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THE MODERATING ROLE OF HERDING BEHAVIOR IN INVESTMENT DECISION-MAKING

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ABSTRACT

The future of Indonesia's financial sector greatly depends on the millennial and Gen Z generations, who currently dominate the country's workforce. The generations that have grown up in the digital era play a crucial role in driving the transformation of Indonesia's financial sector towards a more transparent, efficient, and inclusive era. The research investigates the impact of psychological biases, risk perception, illusion of control, overconfidence, and financial literacy on investment choices made by Generation Z investors living in Surabaya, East Java, Indonesia. Behavioral finance theory is the foundation for this research, explaining how mental errors and emotional components lead investors away from logical financial decisions. The research investigates herding behavior as a factor that strengthens or diminishes the influence of psychological biases. The study employed a structured survey and applied Partial Least Squares Structural Equation Modeling (PLS-SEM) to examine data from 287 participants, revealing that risk perception and illusion of control significantly influenced investment decisions. The effects of overconfidence and financial literacy become significantly moderated by herding behavior. The study reveals complex psychological patterns in young investor behavior and recommends better financial education to help develop rational investment choices.

Keywords: Behavioral Finance, Risk Perception, Financial Literacy, Herding Behavior.

INTRODUCTION

The rapid evolution of the investment environment has significantly influenced financial decision-making, leading to increased participation by different groups. Investments, defined as a commitment to allocate financial resources with the expectation of future returns, encompass tangible assets such as gold and land and financial assets including stocks, mutual funds, and bonds. Gen Z and Millennials dominate Indonesia's capital market investors. As of June 2025, KSEI recorded that 54.250% of capital market investors in Indonesia are in the ≤ 30 age group (ksei.co.id, 2025). Since 2020, Indonesia's number of capital market investors has skyrocketed. In 2020, the number of investors was recorded at 3.800 million SID (Single Investor Identification). This figure then grew by

93.000%, or an increase of 3.600 million SID, reaching 7.400 million SID in 2021. In 2022, the number of investors increased by 38.000%, or 2.800 million SID, reaching 10.300 million SID. The number of capital market investors continued to rise in 2023, growing by 17.900%, or 1.900 million SID, to reach 12.100 million SID. Furthermore, the number of investors grew by 22.200%, or 2.700 million SID, reaching 14.800 million SID in 2024, and as of now has reached 17.000 million SID (Nurahmad, 2025). It is evidence of the significance of investment decisions by choosing a financial opportunity to gain maximum returns at the cost of resulting risks (Budiarto & Susanti, 2017).

This study uses behavioral finance theory to examine the role of psychological factors in investment decision-making. Behavioral finance examines cognitive biases and emotional influences that lead investors away from rational economic models. Risk perception, financial literacy, and overconfidence are central in shaping investor behaviors (Adil et al., 2022; Almansour et al., 2023, 2025). In addition, the literature strongly supports the idea that the illusion of control bias influences investment decisions (Ullah, 2015). On the other hand, herding behavior, in which individuals make decisions based on group trends rather than individual analysis, provides new insights into investment patterns. Previous studies have stated that herding behavior affects investment decisions (Abideen et al., 2023; Almansour et al., 2023, 2025; Pertiwi & Panuntun, 2023). However, other studies have found that herding behavior does not affect investment decisions (Adil et al., 2022; Ahmed et al., 2022; Ardini & Achyani, 2023; Budiman et al., 2025; Poudel et al., 2024). While previous research has established links between these biases and decisions, and herding as a direct factor, the moderating role of herding on these specific biases is underexplored, particularly in the Gen Z demographic. This study aims to fill that gap.

Risk Perception in Investment Choice-Making

Perceived risk is the primary factor in determining the investment choice and how individuals react to uncertainty and potential loss of money. Unlike mainstream finance theory, in which investors are assumed to be rational, behavioral finance emphasizes that psychological factors, emotions, and personal experience determine risk assessment (Arran, 2023). Risk is more than a statistical probability to most investors; it is a highly subjective and personal experience. Other people see risk as a threat to financial welfare, while others see it as an opportunity for excellent returns. All this is based on various factors that affect risk perceptions, including financial literacy, experience, and market conditions.

