

The Effect of Heuristic Bias and Herding Bias on Investment Decisions with Financial Literacy as a Moderating Variable in Gen Z

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ABSTRACT

This study aims to examine the influence of heuristic bias and herding bias on investment decisions, and evaluate the role of financial literacy as a moderating variable on Gen Z investors in Indonesia. Data was collected from 170 respondents with at least three years of investment experience, analyzed using SEM-PLS. The results show that heuristic bias and herding bias have a significant positive effect on investment decisions. Financial literacy also has a positive effect, but only moderates (weakens) the relationship between heuristic bias and investment decisions. There is no moderation on herding bias. These findings emphasize the importance of financial literacy in mitigating the effects of behavioral biases, although social influences remain strong in Gen Z's decision-making.

INTRODUCTION

In recent years, the development of the capital market in Indonesia has shown a significant growth trend, both in terms of the number of investors and transaction value. One of the main indicators of this growth is the increase in the number of individual investors, especially among the younger generation. Based on data from PT Kustodian Sentral Efek Indonesia (KSEI), the number of individual investors increased from 10.31 million in 2022 to 14.58 million by the end of 2024. This increase reflects the increasing awareness of the public, especially Generation Z, of the importance of investment as part of future financial planning (KSEI, 2024).

Generation Z, which is the age group born between 1997 and 2012, is known as the digital generation that has unique characteristics in accessing information and making decisions. They grew up in the era of information technology and social media, which makes them very responsive to market trends and online information. According to the CFA Institute (2023), more than 50% of Gen Z investors get their financial information from social media, not from conventional sources such as financial reports or economic news. This has the potential to cause bias in the investment decision-making process because the information received is not necessarily valid, complete, or objective.

One approach to understanding the investment behavior of this generation is through the theory behavioral finance, which explains that investors often do not act rationally in making investment decisions. Their decisions are influenced by various psychological biases, including *heuristic bias* and *herding bias* (Statman, 2014). Heuristic bias is an individual's tendency to simplify the decision-making process by using rules of thumb (rules of thumb), such as being overly confident (overconfidence), assessment based on similarity (representativeness), or attachment to initial information (anchoring) (Tversky & Kahneman, 1974; Zahera & Bansal, 2018). On the other hand, herding bias occurs when individuals follow the majority decision without conducting rational analysis, which can trigger the formation of price bubbles and increase systemic risk in the capital market (Bikhchandani & Sharma, 2001).

Phenomenon herding is increasingly relevant in the context of market digitalization and the dominance of social media as the main information channel for young investors. Exposure to viral content, financial influencer opinions, and discussions in online communities often encourage investors to follow the flow without considering fundamental analysis. In the long run, this behavior can cause significant financial losses and reduce the quality of investment decision making (Shah et al., 2022).

To reduce the impact of behavioral bias, financial literacy plays an important role. Financial literacy refers to an individual's ability to understand basic financial concepts such as risk, return, diversification, the time value of money, and the implications of inflation and compound interest on investment. According to Remund (2010), individuals with a good level of financial literacy tend to be able to make more rational investment decisions, are able to filter information more critically, and are not easily influenced by majority opinion or momentary trends. Previous research also shows that financial literacy can act as

a moderating variable that weakens the influence of behavioral bias on investment decisions (Firmansyah, 2023).

However, even though the national financial literacy rate increased from 49.68% in 2022 to 66.46% in 2024 (OJK, 2024), there is still a gap in the application of this financial knowledge in investment practices, especially among Generation Z. This indicates that theoretical understanding alone is not enough to encourage wise investment behavior without adequate training and experience.

Based on this description, this study aims to empirically test the influence of heuristic bias and herding bias on the individual investment decisions of Generation Z, as well as evaluating whether financial literacy can moderate the relationship between the two types of bias and investment decisions. By understanding the role of financial literacy as a mitigation tool against behavioral bias, this study is expected to contribute to the development of more effective and contextual financial education strategies.

LITERATURE REVIEW

Generation Z is a digital native formed in a highly dynamic environment of technology and social media. According to CFA Institute (2023), more than 50% of Gen Z investors obtain financial information from social media such as TikTok, YouTube, and Instagram, which is more informal and emotional than data-based or fundamental analysis. This phenomenon indicates a shift in investment decision-making patterns from a rational approach to an impulsive and intuitive one, which is heavily influenced by online dynamics and viral content.

