(MEC-J) Management and Economics Journal
E-ISSN: 2598-9537 P-ISSN: 2599-3402
Journal Home Page: http://ejournal.uin-malang.ac.id/index.php/mec
Volume 9 Number 3, December 2025

Behavioral Biases and Investment Decision of Gen Z: The Role of Long-Term Orientation

Viona Pricilia, Lilis Susilawaty*

Faculty of Social Sciences and Humanities, Universitas Bunda Mulia, Tangerang, 15143, Indonesia

*Corresponding author
email: lsusilawaty@bundamulia.ac.id

ABSTRACT

While the number of stock investors in Indonesia has been growing, many particularly from Generation Z, who currently lead the market, continue to exhibit non-rational tendencies when making investment choices. These tendencies are frequently shaped by cognitive distortions such as representative, availability, and herding biases. This research investigates how these biases impact Gen Z's stock investment decisions and explores whether long-term orientation moderates these effects. The research gathered responses from 349 Indonesian Generation Z participants through an online survey, with the data subsequently examined using the PLS-SEM method. The results show that representative bias, availability bias, and herding bias significantly influence investment decision making. Long-term orientation significantly moderates the effect of herding bias but does not significantly moderate the effect of representative bias or availability bias. This study encourages Generation Z investors to recognize the impact of behavioral biases and the importance of long-term thinking. It also suggests that regulators and market institutions develop educational programs to help reduce bias-driven decisions among young investors.

Keywords: Representative Bias; Availability Bias; Herding Bias; Long Term Orientation; Investment Decision Making

| Submited October 8 2025 | Reviewed July 9 2025 | Revised November 5 2025 | Accepted December 12 2025
| DOI: http://dx.doi.org 10.18860/mec-j.v9i3.34936

INTRODUCTION

In recent years, investment participation in Indonesia has grown rapidly, particularly among young investors. According to the Indonesian Capital Market Statistics (KSEI, 2024), the number of investors doubled from 7.48 million in 2021 to 14.87 million in 2024. Similarly, stock and other securities investors rose from 3.45 million to 6.38 million as illustrated in Figure 1.

Figure 1. Trends in Capital Market Participation in Indonesia in 2021 – 2024

Source: KSEI (2024)

Table 1 shows that young investors aged 30 and below, primarily from Generation Z, dominate the market with 54.83% of total investors and asset ownership reaching IDR 54.12 trillion. As digital natives born between 1995 and 2012 (Barhate & Dirani, 2021), Gen Z has easier access to investment platforms and information, making them the key drivers of growth in Indonesia's capital market.

Table 1. Investor Age Proportion and Asset Value (Dec 2024)

Age	Proportion	Asset Value
≤ 30	54.83%	Rp54,12 T
31 – 40	24.48%	Rp279,01 T
41 – 50	12.02%	Rp198,24 T
51 – 60	5.71%	Rp290,75 T
≥ 60	2.96%	Rp887,07 T

Source: KSEI (2024)

However, despite this promising growth, irrational behavior in investment decisions remains prevalent, especially among Gen Z. Based on a report by Kontan.co.id (Musa, 2024), PT Kimia Farma Tbk (KAEF) experienced a significant stock price increase in 2021, driven by public enthusiasm during the national vaccination program. However, by mid-2024, the stock plummeted as the company's fundamental weaknesses were revealed. This phenomenon illustrates how many investors make decisions based on trends, emotional cues, or readily available information, often neglecting deeper fundamental analysis.

Such behavior aligns with behavioral finance theory, which explains that investment decisions are often shaped by psychological and social influences rather than fully rational assessments. Cognitive shortcuts, such as judging based on familiar patterns (representative bias) or relying on easily recalled information (availability bias), and social

pressures like following the crowd (herding bias) can lead to suboptimal investment choices (Yuniningsih, 2020; Mittal, 2022). Evidence from FEB UI & Lembaga Demografi (2022) and Mardika et al. (2025) further shows that Gen Z frequently depends on social media and influencers, making them especially vulnerable to these biases.

To address this issue, this study investigates the influence of representative bias, availability bias, and herding bias on investment decisions among Generation Z investors in Indonesia, while also exploring the moderating role of long-term orientation (LTO). LTO is expected to mitigate the effects of behavioral biases that often drive short-term and impulsive investment behavior. Representative bias and availability bias, as forms of cognitive heuristics, accelerate decision-making but often result in judgmental errors by relying on stereotypes or easily accessible information rather than comprehensive analysis (Sarlawa, 2024). Similarly, herding bias reflects a tendency to follow the majority's behavior, particularly during periods of uncertainty or market panic, which drives investors toward short-term and emotionally driven decisions (Yuniningsih, 2020). In contrast, LTO reflects a forward-looking perspective that emphasizes patience, perseverance, and strategic long-term planning (Chun et al., 2021). According to Khan et al. (2021), investors with a high level of LTO are less likely to rely on cognitive shortcuts, as they tend to take more time to analyze information thoroughly and pursue sustainable returns over immediate gains. Therefore, incorporating LTO as a moderating variable allows this study to examine whether a strong future-oriented mindset can weaken the impulsive and short-term tendencies caused by representative, availability, and herding biases among Generation Z investors in Indonesia's stock market.

Despite substantial research on behavioral biases and investment decisions, previous empirical findings remain inconsistent, forming the basis of this study's research gap. For representative bias, some studies found a significant effect (e.g., Sabilla & Pertiwi, 2021; Kurniana et al., 2023), while others reported no significant influence (Irvansyah et al., 2024; Nizar & Daljono, 2024). Similar contradictions appear for availability bias: studies by Aulia et al. (2024), Rahim et al. (2022), and Kurniana et al. (2023) found significant effects, whereas Irvansyah et al. (2024), Hariono et al. (2023), and Jan et al. (2022) found otherwise. Herding bias also shows mixed results significant in Robin & Angelina (2020), Sabilla & Pertiwi (2021), and Armansyah (2022), but insignificant in Vitmiasih et al. (2021) and Hussalman & Sari (2023). These inconsistent findings across prior studies highlight the need for further investigation, particularly within the context of Generation Z investors in Indonesia, who operate in a highly digital and fast-paced information environment.

In response to these gaps, this study examines whether representative bias, availability bias, and herding bias significantly influence investment decisions among Generation Z investors, and whether long-term orientation (LTO) moderates these relationships. Specifically, the study addresses six research questions: (1) Is there a significant effect of representative bias on investment decisions? (2) Is there a significant effect of availability bias on investment decisions? (3) Is there a significant effect of herding bias on investment decisions? (4) Does long-term orientation significantly moderate the effect of

representative bias? (5) Does it moderate the effect of availability bias? (6) Does it moderate the effect of herding bias?

By investigating these questions, this study enhances the behavioral finance literature by re-evaluating behavioral biases with inconsistent empirical evidence and by offering a novel contribution through the examination of long-term orientation as a moderating variable, an aspect that remains underexplored, particularly within Indonesia's capital market and its dominant Generation Z investor segment.

LITERATURE REVIEW

Behavioral Finance

Behavioral finance combines psychological and sociological perspectives to better understand how people make financial choices. Contrary to traditional finance's assumption of fully rational investors focused solely on utility maximization, this field recognizes that emotions, cognition, and social influences frequently cause investors to act irrationally (Yunininingsih, 2020). It provides a more realistic framework by viewing investors as normal human beings who are prone to biases and errors in judgment.