Conversely, those without financial savvy may rely on intuition or external pressures and make foolish investment choices. Market volatility also raises the risk perception. During economic depressions, investors are excessively conservative and shy away from opportunities that would have yielded profits in anticipation of losses. During bear markets, optimism outshines reasonable risk analysis, and investors prefer to take avoidable risks. Social influences, such as peer and media pressure, also apply psychological influences, such as overconfidence and loss aversion, also bias risk perception. Loss aversion causes investors to fear losses greater than they enjoy gains and consequently hold onto losing positions in the hope of recovery (Pandia, 2023). Perceived risk is at the core of making an intelligent investment. By knowing the psychological aspects, investors can build strategies to overcome biases, promote financial literacy, and embrace a balanced perspective when assessing risk. Ultimately, the knowledge of handling risk perception allows one to trade financial markets more assertively and solidly, thereby yielding long-term investment success. Wattanasan et al. (2020) found that individuals with a heightened perception of investment risk tend to adopt more

prudent and cautious approaches in their investment activities. Similarly, Lim et al. (2020) highlighted the significance of incorporating risk perception into decision-making. Numerous studies have confirmed that risk perception positively influences investment decision-making (Alisa et al., 2024; Almansour et al., 2025; Herliana et al., 2023; Khairunnisa et al., 2023; Purnomo et al., 2025).

Illusion of Control in Investment Choice

Illusion of control refers to a cognitive illusion where investors exaggerate their ability to manipulate financial outcomes and believe they can predict or manipulate market trends despite inherent uncertainty. Illusion of control leads to overbuying and overselling, taking on risks, and poor investment decisions, which generally amount to financial losses. There has been increased focus on the extreme impact of the illusion of control on investment choice. Arran (2023) explains that behavioral finance contrasts with the traditional interpretation of rational investor behavior by demonstrating how cognitive biases, such as the illusion of control, influence investment choices.

Illusion of control is also sustained by past success, where investors are likely to credit success to their skill and not the market conditions. Syariati et al. (2020) established that young investors in Makassar employ intuition rather than data-driven decision-making, leading to greater exposure to financial risk. The bias can lead to overconfidence; therefore, people may neglect diversification and concentrate investments on risky assets. Pandia (2023) investigated how the illusion of control interacts with cognitive and affective biases and showed that investors who believe they can control market volatility are likelier to overlook risk warnings and engage in speculative trading. The results of studies by Ullah (2015), Pradhana (2018), and Hussalman & Sari (2023) prove that the illusion of control has a positive effect on investment decision-making.

Overconfidence in Investment Decision-Making

Overconfidence in investment decision-making is a phenomenon with extensive implications on investor behavior, with a tendency to create excessive risk-taking and adverse financial outcomes. Most investors, particularly novices, overestimate their ability to predict market direction and control investment outcomes. Overconfidence can cause investors to trade excessively, take risks, and forget diversification methods, all factors that can contribute to their entire portfolio performance. Studies have suggested that overconfident investors usually make reckless trades, believing their decisions are superior to those in the marketplace. Investors who exhibited high overconfidence relied significantly on personal judgments, overlooking fundamental analysis and disregarding market signals. Shrestha et al. (2025) demonstrated that overconfidence is the primary driver of investment choices, enhancing loss aversion and representativeness bias. Their study found that investors who classify themselves as highly capable are less likely to perceive uncertainties and are thus more susceptible to financial risk. Younger investors are particularly overconfident due to their inexperience with financial risks. Ardini & Achyani (2023) studied the case of Generation Z investors and overconfidence and determined that younger investors are more inclined to take risky investment decisions without properly assessing market conditions. This action is often motivated by social pressures, internet investment sites, and a lack of experience handling complex financial products. Psychological satisfaction of feeling in control takes the place of rational decision-making, leading to speculatively behaving investors.

Combating overconfidence is necessary in maximizing investment outcomes. Investors can adopt evidence-based practices such as portfolio diversification, diligent investing, and application of expert money management recommendations. By

recognizing individual intuition's fallibility and embracing information-based decision-making, investors can curtail the ill effects of overconfidence and generate wiser investment choices.