In this context, social media is not only a source of information, but also a channel for shaping behavioral biases. Shah et al. (2022) assert that exposure to viral investment content can increase herding bias, as young investors are encouraged to go with the flow without in-depth analysis to avoid fear of missing out (FOMO). Montandon and Migliaccio (2023) also found that Gen Z trusts financial influencers more than professional advisors in making investment decisions, which may reinforce heuristic biases such as overconfidence and anchoring.

This trend confirms that in the digital era, Gen Z's investment behavior is highly susceptible to social pressure and information overload. Therefore, financial literacy complemented by digital literacy and critical thinking skills are needed to balance the influence of social media in the financial decision-making process (Wijaya et al., 2023).

Behavioral Finance Theory

Behavioral finance theory explains that financial decision-making is not entirely based on the principle of rationality as assumed by classical finance theory. According to Kahneman and Tversky (1979), individuals are often influenced by psychological and emotional factors, which cause bias in decision-making. In the context of the capital market, investors can make decisions based on intuition, personal experience, or social influence, rather than from objective fundamental analysis. This theory is the basis for explaining how heuristic bias and herding bias can influence investment decisions, especially for individual

investors from Generation Z who are still in the stage of forming market experience.

Investment Decisions

Investment decisions are the process of determining the allocation of funds in various financial instruments with the hope of obtaining optimal profits. Investors consider various factors such as risk, return, time, and available information. According to Irvansyah & Murhadi (2024), investment decisions are not only influenced by rational information, but also by emotions, risk perception, and cognitive limitations that form behavioral biases.

Heuristic Bias

Heuristic bias is a cognitive bias that occurs when investors use rules of thumb or mental shortcuts in making decisions, especially under time pressure or information uncertainty. These biases include overconfidence, representativeness, and anchoring. Gen Z investors often trust intuition or easily accessible information without evaluating it thoroughly, thereby risking suboptimal decision making (Javed & Marghoob, 2017).

H1: Heuristic bias has a significant influence on investment decisions.

H4: Financial literacy weakens the influence of heuristic bias on investment decisions.

Herding Bias

Herding bias describes the tendency of investors to follow the actions of the majority without doing their own analysis. This bias often occurs in uncertain market conditions, when investors feel safer following the decisions of others. In the digital and social media era, herding behavior is increasingly common among Gen Z (Shah, 2024).

H2: Herding bias has a significant influence on investment decisions.

H5: Financial literacy weakens the influence of herding bias on investment decisions.

Financial Literacy

Financial literacy is an individual's ability to understand and manage personal finances, including understanding risk, returns, inflation, and diversification. Good financial literacy is expected to strengthen rational investment decision-making and minimize the impact of behavioral bias (Remund, 2010).

H3: Financial literacy has a significant influence on investment decisions.

H4 & H5: Financial literacy acts as a moderating variable in the relationship between behavioral bias and investment decisions.

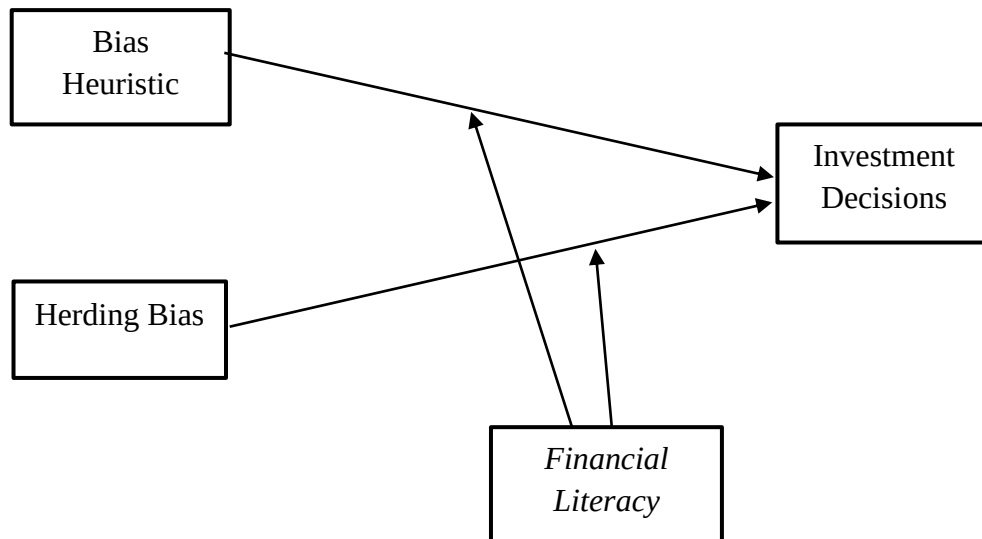


Figure 1. Theoretical Framework

METHODOLOGY

This study uses a descriptive approach with quantitative methods to test the influence heuristic bias and herding bias on investment decisions, with financial literacy as a moderating variable. The population in this study are individual investors from Generation Z who actively invest in the Indonesian capital market. Technique purposive sampling used to determine a research sample of 170 respondents, with the following criteria: (1) individuals who are included in Generation Z (born 1997–2012), (2) have at least three years of investment experience, and (3) are actively investing until 2024.