According to Ernawati et al. (2022), behavioral biases are divided into cognitive biases, which stem from faulty reasoning, information processing errors, or memory distortions, and emotional biases, which shaped by emotions like fear or greed. Cognitive biases like representativeness and availability are more easily corrected through education, while emotional biases such as loss and regret aversion are harder to overcome. Additionally, social biases such as herding behavior, in which individuals follow others' decisions without conducting adequate analysis, further illustrate how external influences shape investment choices (Fityani & Arfinto, 2015). Together, these insights help explain why investors often deviate from rational models, and underscore the need to incorporate psychological dimensions into financial decision-making.

Construct Definitions

Investment decision-making refers to a sequential process in which investors choose financial instruments based on the information they obtain (Herlina et al., 2020). Fridana and Asandimitra (2020) define it as the act of allocating funds into certain assets with the aim of generating future returns. In essence, it involves selecting and distributing capital based on available data to achieve financial gain. Siratan et al. (2024) highlight that psychological factors are often present in investment decisions, making them critical moments that reflect an investor's ability to manage risk and opportunity. Wikartika et al. (2023) note that decisions are not always made rationally; investors may act emotionally, leading to irrational behaviors, as supported by Sabila and Pertiwi (2021), who argue that biases and emotions can distort logical judgment in investment contexts.

Representative bias is when individuals rely heavily on stereotypes or perceived similarities when making decisions, often neglecting more objective and relevant information (Sabilla & Pertiwi, 2021). In behavioral finance, this bias manifests when investors judge probabilities or outcomes based on how closely an investment resembles a familiar pattern or stereotype, regardless of factual support (Sarlawa, 2024). Azhari and Damingun (2021) explain that this bias can arise when broad generalizations are drawn from limited evidence. Therefore, representative bias can lead to poor investment choices by overemphasizing perceived patterns and underanalyzing actual data.

Availability bias is the tendency to rely on easily recalled information instead of thoroughly analyzing all relevant data (Mittal, 2022). Sarlawa (2024) states that in investment contexts, this bias causes individuals to rely on frequently encountered or recent information rather than more accurate, long-term sources. As a result, investors may overreact to recent events or visible news while neglecting fundamental analysis.

Herding bias occurs when investors follow the actions or decisions of others without conducting independent analysis (Rona & Sinarwati, 2021). Panjaitan and Simbolon (2020) describe it as the tendency to imitate market trends or other investors rather than relying on personal judgment. Suriani (2022) adds that herding is inherently irrational and can result in suboptimal investment outcomes or increased exposure to unnecessary risks. It highlights the social dimension of investment decisions and the influence of collective behavior.

Long-term orientation (LTO) reflects the degree to which individuals or cultures emphasize future planning, delayed gratification, and strategic thinking. People with high LTO values tend to be patient, disciplined, and focused on long-term goals, placing importance on perseverance and resourcefulness (Chun et al., 2021). Chatterjee, as cited in Prastyatini and Seran (2022), identifies LTO as a cultural dimension where individuals weigh the future consequences of their present actions. In an investment context, LTO helps investors remain rational, avoid short-term distractions, and make decisions aligned with sustainable financial objectives.

Hypothesis Development

Representative Bias and Investment Decision

Representative bias influences investors when they judge an investment based on how closely it resembles familiar patterns rather than on rational analysis. This heuristic causes investors to overgeneralize from limited cues, such as recent trends or repeatedly observed price movements, which may lead to decisions that do not align with their true risk tolerance or long-term objectives (Sarlawa et al., 2024). The tendency to rely on these intuitive shortcuts is especially common among less experienced investors. Empirical findings support this behavioral tendency: Sabilla and Pertiwi (2021) showed that novice investors in Sidoarjo are strongly affected by representativeness, while Asep and Djajanti

(2024) found that retail investors in Jabodetabek often follow current price movements without deeper fundamental analysis. These behavioral patterns suggest that representativeness can meaningfully shape investment choices.

H1: Representative bias has a significant influence on investment decision-making.

Availability Bias and Investment Decision

Availability bias occurs when investors give greater weight to information that is easily recalled, often because it is recent, emotionally intense, or frequently encountered. This can lead investors to favor investments that appear more salient, even when the available information is incomplete or not fully accurate. Gigerenzer et al. (as cited in Sarlawa, 2024) note that vivid information tends to dominate judgment, causing individuals to rely on mental shortcuts rather than systematic evaluation. Empirical studies reinforce this pattern: Fachrudin (2024) found that online investors in Medan often depend on easily accessed local stock information and peer recommendations, while Dangol and Manandhar (2020) demonstrated similar behavior among Nepalese investors. These tendencies highlight how reliance on salient information can distort investment decisions.

H2: Availability bias has a significant influence on investment decision-making.

Herding Bias and Investment Decision

Herding bias emerges when individuals imitate the behavior of others, whether friends, influencers, or the broader market, especially when they lack confidence in their own analysis. Following the majority may reduce uncertainty, but it also encourages investors to ignore personal judgment and adopt market trends that may not reflect the underlying fundamentals (Suriani, 2022). Research shows that this bias is particularly relevant among younger or less experienced investors: Puspitasari and Ristianawati (2024) found that Generation Z investors in Central Java heavily rely on peer and influencer behavior, while Usman et al. (2023) reported that limited financial knowledge increases susceptibility to herding. These patterns suggest that social influence can significantly shape investment choices.

H3: Herding bias has a significant influence on investment decision-making.

Long Term Orientation as the Moderator

Long-term orientation (LTO) reflects an individual's tendency to prioritize future outcomes and make patient, deliberate decisions. Investors with high LTO are more willing to analyze information thoroughly and delay immediate gratification for sustainable returns (Chun et al., 2021). Because LTO encourages careful evaluation, it may reduce reliance on cognitive shortcuts. For representative bias, strong LTO can weaken the effect because investors become less likely to judge investments based merely on surface similarities. For availability bias, LTO can reduce the influence of salient but

incomplete information by encouraging a more comprehensive information search (Khan et al., 2021). For herding bias, LTO may neutralize the desire to follow the crowd because long-term–oriented investors tend to emphasize personal financial goals over short-term social cues (Yuniningsih, 2020). Therefore, LTO is theoretically positioned to diminish the influence of heuristic-driven behaviors.

H4: Long-term orientation significantly moderates the influence of representative bias on investment decision-making.

H5: Long-term orientation significantly moderates the influence of availability bias on investment decision-making.

H6: Long-term orientation significantly moderates the influence of herding bias on investment decision-making.

The research model summarizing the proposed hypotheses is depicted in Figure 2.