Financial Literacy in Investment Decision

Financial literacy enables a person to make investment decisions efficiently, measure the firm's performance, and identify the impact of multiple accounting policies. Shrestha et al. (2025) assume that financial knowledge is a catalyst in resolving biases in investment and strategizing financial decision-making. Financial literacy in accounting is crucial for a business purpose regarding regulatory compliance, optimizing financial control, and raising stakeholder openness. Financially literate managers and investors can correctly interpret the financial ratios, predict cash flow patterns, and make optimum investment choices. Research consistently shows that financial literacy is associated with better financial practices and results. People with strong financial literacy skills are more capable of understanding financial products, evaluating risks, and making well-informed choices. Research by Ullah (2015), Herliana et al. (2023), Alisa et al. (2024), Asri et al. (2024), and Mandiri & Sriwidharmanely (2025) found that financial literacy has a positive effect on investment decision-making.

Herding Behavior as a Moderated Variable in Investment Choices

Herding behavior is at the heart of affecting the investment decision-making process, particularly when investors follow the opinion of the crowd rather than rational thinking. Herding occurs when individuals follow the crowd in the financial industry, believing the crowd's choice is informed. As a moderator variable, herding affects the relationship between risk perception, illusion of control, and overconfidence, changing how investors interpret risks and make financial decisions. Investors will view risk based on market trends and not financial realities. Khairunnisa et al. (2023) explained that herding amplifies risk perception, leading investors to under-or overestimate market volatility based on prevailing trends. The investor may underestimate risks at bull phases when optimism dominates everywhere, but at bear periods, herding under a panic atmosphere may overstate aversion to risk through irrational selling. Similarly, Tamara (2022) depicted that herding behavior underpins the illusion of control, where investors tend to believe that following others enhances their ability to predict market directions. This illusory control is prone to leading to speculative trading and financial mistakes.

Overconfidence is also a cognitive bias that is significantly driven by herding behavior. Pertiwi & Panuntun (2023) examined how overconfidence interacts with herding behavior, indicating that highly overconfident investors tend to herd in market directions without subjectively evaluating financial data. Such an activity creates speculative bubbles, where asset prices detach from inherent values because of pervasive overconfidence. Arran (2023) also noted that behavioral finance challenges standard assumptions regarding rational investor behavior and explained how cognitive biases like herding behavior drive financial decision-making. Herding behavior extends beyond individual-level biases and has implications for market trends. Shrestha et al. (2025) concluded that herding behavior significantly impacts stock market stability as group decisions can create exaggerated price movements. Their study centered on the significance of financial literacy in mitigating the adverse effects of herding, positing that rational investors are less susceptible to the impacts of market-driven sentiment.

Its understanding as a moderating variable is critical to investors, financial analysts, and policymakers. By understanding its impact on risk perception, illusion of control, and overconfidence, investors can craft autonomous decision-making strategies, increase

financial literacy, and employ data-based investment strategies to offset emotional factors. Pandia (2023) urged regulatory intervention to deter excessive herding behavior, recommending policies to ensure market transparency and investor consciousness. Lastly, understanding the power of herding behavior in investment selection allows individuals to make more rational financial decisions, leading to greater long-term portfolio stability. Investors can weather market volatility with greater confidence and strength through encouraging financial literacy and independent thought. Even though there has been extensive past research on the behavioral finance impacts on investment decisions, empirical studies on the moderating impact of the herding effect are poorly examined.

This study endeavors to bridge the gap by analyzing how herding behavior affects investment choices among Surabaya's Gen Z population. With more young investors involved in investments, the behavioral biases here are important to understand in order to advance financial knowledge and investment management. The research hypotheses for this study are:

H_1 : Risk perception has a positive effect on investment decision-making.

H_2 : The illusion of control positively impacts investment decision-making.

H_3 : Overconfidence has a positive impact on investment decision-making.

H_4 : Financial literacy has a positive impact on investment decision-making.

H_5 : Herding behavior moderates the influence of risk perception on investment decision-making.

H_6 : Herding behavior moderates the influence of the illusion of control on investment decision-making.

H_7 : Herding behavior moderates the influence of overconfidence on investment decision-making.

H_8 : Herding behavior moderates the influence of financial literacy on investment decision making.

