investment decision-making. *American Journal of Financial Technology and Innovation, 3*(1), 14-22. doi: https://doi.org/10.54536/ajfti.v3i1.4061
Chishti, M. F., Bashir, R., Mancinelli, T., & Hussain, R. T. (2023). Humanoid psychological sentiments and enigma of investment. *Journal of Economic and Administrative Sciences, 39*(4), 1260-1276. doi: https://doi.org/10.1108/JEAS-05-2021-0100
Chowdhury, N. T., Mahdzan, N. S., & Rahman, M. (2024). Beyond Intuition: The role of financial knowledge in navigating investments in emerging markets. *International Journal of Economics and Financial Issues, 14*(4), 267-281. doi: https://doi.org/10.32479/ijefi.16496
Costa, D. F., Soares, C. C., de Melo Moreira, B. C., & Tonelli, A. O. (2025). Construction and validation of an overconfidence scale in investment decisions. *Future Business Journal, 11*(1). doi: https://doi.org/10.1186/s43093-024-00419-0
Darwis, H., Suwito, & Zainuddin. (2021). Testing of behavior bias: Gamblers' fallacy, halo effect and familiarity effect on investors. *International Journal of Research in Business and Social Science 10*(8), 275-283. doi: https://doi.org/10.20525/ijrbs.v10i8.1482
Financial Services Authority. (2025). *Periodic Statistics: Digital Financial Asset Trading Providers, Including Crypto Assets – November 2025*.
Gong, J. (2024). The relationship between financial market volatility and investor behavior. *Financial Engineering and Risk Management, 7*(6). doi: https://doi.org/10.23977/ferm.2024.070614
Gonsalves, A., & Costa, J. (2024). Heuristic bias, investment decision-making: Moderating role of financial literacy. *IPE Journal of Management 14*(2), 24-33.
Hair, J. F., Hult, G. T. M., Ringle, C. M., Sarstedt, M., Danks, N. P., & Ray, S. (2021). *Partial Least Squares Structural Equation Modeling (PLS-SEM) Using R*. Spinger.
Hasavari, S., Maddah, M., & Esmaeilzadeh, P. (2025). Government oversight and institutional influence: Exploring the dynamics of individual adoption of spot Bitcoin ETPs. *Journal of Risk and Financial Management, 18*(4).
Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science, 43*(1), 115-135. doi: https://doi.org/10.1007/s11747-014-0403-8
Indonesia Central Securities Depository. (2025). *Statistik Pasar Modal Indonesia*. Retrieved from www.ksei.co.id.
Islam, K. U., Bhat, S. A., Lone, U. M., Darzi, M. A., & Malik, I. A. (2024). Financial risk propensity and investment decisions: An empirical analysis using behavioural biases. *IIMB Management Review, 36*(3), 213-229. doi: https://doi.org/10.1016/j.iimb.2024.06.004
Johri, A., Islam, M. U., & Kamal, M. (2023). Assessment of financial literacy and its impact on investor's decisions in Saudi Arabia: A study in the context of enabling financial planning to strengthen economic development. *Discrete Dynamics in Nature and Society, 2023*, 1-11. doi: https://doi.org/10.1155/2023/9932444
Kahneman, D., & Tversky, A. (1979). Prospect theory: An analysis of decision under risk. *Econometrica*. doi: https://doi.org/10.2307/1914185
Kaur, M., Jain, J., & Sood, K. (2024). "All are investing in Crypto, I fear of being missed out": Examining the influence of herding, loss aversion, and overconfidence in the cryptocurrency market with the mediating effect of FOMO. *Quality & Quantity, 58*(3), 2237-2263. doi: https://doi.org/10.1007/s11135-023-01739-z
Kim, J., Koo, B., & Kang, H. G. (2024). Limitations of the investor information confirmation form in capturing investor risk propensity. *Heliyon, 10*(21). doi: https://doi.org/10.1016/j.heliyon.2024.e39923

Kumar, J., Rani, M., Rani, G., & Rani, V. (2024). All are interesting to invest, I fear of missing out (FOMO): a comparative study among self-employed and salaried investors. *Journal of Financial Regulation and Compliance, 32*(5), 646-664. doi: https://doi.org/10.1108/JRFC-01-2024-0010

Mahadwartha, P. A., Ismiyanti, F., & Zunairoh. (2023). The gambler's fallacy, the halo effect, and the familiarity effect based on risk profile: Bullish and bearish market in Indonesia Stock Exchange. *Gadjah Mada International Journal of Business, 25*(2), 143-171.