The data used in this study are primary and secondary data. Primary data were obtained through the distribution of questionnaires to respondents who met the criteria. The research instrument consisted of question items that measured heuristic bias (indicator: over confidence, representativeness), herding bias (indicator: stock type, stock volume, market reaction), financial literacy (indicator: time value of money, inflation, interest compounding, risk diversification, and risk and return), as well as investment decision.

Data processing and analysis is carried out using the method Structural Equation Modeling (SEM) based Partial Least Square (PLS) through SmartPLS software. The analysis process includes evaluation of the measurement model (outer model) to test the validity and reliability of the indicators, as well as evaluation of the structural model (inner model) to test the relationship between variables and hypothesis testing.

RESEARCH RESULT

Descriptive Analysis

Descriptive analysis was conducted on the main variables, namely Heuristic Bias, Herding Bias, Financial Literacy, and Investment Decisions. The following is a summary of descriptive data based on the average value (mean) and TCR (Total Respondent Achievement):

Table 1. Descriptive Analysis Results

Variables	Mean	TCR (%)	Category
Heuristic Bias	4.23	84.69	High
Herding Bias	4.02	80.42	Moderate
Financial Literacy	4.36	87.14	High
Investment Decisions	4.15	83.01	High

The TCR value shows that all variables are in the high category, except for Herding Bias which is in the sufficient category. This reflects that the majority of respondents have a high level of financial literacy and heuristic tendencies, and tend to make investment decisions actively.

Hypothesis Testing Results

Hypothesis testing was carried out using the Partial Least Square (PLS) technique with the SmartPLS 4.0 application.

a. Direct Effect Analysis

Table 2. Results of Direct Effect Hypothesis Testing

Connection	Coefficient	T-statistic	P-value	Significance
Heuristic Bias → Investment Decisions	0.111	2,030	0.021	Significant
Herding Bias → Investment Decisions	0.454	5.915	0.000	Significant
Financial Literacy → Investment Decisions	0.394	5.386	0.000	Significant

b. Moderation Analysis (Interaction Effect)

Table 3. Results of Hypothesis Testing of Moderation Effect

Moderation Interaction	Coefficient	T-statistic	P-value	Significance
Financial Literacy × Heuristic Bias → Investment Decisions	0.118	1,846	0.032	Significant
Financial Literacy × Herding Bias → Investment Decisions	-0.072	1,318	0.094	Not Significant

These results indicate that Financial Literacy moderates the influence of Heuristic Bias, but does not moderate the influence of Herding Bias on investment decisions.

R-Square Value (Coefficient of Determination)

Table 4. R-Square Results

Endogenous Variables	R ²	Adjusted R ²
Investment Decisions	0.739	0.731

The R² value of 0.739 indicates that approximately 73.9% of the variation in investment decisions can be explained by Heuristic Bias, Herding Bias, and Financial Literacy.

Goodness of Fit (Model Fit)

Table 5. Goodness of Fit Results

Indicator	Mark
SRMR	0.065
NFI	0.831

The SRMR value < 0.08 and NFI > 0.8 indicate that the model has a good enough fit to be used in explaining the relationship between variables in this study.

DISCUSSION

The Influence of Heuristic Bias on Investment Decisions

The results of the study show that heuristic bias has a positive and significant effect on Gen Z investment decisions. This finding is in line with behavioral finance theory which emphasizes that investors often use mental shortcuts in conditions of uncertainty (Tversky & Kahneman, 1974). Gen Z who lives in the information age tend to rely on intuition, overconfidence, and the influence of past experiences in assessing investments.

A study by Wijaya et al. (2023) shows that Indonesian investors often make decisions based on instinct and mental representation, rather than rational analysis. Wirayana (2023) also emphasized that anchoring bias is a dominant bias in young investors, who are too focused on initial information. Shahid & Sabir (2018) also found that heuristic bias leads to quick but less accurate decisions due to overconfidence.

The implication is that while Gen Z may appear tech-savvy, they are still susceptible to intuitive bias and require educational strategies to encourage more data-driven decision-making.