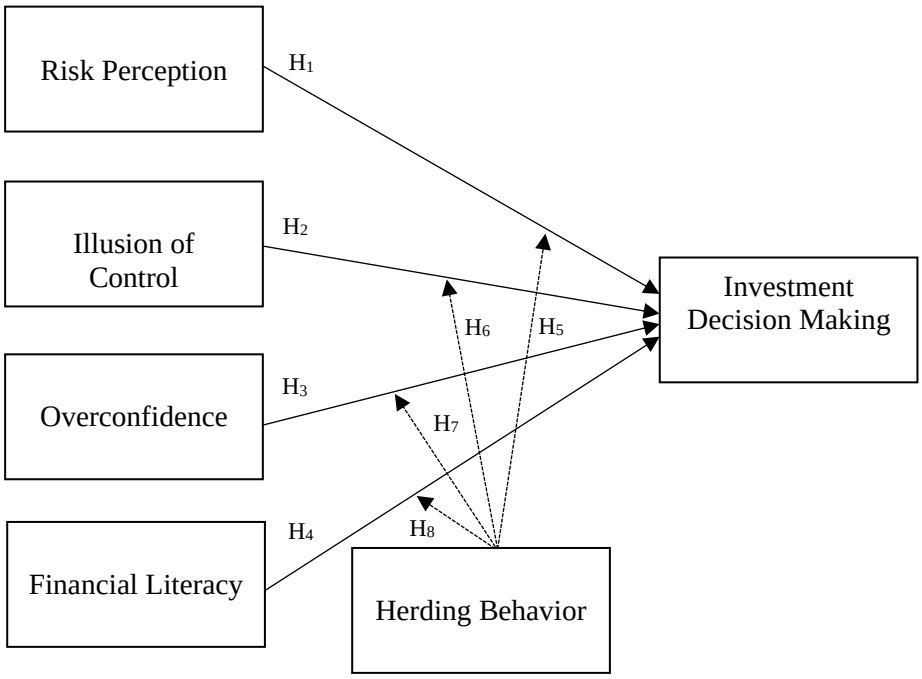

Figure 1. Research Framework
Source: Data processed

RESEARCH METHODS

The study takes a quantitative research approach to analyze the relationship between risk perception, illusion of control, overconfidence, and financial literacy in investment choices, and to test the moderating role of herding behavior. The research seeks to draw empirical conclusions from a structured questionnaire-based survey with the help of robust data collection and statistical testing (Kumar & Choudhary, 2023). The subject population comprises Generation Z investors aged 19-27, residing in Surabaya, East Java, Indonesia. Gen Z was born between 1997 and 2012 (Yeptro & Hidayat, 2025). It is crucial since young investors are becoming more engaged in financial markets, which is typically fueled by psychological bias and market sentiments (Sharma, 2025). Three hundred questionnaires were given to the respondents by a professional surveyor services company to obtain a high response rate.

Of the 300 questionnaires distributed, 287 were fully completed and considered valid, and 13 were left out due to incomplete or inconsistent information. The 95.670% response rate ensures data reliability and strength, and the sample size is adequate for statistical analysis (Arran, 2023). The primary research instrument utilized in this study was a structured questionnaire, designed to gather data systematically across the independent, dependent, and moderating variables. The questionnaire was carefully developed using validated scales from previous behavioral finance literature to guarantee content validity and reliability (Sharma, 2025).

The definition and measurement of research variables are explained in Table 1.

Table 1. Variables and Measurement

Definition	Items	Measures
Risk Perception is the individual judgment of uncertainty and prospective loss in comparison to investment alternatives by an investor.	6	Ahmed et al. (2022)
An illusion of control is when investors feel or think they have more control over financial outcomes than they do, leading them to over-trade and become involved in risky investment behavior.	3	Ullah (2015) and Pradhana (2018)
Overconfidence is the exaggerated confidence of the investor in their information and decision-making capabilities, which primarily results in high-risk financial behavior.	6	Abideen et al. (2023)
Financial literacy is the capacity of an individual to comprehend and apply financial information efficiently, especially concerning accounting concepts, financial reports, and making investment decisions.	7	Abideen et al. (2023)
Herding behavior - demonstrates the behavior of investors to follow market trends or crowd behavior rather than employing independent thought.	7	Ahmed et al. (2022)
Investment Decision-Making is the process by which investors select assets based on perceived risk, expected return, and behavioral bias, and thereby decide on their financial portfolio	3	Ahmed et al. (2022) and Abideen et al. (2023)