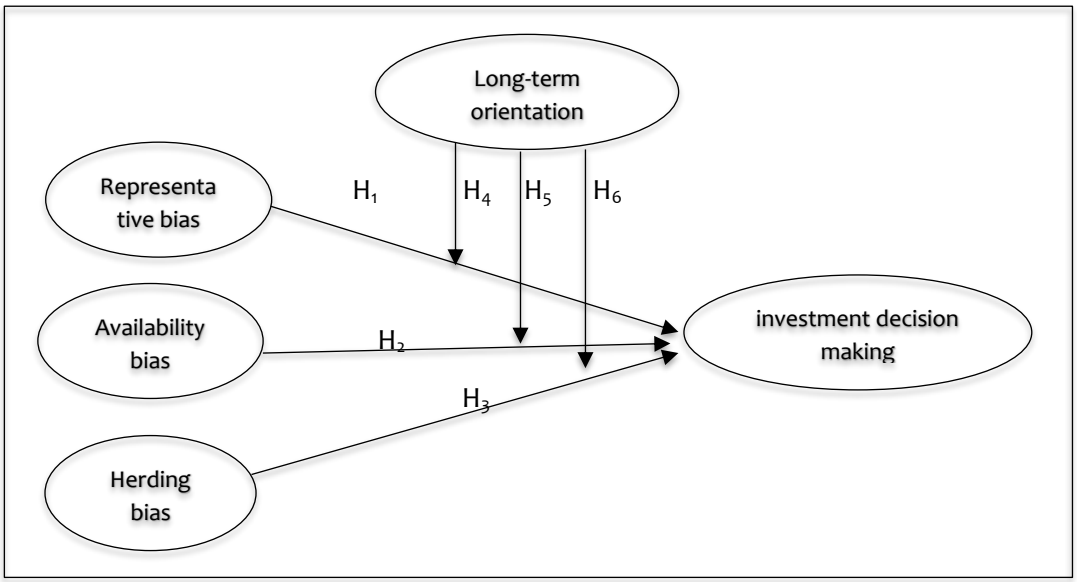

Figure 2. Proposed Conceptual Framework
Source: Developed by the authors (2025)

METHODOLOGY

A causal quantitative method was applied, with data gathered through online questionnaires distributed via social media and investment platforms between March 3 and April 5, 2025. Each variable was measured using a 5-point Likert scale, and data screening was conducted to ensure that respondents met the established criteria, which included being aged 17–30 years to represent Generation Z. Although this generation broadly spans ages 13–30 (Barhate & Dirani, 2021), the minimum age of 17 was set because individuals can legally open a stock account and an Investment Fund Account (RDI) only after obtaining a national ID card (Mubarok, 2025). Respondents were also required to

have an active stock account registered in the Indonesia Stock Exchange (IDX) to confirm that they were legitimate investors in the Indonesian capital market rather than participants in global or informal trading platforms. A minimum of one year of investment experience was established following Hariono et al. (2023) to ensure that respondents had sufficient exposure to different market cycles, allowing more consistent and observable behavioral patterns. Furthermore, participants were required to have conducted at least three stock transactions in the past year, as adapted from Vitmiasih et al. (2021), to ensure that the respondents were active investors rather than occasional traders, thus providing more reliable behavioral insights.

The population of this study comprises all Generation Z investors who actively trade in the Indonesian stock market. Since the total number of this population fluctuates over time, the sample size was determined using Roscoe's rule of thumb, which recommends a minimum of ten respondents per indicator (Sugiyono, 2024). With 24 indicators, the minimum required sample was 240 respondents. In total, 543 responses were collected, and 349 valid responses were retained for analysis. The sampling technique applied was non-probability purposive sampling, which allows the selection of participants based on predetermined characteristics that align with the research criteria (Zulfikar et al., 2024).

The demographic characteristics of the respondents are summarized in Table 2. The majority of participants were female (59.6%), held a high school diploma (62.46%), and were students (77.36%). Most respondents reported a monthly income of less than IDR 2,000,000 (37.82%) and had 1 to 3 years of experience in stock investing (79.94%).

Table 2. Characteristics of Respondents

Description		Frequency	Percent
Gender	Male	141	40.4
	Female	208	59.6
Last Education	High School	218	62.46
	Diploma	7	2.01
	Bachelor's Degree	124	35.53
Profession	Freelancer	1	0.29
	Employee	62	17.77
	Student	270	77.36
	Entrepreneur	16	4.58
Monthly Income (IDR)	< 2.000.000	132	37.82
	2.000.000 – 4.000.000	129	36.96
	4.000.001 – 6.000.000	40	11.46
	6.000.001 – 8.000.000	24	6.88
	> 8.000.000	24	6.88
Investment Experience (years)	1 – 3	279	79.94
	> 3	70	20.06

Source: Data processed from respondents (2025)

The first independent variable, representative bias, was measured using six items adapted from Khan et al. (2021), one of which states "Before investing, I use trend analysis of several representative stocks as a reference in making decisions for all stocks". To measure availability bias, five items from Khan et al. (2021) were utilized, including the statement "My investment decisions depend on newly released and favorable information about the stock". Four indicators from Hossain & Siddiqua (2022) were used to evaluate herding bias, including "I tend to respond quickly to fluctuations and reactions of other investors' choices in the stock market". Investment decision-making, the dependent variable, was measured with five items from Khan et al. (2021), such as "I tend to invest in choices that feel right to me" and "When investing, it is more important for me to feel that the investment is right than to have rational reasons." Finally, the moderating variable, long-term orientation, was measured using four items from Khan et al. (2021), including "I am very careful in using and managing my money and other resources". Prior to evaluating the measurement and structural models, this study conducted a Common Method Bias (CMB) assessment to ensure that the results were not influenced by systematic measurement error. This study applies PLS-SEM, comprising two key stages: the measurement model for testing validity and reliability, and the structural model for examining relationships between latent variables. PLS-SEM was selected as the analytical approach due to its suitability for predictive and theory-building research involving complex models with multiple latent constructs. Additionally, PLS-SEM is preferred when the primary objective is prediction and when the dataset does not fully meet the multivariate normality assumption, making it more appropriate than covariance-based SEM for Likert-scale survey data (Purwanto & Sudargini, 2021; Muhamad & Zainuddin, 2025). Moreover, this method is particularly effective in testing moderation effects and emphasizing variance explanation (R^2), aligning with the study's objective to predict behavioral patterns and evaluate the moderating role of long-term orientation in investment decision-making (Huang, 2021; Sarstedt & Liu, 2023).

RESULTS

Common Method Bias (CMB)

Common Method Bias (CMB) refers to systematic measurement error that may arise when data for both independent and dependent variables are collected using the same instrument or source, potentially inflating or deflating relationships between constructs. To detect this issue, Kock (2015) recommends the full collinearity assessment, where Variance Inflation Factor (VIF) values are examined across all latent variables. A VIF value exceeding 3.3 indicates pathological collinearity and suggests that the model may be affected by common method bias. Conversely, if all VIF values fall below the 3.3 threshold, the model can be considered free from significant CMB, ensuring that the measured relationships are not artificially biased due to shared measurement conditions.

Table 3. Common Method Bias Assessment Using VIF

Variable	Investment Decision Making (INVD)
Representative Bias (RB)	1.095
Availability Bias (AB)	1.213
Herding Bias (HB)	1.173
Long Term Orientation (LTO)	1.037
LTO X RB	1.075
LTO X AB	1.074
LTO X HB	1.054

Source: Data processed using SmartPLS 4.0 (2025)

Table 3 presents the results of the full collinearity assessment. As shown, all VIF values in this study are below the threshold of 3.3, indicating that the model is free from significant common method bias and that collinearity among constructs is within acceptable limits.

Measurement Model

The measurement model, or outer model, evaluates the relationship between observed indicators and their associated latent constructs to ensure the accuracy and consistency of the instrument (Ghozali & Latan, 2020). Convergent validity specifically determines the extent to which indicators reflect the intended construct, commonly measured using loading factors and Average Variance Extracted (AVE). According to Hair et al. (2021), loading values should reach at least 0.70, while AVE must be 0.50 or higher to indicate adequate validity.