The Influence of Herding Bias on Investment Decisions

The results show that herding bias has a positive and significant effect on investment decisions. Gen Z investors tend to follow the majority, especially when under information pressure from social media or online communities.

Research by Chhapra et al. (2018) and Keswani et al. (2019) found that in volatile market situations, young investors often follow the majority's decisions because of a sense of psychological security. Liem and Sukamulja (2017)

suggested that herding behavior is reinforced by the fear of missing out (FOMO) and the perception that following others is safer than making your own decisions.

The fact that Gen Z is a highly digitally connected generation amplifies the risk of herding, making them susceptible to viral trends and opinions even if they are not necessarily economically rational.

The Influence of Financial Literacy on Investment Decisions

The research findings show that financial literacy has a positive and significant influence on investment decisions. This indicates that investors who have a good understanding of financial principles tend to be more rational, thorough, and able to assess risks more carefully.

Firmansyah's (2023) research shows that financial literacy strengthens the ability of young investors to develop wise and non-impulsive investment strategies. Bellofatto et al. (2018) also support this finding by stating that financial literacy encourages more efficient and logical investment behavior, especially in portfolio management and risk evaluation.

Thus, increasing financial literacy not only improves technical skills, but also becomes the foundation for building healthy financial behavior.

Moderation of Financial Literacy on the Relationship between Heuristic Bias and Investment Decisions

The results of moderation show that financial literacy significantly moderates the influence of heuristic bias on investment decisions. This means that financial literacy plays a role in reducing the influence of internal cognitive bias that originates from intuition or subjective experience.

The Firmansyah (2023) and Siratan & Setiawan (2021) also showed that financial literacy can weaken the effects of bias such as overconfidence and representativeness.

Thus, strengthening financial literacy can be an important strategy to improve the quality of investment decision making, especially in avoiding intuitive bias.

Moderation of Financial Literacy on the Relationship between Herding Bias and Investment Decisions

Contrary to previous results, financial literacy does not significantly moderate the relationship between herding bias and investment decisions. This suggests that even if someone understands financial principles, it is not necessarily enough to overcome social pressure or the majority flow.

This finding is supported by Wijaya et al. (2023), who stated that strong social influences such as public recommendations, social media trends, or online communities are not easily offset by financial knowledge alone. In many cases, individuals still choose to follow the majority because of emotional considerations, group identity, or social proof encouragement.

Therefore, interventions are needed that go beyond financial education—for example, strengthening critical thinking, training in independent decision-

making, or simulation-based education that places young investors in challenging social situations.

CONCLUSION AND RECOMMENDATIONS

Heuristic bias and herding bias proven to have a positive and significant influence on the investment decisions of Generation Z individuals. This shows that decision-making by young investors is often influenced by personal intuition and the tendency to follow the majority, especially in the context of digital markets and social media.

Financial literacy or financial literacy also has a positive and significant influence on investment decisions, and acts as a moderating variable in the relationship between heuristic bias and investment decisions. That is, financial literacy can strengthen rational decision making when investors are affected by heuristic biases. However, financial literacy does not moderate the relationship between herding bias and investment decisions, showing that social influences are more difficult to suppress with knowledge alone.

Overall, the results of this study confirm that Generation Z's investment decisions are influenced by psychological factors and financial literacy levels. The role of financial literacy as a link between behavioral biases and investment decisions is very important, especially in reducing the impact of intuitive biases such as heuristic bias.

Implications

1. For Generation Z Investors

Investors are expected to improve their financial literacy to be able to manage behavioral biases, especially in uncertain market conditions. A good understanding of risk and investment analysis will help them make more rational decisions, not just based on intuition or social influence.

2. For Regulators and Financial Education Institutions

These results serve as an important basis for OJK, BEI, and educational institutions to strengthen financial literacy programs, especially those that are practical and behavioral-based. Interventions such as investment simulations, fundamental analysis training, and anti-herding campaigns are urgently needed.

ADVANCED RESEARCH

This study has several limitations that need to be considered. First, the use of a quantitative approach through a self-report questionnaire may bias the subjectivity of respondents, especially in assessing the level of financial literacy and the influence of behavioral bias. Second, the research sample is limited to Generation Z investors with at least three years of investment experience, so the results may not be generalizable to other age groups or levels of investment experience. Third, the moderating variable is limited to financial literacy, while other factors such as risk tolerance, market experience, or the influence of social media have not been included. In addition, the cross-sectional method used cannot capture the dynamics of investment behavior over time.

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