Note: A 5-point Likert scale was employed to measure the outcomes, where 1 indicated strong disagreement and 5 indicated strong agreement
Source: Data processed

Data collected were treated with Partial Least Squares Structural Equation Modeling (PLS-SEM), a robust method for examining intricate relationships among latent variables. PLS-SEM was employed since it can handle non-normal data distribution, examine the moderating effect, and provide valid results to research studies in behavioral finance (Kumar & Choudhary, 2023). The analysis process included: Measurement Model Evaluation – Examining construct validity, reliability, and factor loads to confirm the adequacy of questionnaire items (Sharma, 2025). Structural Model Analysis – Examining the direct relationships between risk perception, illusion of control, overconfidence, investment decision-making, and the moderating effect of herding behavior. Bootstrapping and Hypothesis Testing – Performing statistical validation with confidence intervals to examine the significance and magnitude of the impact of variables on investment decisions. This research strategy ensures high external validity, with generalizability to larger populations of young investors. A systematic questionnaire provides a standard method of gauging cognitive biases, while PLS-SEM offers firm statistical proof of the moderating effect of herding behavior (Kumar & Choudhary, 2023).

RESULTS AND DISCUSSION

Table 2 summarizes the description of respondents who participated in this study. The respondents are described based on gender, age, and employment status.

Table 2. Descriptive Statistics

Description		Frequency	Percentage
Gender	Male	163.00	56.79%
	Female	124.00	43.21%
Age	19 – 21	108.00	37.63%
	22 – 24	119.00	41.46%
	≥ 25	60.00	20.91%
Employment status	Employed	101.00	35.19%
	Unemployed	186.00	64.81%

Source: Data processed

The results of the SEM-PLS analysis indicate that, for the validity test, several constructs were found to be invalid: one item each from the overconfidence variable, the financial literacy variable, and the herding behavior variable. Meanwhile, all items of the risk perception, illusion of control, and investment decision-making variables were valid. For the reliability test, all research variables met the required criteria. The complete validity and reliability results are presented in Table 3. status.

Table 3.1. Validity and Reliability Test

Variable	Indicator	Loading Factor	AVE	CA	CR
Risk Perception	RP1	0.820	0.567	0.844	0.886
	RP2	0.632			
	RP3	0.723			
	RP4	0.811			
	RP5	0.665			
	RP6	0.841			
Illusion of Control	IoC1	0.841	0.741	0.825	0.895
	IoC2	0.878			
	IoC3	0.862			

Table 3.2. Validity and Reliability Test (Continuation)

Variable	Indicator	Loading Factor	AVE	CA	CR
Overconfidence	OC1	0.268*	0.510	0.744	0.832
	OC2	0.424			
	OC3	0.828			
	OC4	0.808			
	OC5	0.717			
	OC6	0.698			
Financial Literacy	FAL1	0.782	0.518	0.705	0.804
	FAL2	0.548			
	FAL3	0.751			
	FAL4	0.640			
	FAL5	0.651			
	FAL6	0.406			
	FAL7	0.297*			
Herding Behavior	HB1	0.689	0.536	0.818	0.870
	HB2	0.273*			
	HB3	0.858			
	HB4	0.744			
	HB5	0.810			
	HB6	0.761			
	HB7	0.461			
Investment Decision Making	IDM1	0.822	0.714	0.799	0.882
	IDM2	0.887			
	IDM3	0.824			

Source: PLS analysis results, *did not pass the validity test and was excluded from the data analysis

Table 4 presents the HTMT (Heterotrait-Monotrait Ratio), which is used to test discriminant validity. The HTMT values for all variables are below 0.850 (between different constructs), indicating that the latent variables can be clearly distinguished. The structural model has no collinearity issue because the VIF value is 2.115 (< 3.000). The R-squared value is 0.291 with a significance level of < 0.001.