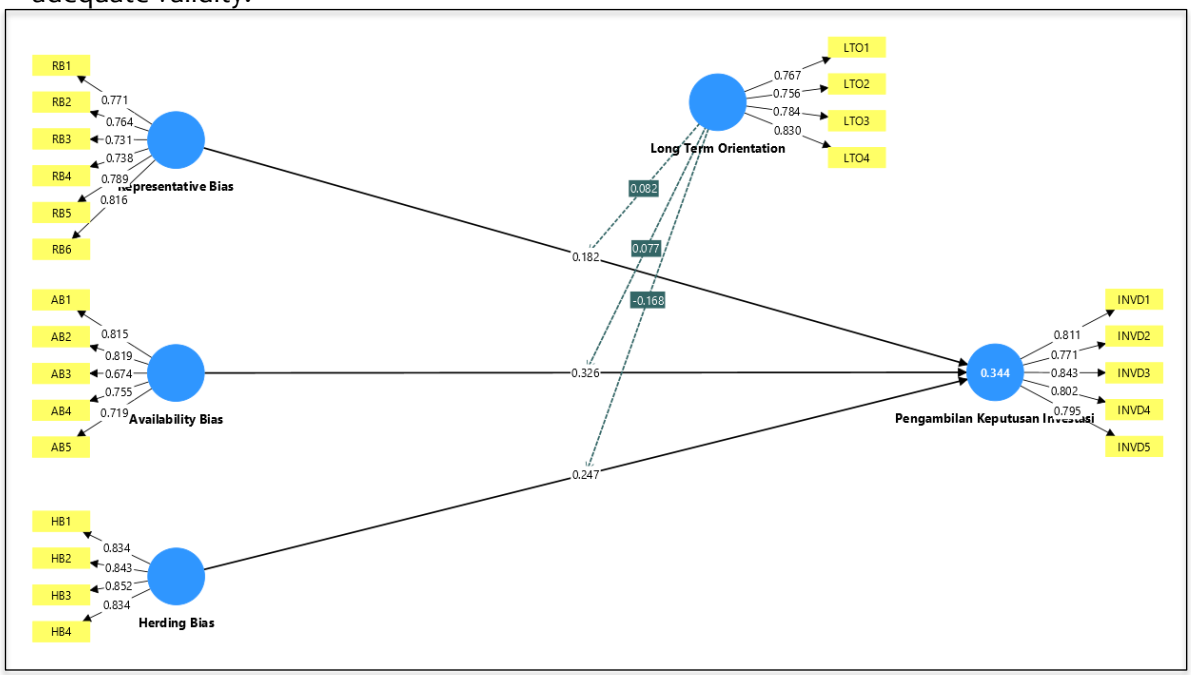

Figure 3. Indicator Loading Factors for Measurement Model
Source: Data processed using SmartPLS 4.0 (2025)

Table 4. AVE Values of the Constructs

Variable	AVE Value
Representative Bias (RB)	0.591
Availability Bias (AB)	0.637
Herding Bias (HB)	0.706
Long Term Orientation (LTO)	0.616
Investment Decision Making (INVD)	0.647

Source: Data processed using SmartPLS 4.0 (2025)

Based on the results in Figure 3, indicator AB3 was excluded due to a loading factor below 0.70, indicating it did not meet the validity requirement. The other indicators surpassed the minimum threshold, confirming their suitability for further analysis. In addition, as presented in Table 4, all constructs achieved AVE values above 0.50, thereby fulfilling the criteria for convergent validity.

Table 5. HTMT Values for Discriminant Validity

Variable	AB	HB	LTO	INVD	RB	LTO X RB	LTO X AB	LTO X HB
AB								
HB	0.443							
LTO	0.092	0.091						
INVD	0.494	0.446	0.119					
RB	0.216	0.181	0.070	0.302				
LTO X RB	0.061	0.030	0.078	0.100	0.204			
LTO X AB	0.140	0.027	0.030	0.040	0.073	0.164		
LTO X HB	0.025	0.028	0.171	0.191	0.036	0.028	0.154	

Source: Data processed using SmartPLS 4.0 (2025)

Discriminant validity evaluates how well a construct differs from others, typically measured by the Heterotrait-Monotrait Ratio (HTMT). According to Henseler et al. (2015), a value below 0.90 indicates acceptable discriminant validity. As shown in Table 5, all HTMT values in this study were under this threshold, confirming the distinctiveness of each construct.

Table 6. Cronbach's Alpha and Composite Reliability Values

Variable	Composite Reliability	Cronbach's Alpha
Representative Bias	0.896	0.862
Availability Bias	0.875	0.809
Herding Bias	0.906	0.862
Long Term Orientation	0.865	0.795
Investment Decision Making	0.902	0.864

Source: Data processed using SmartPLS 4.0 (2025)

Reliability testing checks the internal consistency of indicators for each construct, typically using composite reliability and Cronbach's alpha. Hair et al. (2021) recommend both values to be above 0.70 for acceptable reliability. As shown in Table 6, all constructs in this study exceeded this threshold, confirming their reliability.

Structural Model

According to Iba and Wardhana (2024), the structural model (inner model) assesses the relationships between latent variables, specifically between exogenous and endogenous constructs. The structural model evaluation considers R^2, path coefficients, effect size (f^2), and predictive relevance (Q^2), ensuring that variable relationships are statistically valid and meaningful for prediction (Chinnaraju, 2025). The R^2 value indicates the proportion of variance in the endogenous variable explained by the exogenous variables, ranging from 0 to 1. The R^2 values from this study are presented in Table 7.

Table 7. R Square (R^2) Values of Endogenous Variable

Variable	R-square	R-Square Adjusted
Investment Decision Making	0.334	0.321

Source: Data processed using SmartPLS 4.0 (2025)

According to Hair et al. (2021), an R^2 value of 0.75 indicates a substantial level of explanatory power, 0.50 is moderate, and 0.25 is weak. In this study, the R^2 value of 0.334 for investment decision-making indicates that representative bias, availability bias, and herding bias together explain 33.4% of the variance in investment decisions, while the remaining 66.6% is attributed to factors outside the model. Since this value falls between 0.25 and 0.50, it can be categorized as having a moderate explanatory power, suggesting that the model provides a reasonable yet not exhaustive explanation of the behavioral factors influencing investment decision-making.