Mahat, N. A. A. B., & Lau, W.-T. (2023). Financial literacy, experience, risk tolerance, and investment behavior: Observations during Pandemic. *International Journal of Research and Innovation in Social Science, VII*(X). doi: https://doi.org/10.47772/IJRISS

Maheshwari, H., Samantaray, A. K., Panigrahi, R. R., & Jena, L. K. (2025). Financial literacy in predicting investment decisions: Do attitude and overconfidence influence? *International Journal of Social Economics, 52*(2), 220-235. doi: https://doi.org/10.1108/IJSE-05-2023-0370

Manocha, S., Bhullar, P. S., & Sachdeva, T. (2023). Factors determining the investment behaviour of farmers – the moderating role of socioeconomic demographics. *Journal of Indian Business Research, 15*(3), 301-317. doi: https://doi.org/10.1108/JIBR-02-2022-0045

Modigliani, F., & Brumberg, R. (1954). Utility analysis and the consumption function: An interpretation of cross-section data *Post-Keynesian Economics* (pp. 388-436). New Brunswick: Rutgers University Press.

OECD. (2013). *PISA 2012 Assessment and Analytical Framework: Mathematics, Reading, Science, Problem Solving And Financial Literacy*: OECD Publishing.

Pearson, B., & Korankye, T. (2023). The association between financial literacy confidence and financial satisfaction. *Review of Behavioral Finance, 15*(6), 935-946. doi: https://doi.org/10.1108/RBF-03-2022-0090

Quaicoe, A., & Eleke-Aboagye, P. Q. (2021). Behavioral factors affecting investment decision-making in bank stocks on the Ghana stock exchange. *Qualitative Research in Financial Markets, 13*(4), 425-439. doi: https://doi.org/10.1108/QRFM-05-2020-0084

Ryder, N. B. (1965). The cohort as a concept in the study of social change. *American Sociological Review, 30*(6), 843-861. doi: https://doi.org/10.2307/2090964

Shunmugasundaram, V., & Sinha, A. (2024). The impact of behavioral biases on investment decisions: a serial mediation analysis. *Journal of Economics, Finance and Administrative Science*. doi: https://doi.org/10.1108/JEFAS-08-2023-0243

Singh, V., Khan, N. A., & Bhat, M. N. (2024). From propensity to action: exploring gender and cognitive influences on Informal Investment Intentions. *Future Business Journal, 10*(1). doi: https://doi.org/10.1186/s43093-024-00413-6

Syarkani, Y., & Tristanto, T. A. (2022). Examining the predictors of crypto investor decision. *International Journal of Research in Business and Social Science 11*(6), 324-333. doi: https://doi.org/10.20525/ijrbs.v11i6.1940

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. doi: https://doi.org/10.1016/j.bir.2022.03.001

Yang, X., Li, C., Li, X., & Lu, Z. (2024). A parallel monte carlo algorithm for the life cycle asset allocation problem. *Applied Sciences, 14*(22). doi: https://doi.org/10.3390/app142210372

Yanti, F., & Endri. (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. doi: https://doi.org/10.32479/ijefi.16811

Zhang, X., & Huang, C.-H. (2024). Investor characteristics, intention toward socially responsible investment (SRI), and SRI behavior in Chinese stock market: The moderating role of risk propensity. *Heliyon, 10*(14). doi: https://doi.org/10.1016/j.heliyon.2024.e34230