Table 4. HTMT Ratios

	RP	IoC	OC	FAL	HB
RP					
IoC	0.286				
OC	0.469	0.166			
FAL	0.327	0.269	0.454		
HB	0.402	0.784	0.369	0.269	
IDM	0.377	0.217	0.379	0.185	0.279

Source: PLS analysis results

The results of the hypothesis testing, including the coefficient values, significance levels, and the magnitude of the direct effects of the independent variables on the dependent variable, as well as the indirect effects through the moderating variable, are presented in Table 5 and Figure 2. For H_1, H_2, and H_3, the significance values were < 0.050, indicating that H_1, which states that risk perception influences investment decision-making, is supported; H_2, which states that illusion of control influences investment decision-making, is supported. Meanwhile, the significance values of H_3, H_4, H_5, and H_0 were > 0.050, indicating that all four hypotheses are unsupported. H_3, which states that overconfidence affects investment decision-making, is not supported. H_4, which states that financial literacy influences investment decision-making, is not supported. The results for H_5 indicate that herding behavior is not proven to be a moderating variable in

the relationship between risk perception and investment decision-making. Similarly, the results for H_6 show that herding behavior cannot act as a moderating variable in the relationship between illusion of control and investment decision-making. For H_7 and H_8, the significance values were < 0.050, indicating that the hypotheses are supported. H_7 demonstrates that herding behavior moderates the relationship between overconfidence and investment decision-making. Finally, H_8 shows that herding behavior moderates the relationship between financial literacy and investment decision-making.

Table 5. Hypothesis Test Result

Hypothesis		Path Coefficient	P-Value	Effect Size	Conclusion
H_1	RP → IDM	0.188	0.002	0.062	Supported
H_2	IoC → IDM	0.215	0.001	0.092	Supported
H_3	OC → IDM	0.097	0.070	0.037	Not Supported
H_4	FAL → IDM	-0.014	0.420	0.003	Not Supported
H_5	RP*HB → IDM	0.046	0.246	0.010	Not Supported
H_6	IoC*HB → IDM	-0.006	0.466	0.002	Not Supported
H_7	OC*HB → IDM	-0.138	0.018	0.056	Supported
H_8	FAL*HB → IDM	-0.163	0.006	0.052	Supported

Source: PLS analysis results

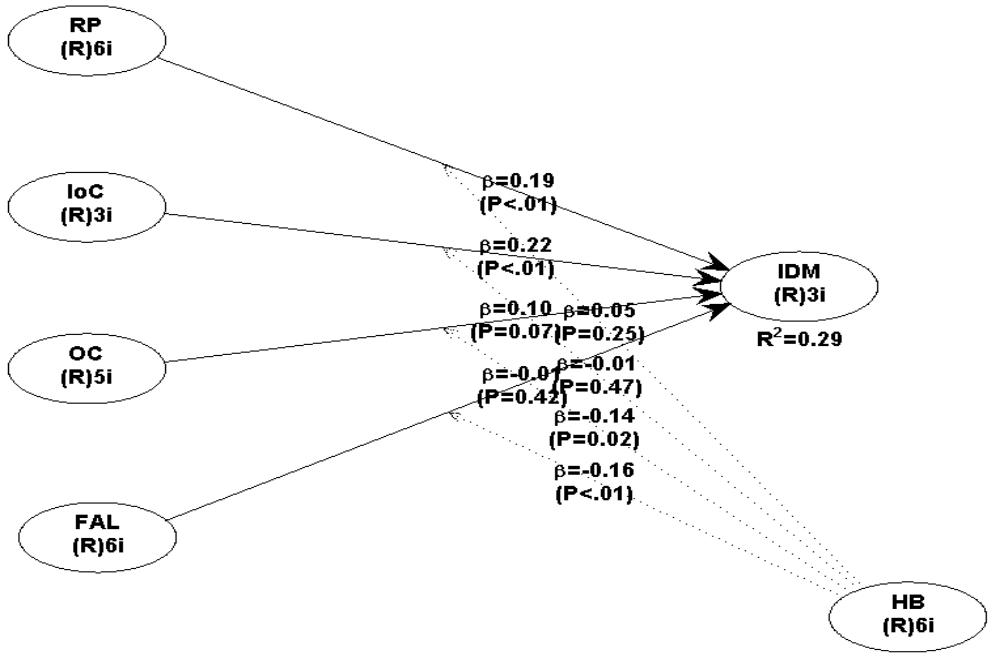

Figure 2. Output Model
Source: PLS analysis results

Risk Perception and Investment Decision Making

Risk perception significantly positively affects investment decision-making, thereby supporting H_1. It indicates that as risk perception increases, respondents are more inclined to engage in investment decisions. Among Indonesian Generation Z investors, particularly beginners, there is a strong confidence in pursuing high-risk investments, motivated by the potential for substantial returns. They view high risk as a trade-off for gaining substantial returns quickly. They believe that high risk is associated with high returns. This study demonstrates that investors opting for high-risk instruments, such as stocks, reflect their willingness to embrace substantial risk levels, aligning with the