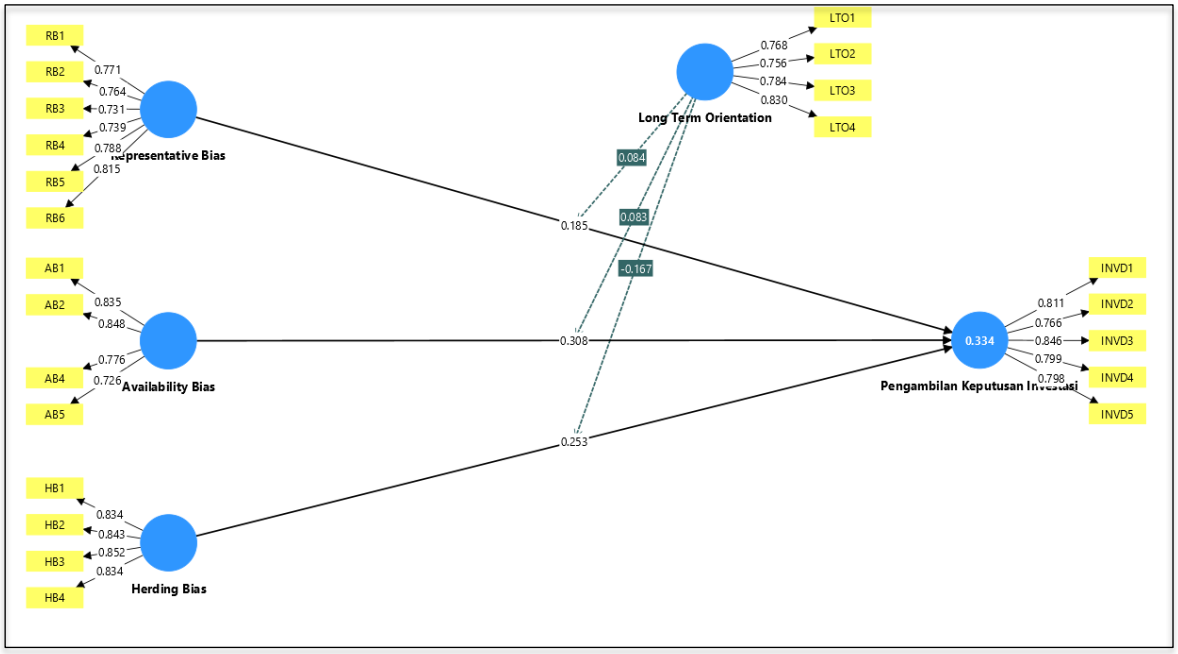

Figure 4. Final Structural Model
Source: Data processed using SmartPLS 4.0 (2025)

Table 8. Results of Hypothesis Testing

Hypothesis	β	t-statistics	p-value	Supported
H1. RB -> INVD	0.185	2.360	.018	Yes
H2. AB -> INVD	0.308	4.003	.000	Yes
H3. HB -> INVD	0.253	3.292	.001	Yes
H4. LTO X RB -> INVD	0.084	1.780	.075	No
H5. LTO X AB -> INVD	0.083	1.704	.088	No
H6. LTO X HB -> INVD	-0.167	2.743	.006	Yes

Source: Data processed using SmartPLS 4.0 (2025)

The hypothesis testing was conducted by analyzing path coefficients, where significance is determined at a 5% level ($p \leq 0.05$) as per Hair et al. (2021). Path coefficients range between -1 and +1, indicating the strength and direction of relationships. As shown in Figure 4 and Table 8, representative bias ($\beta = 0.185$, $p = 0.018$), availability bias ($\beta = 0.308$, $p < 0.001$), and herding bias ($\beta = 0.253$, $p = 0.001$) all significantly and positively influence investment decision-making. However, long-term orientation does not significantly moderate the effects of representative bias ($\beta = 0.084$, $p = 0.075$) or availability bias ($\beta = 0.083$, $p = 0.088$). It does, however, significantly weaken the impact of herding bias on investment decisions ($\beta = -0.167$, $p = 0.006$).

Table 9. Effect Size (f^2) Results of Exogenous Variables on Investment Decision

Variable	f^2
RB -> INVD	0.047
AB -> INVD	0.117
HB -> INVD	0.082
LTO -> INVD	0.010
LTO X RB -> INVD	0.022
LTO X AB -> INVD	0.016
LTO X HB -> INVD	0.049

Source: Data processed using SmartPLS 4.0 (2025)

Effect size (f^2) indicates the extent to which an independent variable contributes to the variance explained in a dependent variable. Sarstedt et al. (2017) suggest that f^2 values of 0.02, 0.15, and 0.35 reflect small, medium, and large direct effects. Meanwhile, Kenny (2018) in Hair et al. (2021) provides a more realistic guideline for moderating effects, where f^2 values of 0.005, 0.01, and 0.025 represent small, medium, and large effects. Referring to Table 9, the results show that availability bias (f^2 = 0.117) contributes the most to investment decision-making, falling within the small–to–moderate effect range. This is followed by herding bias (f^2 = 0.082) and representative bias (f^2 = 0.047), both of which indicate small effects. In terms of moderation, Table 8 also shows that long-term orientation interacts with representative bias (f^2 = 0.022) and availability bias (f^2 = 0.016), reflecting small–moderate moderation strength, while its interaction with herding bias (f^2 = 0.049) demonstrates a small moderating contribution. Meanwhile, the direct effect of LTO (f^2 = 0.010) itself remains within the small effect threshold.

Table 10. Predictive Relevance (Q^2) Test Results

Variable	Q^2
Investment Decision Making	0.265

Source: Data processed using SmartPLS 4.0 (2025)

The value of Predictive Relevance (Q^2) indicates how well the structural model predicts information not included in the estimation process. As stated by Chinnaraju (2025), Q^2 demonstrates a model's ability to anticipate unseen data, ensuring that its predictive capacity can be applied in real-world contexts. A Q^2 value greater than 0 shows that the model has predictive relevance, while a value of 0 or below implies insufficient predictive power. Following Table 10, the obtained Q^2 value is 0.265, the model falls within the range of $0.15 \leq Q^2 < 0.35$, which indicates moderate predictive relevance. This means the model is capable of predicting the endogenous variables fairly well and possesses a reasonable degree of predictive accuracy.

DISCUSSION

The findings show that representative bias has a positive and significant effect on investment decision-making among Generation Z investors. This result aligns with Khan et al. (2021), Sabilla and Pertiwi (2021), and Kurniana et al. (2023), confirming that investors tend to rely on familiar patterns or stereotypes rather than objective financial analysis. However, it contradicts Nizar and Daljono (2024) and Irvansyah et al. (2024), who found no significant influence. This outcome supports behavioral finance theory, which suggests that investors often generalize based on limited information, assuming that past performance or industry trends will persist. As Sarlawa (2024) notes, such heuristic-driven thinking leads investors to overestimate familiar sectors while ignoring potential risks. This behavior was evident during the sharp price surge of Kimia Farma (KAEF) stocks in early 2021, where investors relied on short-term optimism surrounding the government's vaccination program rather than the firm's fundamentals. These findings underscore how representative bias reinforces short-term decision-making patterns among inexperienced investors, particularly those still building analytical capability, like most Gen Z respondents in this study.

Availability bias also shows a positive and significant relationship with investment decision-making. This aligns with Khan et al. (2021), Kurniana et al. (2023), and Aulia et al. (2024), who emphasized that investors rely on easily recalled or recently acquired information. However, it differs from Jan et al. (2022) and Irvansyah et al. (2024), who reported non-significant findings. Theoretically, availability bias occurs when decisions are influenced by information that is most vivid or accessible, often from social media or peer discussions (Wang, 2023). This is particularly relevant for Gen Z investors who grew up in the digital era and tend to favor quick, visually stimulating information sources (FEB UI & Lembaga Demografi, 2022). Consequently, rather than relying on analytical reports, they may react excessively to trending news or influencer opinions (Abdinegoro, 2023). Thus, availability bias leads to emotionally driven and short-term investment actions, confirming that fast access to information can enhance (not always reduce) irrationality when critical evaluation is absent.

Herding bias has a positive and significant effect on investment decision-making, consistent with Robin and Angelina (2020), Sabilla and Pertiwi (2021), and Armansyah (2022). However, this result contrasts with Vitmiasih et al. (2021) and Hussalman and Sari (2023), who found no significant influence. This confirms that social dynamics strongly shape Gen Z investors' behavior. As Fadhlia et al. (2023) explain, herding arises when individuals imitate others' investment choices to avoid regret or uncertainty. In this study, respondents' low income and early-stage investment experience may intensify this tendency, making them more reliant on peer behavior or influencer recommendations (Ramashar et al., 2022; Mardika et al., 2025). Consequently, herding behavior in Gen Z reflects not just social conformity but also risk aversion driven by limited confidence and market knowledge.

The moderating effect of LTO on the relationship between representative bias and investment decision-making is insignificant. This result differs from Khan et al. (2021), who found a significant moderating effect. Conceptually, representative bias stems from unconscious cognitive shortcuts (Pompian, 2021), which are resistant to change even when investors possess long-term goals. LTO emphasizes patience and future orientation (Chun et al., 2021), but it may not directly counteract the automatic nature of heuristic thinking. Mardika et al. (2025) found that even investors who claim to invest for the long term still rely on trends when making decisions. Hence, LTO alone cannot neutralize the intuitive generalizations embedded in representative bias, as cognitive distortions occur at a subconscious level rather than through deliberate reasoning.

Similarly, LTO does not significantly moderate the relationship between availability bias and investment decision-making. This aligns with Khan et al. (2021), who observed that LTO has limited influence on reducing availability-driven decisions. Availability bias stems from quick, emotionally salient information processing (Pompian, 2021), and LTO's focus on future planning may not directly alter these immediate cognitive reactions. As highlighted by Sarlawa (2024), investors tend to overreact to vivid, short-term news while neglecting long-term data. The high digital exposure of Gen Z further amplifies this pattern (FEB UI & Lembaga Demografi, 2022). Therefore, although LTO promotes forward thinking, it may not fully address impulsive reactions triggered by easily accessible or emotionally charged information.

In contrast, LTO significantly moderates and weakens the effect of herding bias on investment decision-making. This supports Bonna and Amoah (2020), who emphasize that culturally embedded long-term perspectives encourage investors to value sustainability and self-reliance over conformity. Investors with high LTO are less likely to follow the crowd, as they prioritize strategic planning and stable outcomes (Chun et al., 2021). This implies that LTO is more effective in mitigating social biases like herding, driven by peer influence, than cognitive biases that stem from internal mental shortcuts. Practically, fostering a long-term financial mindset among young investors could reduce impulsive herd-driven trading and support more independent, rational decision-making behavior.

Overall, the findings of this study demonstrate that cognitive and social biases significantly influence investment decision-making among Generation Z investors, reinforcing the core assumptions of behavioral finance theory. However, the moderating role of long-term orientation (LTO) shows a differentiated pattern, ineffective in mitigating cognitive biases such as representative and availability bias, yet significant in weakening the impact of the social bias (herding). This suggests that while LTO fosters patience and future-oriented thinking, it may not directly alter subconscious cognitive shortcuts but can strengthen independence from social pressures in investment contexts. Theoretically, these findings contribute to expanding behavioral finance by illustrating that cultural and temporal orientations, such as LTO, interact differently with distinct types of biases. Practically, they highlight the importance of investor education programs

that not only enhance analytical capability but also cultivate long-term thinking as a safeguard against impulsive, herd-driven decisions.

CONCLUSIONS

This study aimed to examine the influence of three behavioral biases, which are representative bias, availability bias, and herding bias, on the investment decision-making of Generation Z stock investors, while also investigating the moderating role of long-term orientation (LTO) in these relationships. Based on the data collected through questionnaires and analyzed using appropriate statistical methods, the results indicate that all three behavioral biases significantly affect investment decisions among Generation Z. However, LTO was found to significantly moderate only the relationship between herding bias and investment decisions, while it did not show a significant moderating effect on the relationships between representative bias or availability bias and investment decisions. These findings highlight the importance of considering both psychological biases and cultural dimensions in understanding investor behavior, particularly among younger generations**.**

Theoretical Implications

This study contributes to behavioral finance literature by reinforcing evidence that cognitive and social biases continue to influence investment decisions among young investors in modern digital markets. The results extend prior findings by showing that LTO functions as an effective moderator only for social biases (herding), suggesting that future-oriented thinking may reduce susceptibility to external social influence, but is insufficient to counter deeply embedded cognitive shortcuts such as representativeness and availability. This distinction offers theoretical insight into how cultural dimensions interact differently with various types of behavioral biases.

Practical Implications

The findings provide practical value for regulators, financial institutions, and investment educators. Since Generation Z investors remain highly sensitive to easily accessible information and peer influence, educational programs should emphasize critical evaluation of information, long-term planning, and awareness of cognitive distortions. Platforms such as brokerages and fintech applications can embed behavioral nudges or warnings to help young investors avoid impulsive decisions driven by trends or social pressure. Additionally, initiatives promoting long-term financial thinking may help reduce herding tendencies within the market.

Limitations and recommendations

This research has certain limitations that need to be considered for future studies. Firstly, its cross-sectional design captures investor behavior only at one moment, restricting the

understanding of how these behaviors evolve over time. Secondly, relying solely on questionnaires may not guarantee respondents' full comprehension or honesty in their answers; therefore, incorporating qualitative approaches like interviews in future research could provide more comprehensive insights. Finally, this study overlooks external influences like market trends, regulations, technology, and macroeconomic factors that may affect investment choices. Future research should include these elements to improve the relevance and strength of findings on behavioral biases in investing.

Future research could strengthen these findings by adopting longitudinal designs to capture how investor behavior evolves over time. Mixed-methods approaches, such as combining surveys with interviews, may offer deeper insights into the psychological mechanisms behind each bias. Further studies should incorporate external factors, including market conditions, regulatory changes, and technological developments, to better contextualize investor decision-making. Moreover, exploring additional cultural dimensions or behavioral biases could broaden understanding of how psychological and cultural factors jointly shape investment behavior.

REFERENCES

Aditama, R. R., & Nurkhin, A. (2020). Pengaruh Pelatihan Pasar Modal Terhadap Minat Investasi Mahasiswa Di Pasar Modal Dengan Pengetahuan Investasi Dan Manfaat Investasi Sebagai Variabel Intervening. *Business and Accounting Education Journal*, *1*(1), 27–42. https://doi.org/10.15294/baej.v1i1.38922

Armansyah, R. F. (2022). Herd Instinct Bias, Emotional Biases, And Information Processing Biases In Investment Decisions. *Jurnal Manajemen Dan Kewirausahaan, 24*(2), 105-117. https://doi.org/10.9744/jmk.24.2.105-117

Asep & Djajanti, A. (2024). Determinan Perilaku Generasi Milenial Dalam Keputusan Investasi Berdasarkan Teori Prospek. *Jurnal Riset Perbankan, Manajemen, dan Akuntansi, 8*(1), 34-44. https://doi.org/10.56174/jrpma.v6i1.172

Aulia, S. et al. (2024). Peran Mediasi Literasi Keuangan Dalam Keputusan Investasi Bagi Generasi Z: Pengujian Bias-Bias Perilaku. *Journal of Management and Digital Business*, *4*(3), 565–580. https://doi.org/10.53088/jmdb.v4i3.1334