findings reported by Khairunnisa et al. (2023)), Herliana et al. (2023), Almansour et al. (2023), Alisa et al. (2024), Almansour et al. (2025), and Purnomo et al. (2025), which state that a higher level of risk perception among respondents influences their investment decisions. However, this study's results differ from those of Pandia (2023), Asri et al. (2024), and Ambarwati & Yoga (2025), who found that risk perception negatively affects investment decision-making. The findings also do not support the research by Ahmed et al. (2022) and Tamara (2022), which stated that risk perception does not affect investment decision-making.

Illusion of Control and Investment Decision Making

Illusion of control shows a significant positive impact on investment decision-making, thus supporting H_2. It suggests that investors with a stronger illusion of control bias are more likely to engage in frequent investment decisions. Sometimes, they depend heavily on intuition and exhibit strong confidence in forecasting outcomes. The illusion of control bias leads individuals to believe they can control events when, in reality, they cannot. The investors in this study are individual investors who do not use portfolio manager services. These individual investors tend to feel confident in their abilities and knowledge without considering external risks beyond their control. This behavior results in the illusion of control bias. When investors profit from their investments, they feel they can control all circumstances and outcomes. However, most investment outcomes are actually beyond the investor's control. Investors tend to focus on past successes, where they will only invest in types of assets that have previously yielded profits. The results of this study support the findings of Ullah (2015), Pradhana (2018), Syarkani & Alghifari (2022), and Hussalman & Sari (2023), who asserted that investors base their investment decisions on their perceived skills and their preference for controlling uncertain future events, often overestimating theizr own capabilities and expertise.

Overconfidence and Investment Decision Making

Overconfidence describes a condition in which individuals have heightened belief in the accuracy of their knowledge and abilities. The study demonstrates that overconfidence significantly affects investment decision-making, resulting in H_3 being unsupported. Overconfident investors tend to believe that they possess superior expertise and understanding of the market, which should make them more willing to take greater risks in making investments. However, the results of this study indicate that respondents with high confidence levels are also accompanied by high levels of risk perception, leading them to avoid excessive trading. They still take into account that transactions in the capital market involve high risk. These findings support previous studies of Tamara (2022), Abideen et al. (2023), and Chauhan & Patel (2024), which revealed that overconfidence has no significant impact on investment decision-making. Conversely, these results do not support previous studies conducted by Pertiwi & Panuntun (2023), Almansour et al. (2023), Almansour et al. (2025), Paul & Sundaram (2025), Shrestha et al. (2025), Shunmugasundaram & Sinha (2024), Yuwana et al. (2025), and Ambarwati & Yoga (2025), which argued that high confidence influences investment decision-making.

Financial Literacy and Investment Decision Making

Financial literacy in this study was found not to affect investment decision-making, H_4 rejected. The respondents in this research are members of Generation Z, aged between 19 and 25 years, which is considered a young age group. Most of them are still in college and have not yet entered the workforce, and thus have not started thinking about future financial planning or managing their personal finances. Additionally, respondents within this age range generally do not have stable jobs, so their investment amounts tend to be

small. Good financial literacy does not guarantee that investment decisions will be accurate, so financial literacy does not influence investment decisions. Generation Z most likely possesses only theoretical financial literacy and lacks extensive experience in the investment world, meaning their decisions are based solely on available information. At the same time, the capital market is full of uncertainty. The findings of this study support previous research conducted by Pradhana (2018), Hussalman & Sari (2023), and Almansour et al. (2025) which stated that financial literacy does not have a significant impact on investment decision-making. However, these findings do not align with the results of studies by Ullah (2015), Herliana et al. (2023), Alisa et al. (2024), Asri et al. (2024), and Mandiri & Sriwidharmanely (2025), who reported that financial literacy positively impacts investment decision-making.