Azhari, R., & Damingun. (2020). Pengaruh Bias Representative terhadap Keputusan Investasi di Pasar Modal. *Borneo Student Research,* 2(2). https://journals.umkt.ac.id/index.php/bsr/article/view/1941/850

Abdinegoro, B., Santoso, B., & Hidayati, S. A. (2023). Pengaruh Heuristic Biases Terhadap Pengambilan Keputusan Investasi Saham (Studi Pada Investor Saham Di Kota Mataram). *Media Bina Ilmiah,* 17(12), 3031-3044. https://doi.org/10.33758/mbi.v17i12.393

Barhate, B., & Dirani, K. M. (2021). Career Aspirations Of Generation Z: A Systematic Literature Review. *European Journal of Training and Development,* 46(1/2), 139–157. https://doi.org/10.1108/ejtd-07-2020-0124

Bonna, A., & Amoah, R. A. (2020). Influence of culture on investment decisions: A Cross-Sectional Study of Ghanaian population. *Journal of Economics and Behavioral Studies, 11*(6(J)), 38–51. https://doi.org/10.22610/jebs.v11i6(j).2955

Chun, D. et al. (2021). Long-Term Orientation And The Passage Of Time: Is It Time To Revisit Hofstede's Cultural Dimensions?. *International Journal of Cross Cultural Management*, *21*(2), 353–371. https://doi.org/10.5465/ambpp.2020.11737abstract

Dangol, J., & Manandhar, R. (2020). Impact Of Heuristics On Investment Decisions: The Moderating Role Of Locus Of Control. *Journal of Business and Social Sciences Research, 5*(1), 1-14. https://doi.org/10.3126/jbssr.v5i1.30195

Ernawati, N., Nugraha, N., & Sari, M. (2022). Behavioral Finance and Your Portfolio: A navigation guide for building wealth. *Quantitative Finance,* 22(7), 1229–1230. https://doi.org/10.1080/14697688.2022.2077231

Fachrudin, K. R. (2024). Pengaruh Overconfidence Dan Availability Bias Terhadap Keputusan Investasi. *Bisnis-Net Jurnal Ekonomi dan Bisnis, 7*(1), 299-309. https://doi.org/10.46576/bn.v7i1.4433

Fakultas Ekonomi dan Bisnis Universitas Indonesia (FEB UI) & Lembaga Demografi. (2022). *Laporan Kajian Optimalisasi Publikasi Statistik BEI*. https://www.idx.co.id/media/20221278/laporan-final-ld-feb-ui-optimalisasi-publikasi-statistik-bei_1011.pdf

Fitriani, N., Falah, A. S., & Sugianto, I. (2024). Analisis Tingkat Risiko Investasi Saham Pada Sektor Perbankan Terdaftar Di BEI Tahun 2018-2022. *Jurnal E-Bis (Ekonomi-Bisnis), 8*(1), 382–394. https://doi.org/10.37339/e-bis.v8i1.1697

Fityani, I., & Arfinto, E. D. (2015). Analisis Investor Herding Behavior dengan Multinomial Logit Regression pada BEI (Studi Kasus pada Saham LQ-45 Periode 2009-2014). *Diponegoro Journal of Management,* 4(3), 1-14. http://eprints.undip.ac.id/46106/

Fridana, I. O., & Asandimitra, N. (2020). Analisis Faktor Yang Memengaruhi Keputusan Investasi (Studi Pada Mahasiswi Di Surabaya). *Jurnal Muara Ilmu Ekonomi Dan Bisnis,* 4(2), 396. https://doi.org/10.24912/jmieb.v4i2.8729

Fadhlia, W. et al. (2023). Herding Bias Investor Masa New Normal Pandemi Covid-19. *Jurnal Akuntansi Trisakti, 10*(2), 169–188. https://doi.org/10.25105/jat.v10i2.17268

Ghozali, I., & Latan, H. (2020). *Partial Least Square Konsep, Teknik Dan Aplikasi Menggunakan Program SmartPLS 3.0 Edisi 2*. Badan Penerbit Undip.

Hair Jr, J. F. et al. (2021). *Partial Least Squares Structural Equation Modeling (PLS-SEM) Using R: A Workbook*. Springer Nature Switzerland.

Harahap, K. (2024). *Buku Ajar Manajemen Investasi dan Portofolio*. PT Media Penerbit Indonesia.

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. https://doi.org/10.1007/s11747-014-0403-8

Herlina, H. et al. (2020). The Herding And Overconfidence Effect On The Decision Of Individuals To Invest Stocks. *Journal of Economics and Business, 3*(4). https://doi.org/10.31014/aior.1992.03.04.288

Hossain, T., & Siddiqua, P. (2022). Exploring The Influence Of Behavioral Aspects On Stock Investment Decision-Making: A Study On Bangladeshi Individual Investors. *PSU Research Review*. https://doi.org/10.1108/prr-10-2021-0054

Hussalman, A. I. A. N., & Sari, H. M. K. (2023). Psychological Biases and Investment Decisions: A Study of Economic Students. *Indonesian Journal of Law and Economics Review, 18*(4). https://doi.org/10.21070/ijler.v18i4.976

Hariono, M. W., Cahyadi, R. T., & Wijayanti, D. (2023). Pengaruh Bias Perilaku terhadap Pengambilan Keputusan Irasional dengan Financial Literacy sebagai Pemoderasi. *Jurnal Samudra Ekonomi Dan Bisnis, 14*(1), 1-14. https://doi.org/10.33059/jseb.v14i1.5304

Huang, C. (2021). Using PLS-SEM model to explore the influencing factors of learning satisfaction in blended learning. *Education Sciences, 11*(5), 249. https://doi.org/10.3390/educsci11050249

Iba, Z., & Wardhana, A. (2023). *Metode Penelitian*. Eureka Media Aksara.

Irvansyah, D., Murhadi, W. R., & Mahadwartha, P. A. (2024). The Effect Of Overconfidence, Representative, Anchoring, And Availability Biases On Investment Decisions And Market Efficiency. *Matrik Jurnal Manajemen Strategi Bisnis Dan Kewirausahaan, 18*(2), 125. https://doi.org/10.24843/matrik:jmbk.2024.v18.i02.p03

Jan, N. et al. (2022). Post-COVID-19 Investor Psychology And Individual Investment Decision: A Moderating Role Of Information Availability. *Frontiers in Psychology, 13*, 846088. https://doi.org/10.3389/fpsyg.2022.846088

Khan, I. et al. (2021). The Impact Of Heuristic Biases On Investors' Investment Decision In Pakistan Stock Market: Moderating Role Of Long-Term Orientation. *Qualitative Research in Financial Markets*, *13*(2), 252–274. https://doi.org/10.1108/qrfm-03-2020-0028

Kurniana, Manurung, A. H., & Sembel, R. (2023). The Effect Of Availability Bias And Representativeness Bias On Investment Decisions Among Millennials And Gen Z In Indonesia. *Tekmapro Journal of Industrial Engineering and Management*, *18*(2), 47–58. https://doi.org/10.33005/tekmapro.v18i2.337