Herding Behavior as a Moderating Variable

The novelty of this research lies in testing irrational behavior that may occur in the capital market, namely herding behavior, as a moderating variable, whereas several previous studies employed financial literacy as a moderating variable (Tamara, 2022; Ullah, 2015; Yuwana et al., 2025). Herding behavior is the propensity of individuals to align their decisions with those of others, irrespective of the rationality behind them (Khan, 2020). It reflects the inclination to follow the majority, believing collective choices are inherently correct (Bakar & Yi, 2016). The results revealed that herding behavior was ineffective as a moderating variable between risk perception and investment decision-making, thus H_5 was not supported. It indicates that group behavior neither amplifies nor weakens the effect of risk perception on investment decisions. Gupta & Shrivastava (2022) state that investors engage in herding to avoid missing out on opportunities other investors might take. Investors tend to rely more on publicly available evidence than on their private data when herding. Herding behavior occurs because the market is inefficient and investors do not conduct fundamental analysis. Everyone is capable of engaging in herding behavior. It is a strategy investors use to reduce the likelihood of making poor decisions.

Herding behavior was likewise shown to have no moderating effect on the link between illusion of control and investment decisions, thereby leading to H_6 being unsupported. The illusion of control is a cognitive bias in which individuals overestimate their ability to affect outcomes, even though chance or external factors exert greater influence. In this study, such external factors did not significantly affect group behavior. According to Riaz & Iqbal (2015), the illusion of control shares characteristics with other behavioral biases, as individuals tend to believe they can exert control and influence outcomes in random events. Considering the rejection of both H_5 and H_6, future studies could examine other potential moderating variables, such as emotional intelligence or market sentiment. Moreover, cross-cultural research may provide valuable insights into whether psychological biases impact investment decisions differently across regions.

Herding behavior was identified as a moderating variable in the relationship between overconfidence and investment decision-making, thereby supporting H_7. The results suggest that higher levels of self-confidence enhance investment activity. Individuals with more substantial confidence invest more frequently, whereas those with lower confidence engage less often. Nevertheless, the impact of overconfidence can be tempered by herding behavior. Although confident investors may occasionally make misguided choices, they tend to consider herding tendencies when deciding on investments. A more substantial influence of herding behavior can help curb excessive self-confidence, effectively reducing ego in decision-making. In this context, reducing ego refers to the ability of herding behavior to encourage individuals to better control

their overconfidence by recognizing that the capital market is highly volatile and its movements are challenging to predict, particularly for novice investors.

Herding behavior was also found to significantly moderate the relationship between financial literacy and investment decision-making, thereby supporting H8. The results indicate strong herding tendencies can still influence investment choices even with limited financial literacy. Investors with lower levels of financial literacy often derive confidence from collective behavior when group consensus strongly favors an investment. This finding merits further examination, as Yuwana et al. (2025) demonstrated that financial literacy moderates the link between herding behavior and investment decision-making. Similarly, Adil et al. (2022) highlighted that financial literacy substantially strengthens the impact of herding behavior on investment decisions, particularly among female investors.

CONCLUSION

Research shows through data analysis that psychological distortions are key drivers of investment choices made by Generation Z investors living in Surabaya, East Java. This study found substantial impacts of risk perception, illusion of control, and self-confidence on investment decisions, but could not prove that financial literacy is crucial. The impact of herd behavior is prominent because it can manage overconfidence levels to avoid errors in investment decision-making. Furthermore, herding behavior can enhance the role of financial literacy in making better investment decisions. Behavioral finance has emerged as an important framework for analyzing investor actions that goes beyond standard economic theory. Implementing financial literacy programs and teaching independent data analysis methods can mitigate the effects of cognitive biases and social pressure on investment decisions. The successful application of PLS-SEM demonstrates enhanced validity of the results, enabling policymakers, educational bodies, and financial institutions to develop a healthier investment environment.

There are several limitations to this study. First, it did not inquire about respondents' investment experience (such as the years they have invested). Second, the study was conducted only on respondents aged between 19 and 25 years, making it likely that they are still students and may not have sufficient income to invest. Based on these limitations, future research could further examine whether differences in investment decision-making exist based on the length of an individual’s investment experience, and also expand the respondent coverage to the 20–30-year-old age range, as indicated by KSEI survey results.

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