Kustodian Sentral Efek Indonesia (KSEI). (2024). *Statistik Pasar Modal Indonesia.* https://www.ksei.co.id/files/Statistik_Publik_Desember_2024_v3.pdf

Musa, M. (2024). *Kinerja Kimia Farma (KAEF) Merana, Begini Prospeknya*. Kontan.Co.Id. https://investasi.kontan.co.id/news/kinerja-kimia-farma-kaef-merana-begini-prospeknya

Mardika, A. P. et al. (2025). Analisa Faktor -Faktor Yang Mempengaruhi Gen-Z Dalam Menentukan Keputusan Investasi. *Jurnal KRISNA: Kumpulan Riset Akuntansi, 16*(2), 345–353. https://doi.org/10.22225/kr.16.2.2025.345-353

Mittal, S. K. (2022). Behavior Biases And Investment Decision: Theoretical And Research Framework. *Qualitative Research in Financial Markets*, *14*(2), 213–228. https://doi.org/10.1108/qrfm-09-2017-0085

Mubarok, F. (2025). *Berapa Minimal Umur untuk Beli Saham? Pemula Wajib Tahu*. FORTUNE Indonesia. https://www.fortuneidn.com/market/berapa-minimal-umur-membeli-saham-pemula-wajib-tahu-00-mv2nm-7nb0d5

Muhamad, N., & Zainuddin, N. H. (2025). PLS-SEM or CB-SEM Method for Customer Loyalty Towards Mobile Service Providers Data. *EDUCATUM Journal of Science, Mathematics, and Technology, 12*, 135-145. https://doi.org/10.37134/ejsmt.vol12.sp.12.2025

Nizar, M., & Daljono, D. (2024). The Impact Of Availability Bias And Representative Bias On Investment Decisions And Performance: The Role Of Fomo As An Intervening Variable. *Jurnal Apresiasi Ekonomi, 12*(1), 71–89. https://doi.org/10.31846/jae.v12i1.730

Panjaitan, R., & Simbolon, I. P. (2020). Financing And Herd Behaviour In Financial Crises: Investment Decision. *International Journal of Economics and Business Administration, 8*(4), 1089-1096. https://doi.org/10.35808/ijeba/652

Prastyatini, S. L. Y., & Seran, F. (2022). Pengaruh Budaya Bisnis Masyarakat Dan Literasi Keuangan Terhadap Minat Berwirausaha Masyarakat Di Kota Yogyakarta. *Jurnal Pendidikan Dasar dan Sosial Humaniora, 1*(8), 1621-1634. https://doi.org/10.53625/jpdsh.v1i8.2395

Puspitasari, P., & Ristianawati, Y. (2024). Pengaruh Herding dan Religiosity Terhadap Keputusan Investasi Saham dengan Financial Literacy Sebagai Variabel Moderasi. *Journal of Business and Economics Research, 5*(3), 379-387. https://doi.org/10.47065/jbe.v5i3.6032

Purwanto, A., & Sudargini, Y. (2021). Partial Least Squares Structural Equation Modeling (PLS-SEM) Analysis for Social and Management Research: A Literature Review. *Journal of Industrial Engineering & Management Research, 2*(4), 114-123. https://doi.org/10.7777/jiemar.v2i4.168

Pompian, M. M. (2021). *Your Portfolio: Managing Your Biases To Make Better Investment Decisions*. John Wiley.

Ramashar, W., Sandri, S. H., & Hidayat, R. (2022). Faktor Psikologi dan Keputusan Investasi Mahasiswa di Pasar Modal. *Jurnal Riset Akuntansi Dan Keuangan, 10*(1), 93-102. https://doi.org/10.17509/jrak.v10i1.36709

Rona, I. W., & Sinarwati, N. K. (2021). Pengaruh Herding Bias dan Overconfidence Bias terhadap Pengambilan Keputusan Investasi. *Studi Akuntansi Dan Keuangan Indonesia*, *4*(2), 104–130. https://doi.org/10.21632/saki.4.2.104-130

Robin, R., & Angelina, V. (2020). Analysis Of The Impact Of Anchoring, Herding Bias, Overconfidence And Ethical Consideration Towards Investment Decision. *Jurnal Ilmiah Manajemen Fakultas Ekonomi, 6*(2). https://doi.org/10.34203/jimfe.v6i2.2558

Sabilla, N. B. V., & Pertiwi, N. T. K. (2021). Pengaruh Bias Perilaku Terhadap Pengambilan Keputusan Investasi Saham Para Investor Pemula Di Kota Sidoarjo. *Jurnal E-Bis (Ekonomi-Bisnis)*, *5*(2), 353–364. https://doi.org/10.37339/e-bis.v5i2.688

Santoso, A., Syahputri, A., Puspita, G., Nurhikmat, M., & Dewi, S. (2023). *Manajemen Investasi dan Portofolio*. Eureka Media Aksara.

Sarlawa, R. (2024). *Perilaku Keuangan*. PT Mafy Media Literasi Indonesia.

Siratan, E. D. et al. (2024). The Influence of Behaviour Finance and Demographic Factors on Investment Decision Making Through Risk Tolerance as Mediation. *Dinasti International Journal of Economics, Finance & Accounting (DIJEFA), 4*(6). https://doi.org/10.38035/dijefa.v4i6.2241

Suriani, S. (2022). *Financial Behavior*. Yayasan Kita Menulis.

Sugiyono (2024). *Metode Penelitian Kuantitatif*. CV Alfabeta.

Sarstedt, M., & Liu, Y. (2023). Advanced marketing analytics using partial least squares structural equation modeling (PLS-SEM). *Journal of Marketing Analytics, 12*(1), 1–5. https://doi.org/10.1057/s41270-023-00279-7

Usman, B., Sari, W., & Amalia, W. (2023). Perilaku Investor Individu terhadap Pengambilan Keputusan Investasi. *JUDICIOUS Journal of Management, 4*(2), 224–234. https://doi.org/10.37010/jdc.v4i2.1318

Vitmiasih, V., Maharani, S. N., & Narullia, D. (2021). Pengambilan Keputusan Investasi Rasional: Suatu Tinjauan dari Dampak Perilaku Representativeness Bias dan Hearding Effect. *Jati Jurnal Akuntansi Terapan Indonesia, 4*(1), 1–13. https://doi.org/10.18196/jati.v4i1.9255

Wikartika, I., Evanthi, A., & Suwaidi, R. A. (2023). Investment Decision Making With Investment Satisfaction As An Intervening Variable: Availability Bias And Financial Literacy. *JBMP (Jurnal Bisnis Manajemen Dan Perbankan), 9*(1), 12–24. https://doi.org/10.21070/jbmp.v9i1.1661

Wang, Z. (2023). Research On The Application Of Availability Bias On Decision Making. *Lecture Notes in Education Psychology and Public Media, 22*(1), 60–64. https://doi.org/10.54254/2753-7048/22/20230218

Yuniningsih (2020). *Perilaku Keuangan dalam Berinvestasi (Laboratorium Experiment dan Field Experiment)*. Indomedia Pustaka.

Zulfikar, R. Sari, F.P., Fatmayati, A., Wandini, K., Haryati, T., Jumini, S., Nurjanah., Annisa, S., Kusumawardani, O.B., Mutiah, R., Linggi, A.L., Fadilah, H. (2024). *Metode Penelitian Kuantitatif (Teori, Metode Dan Praktik)*. Widina Media Utama.