**Research Article**

Analysis Impact of Financial Literacy, Self-Efficacy, And Risk Attitude on the Investment Performance of Generation Z on the Stock Market Investment App in Indonesia

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ARTICLE INFO	ABSTRACT
	This study aims to explores the influence of financial literacy, self-efficacy, and risk attitude on the investment behavior of Generation Z investors in Indonesia's stock market. Using a quantitative survey approach, data were collected through questionnaires distributed to 119 active investment app users. The analysis, performed with Partial Least Squares Structural Equation Modeling (PLS-SEM) and Importance-Performance Matrix Analysis (IPMA), reveals that financial literacy positively impacts self-efficacy, enhancing investment behavior. Moreover, financial literacy directly influences investment behavior, while risk attitude plays a key role in shaping practices. Financial self-efficacy mediates the link between financial literacy and investment behavior but negatively affects investment behavior when moderated by risk attitude. These findings suggest that strengthening both knowledge and psychological confidence is essential in encouraging more rational investment decisions among young investors. This study provides practical implications for policymakers, educators, and financial service providers to design more targeted financial literacy initiatives that foster both competence and balanced risk perception. **Keywords:** financial risk attitude, financial self-efficacy, financial literacy, investment behavior, generation Z investors

Introduction

The investment landscape has undergone significant transformation in recent years, driven primarily by rapid technological advancements that have reshaped financial services globally (Al-Smadi, 2024). Financial Technology (Fintech) has revolutionized how individuals manage their finances, conduct transactions, and access investment opportunities, offering benefits such as enhanced convenience, increased efficiency, and broader financial inclusion (Koskelainen et al., 2023). In Indonesia, this digital transformation has been particularly impactful, with Fintech platforms fueling remarkable growth in retail investment participation. Data from the Indonesia Central Securities Depository (KSEI) reveals a staggering 92.99% increase in investors from 2020 to 2021, followed by a 37.68% growth in 2022 (KSEI, 2024). However, despite this impressive growth, financial inclusion remains a pressing challenge, as only 4.36% of Indonesia's 282 million population currently participates in capital market investments (KSEI, 2024).

A closer examination of investor demographics reveals striking patterns. Generation Z investors (aged ≤30 years) dominate the market numerically, comprising 56.29% of all investors as of January 2024 (KSEI, 2024). This generational shift in investment behavior can be attributed to several factors, including widespread internet penetration and the influence of peer networks (Dwivedi et al., 2021). Halim (2020) suggests that this increase in retail

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investors may be influenced not only by access to technology but also by peer influence and internet availability.

The importance of financial literacy (FL) in this context cannot be overstated. Defined as the understanding of financial concepts and the ability to make informed decisions (Nogueira et al., 2025), FL serves as the foundation for effective financial management and investment behavior. While Indonesia has made progress in financial literacy and inclusion since 2013 (Hidayatinnisa' et al., 2021), significant challenges remain. The country ranks 33rd out of 41 nations in the 2024 Global Financial Inclusion Index, with particular weaknesses in financial system support and employer-led financial benefits (Abdelghaffar et al., 2023). The Financial Fitness Index OCBC, (2024) paints an even more concerning picture, revealing a national financial health score of just 41.25, with investment-related metrics scoring particularly poorly (7/100 for investment ownership and 6/100 for passive income generation). These findings underscore the urgent need to better understand the factors influencing investment decisions among Indonesia's young investors.

This study draws on Riaz et al., (2022) Social Cognitive Theory to examine the relationships between financial literacy (FL), financial self-efficacy (FSE), and financial risk attitude (FRA) in shaping investment behavior. A, others argue its impact on actual investment behavior is limited without sufficient motivation (Mahmood et al., 2024). Similarly, FRA - reflecting an individual's tolerance for financial risk (Eling et al., 2021) may moderate these relationships in complex ways, as evidenced by studies showing that high risk tolerance doesn't necessarily lead to better investment outcomes (Lathief et al., 2024). These contradictions highlight the need for context-specific research, particularly in emerging markets like Indonesia where digital transformation is rapidly changing investment behaviors.

This study aims to contribute to the literature on investment behavior in several important ways. First, we extend prior research by examining the unique dynamics of FL, FSE, and FRA among Generation Z investors in Indonesia, a demographic that has been largely overlooked in existing studies despite their growing market presence. Second, we address critical gaps in understanding how digital investment platforms mediate these relationships, providing timely insights into Fintech's role in shaping contemporary investment behaviors. Third, our investigation of FSE as a mediator and FRA as a moderator offers a more nuanced understanding of the psychological mechanisms underlying investment decisions. Fourth, we provide empirical evidence from Indonesia's unique market context, where religious and cultural factors may influence financial behaviors differently than in Western contexts. Finally, our findings have important practical implications for policymakers, financial educators, and Fintech developers seeking to enhance financial inclusion and promote responsible investment behaviors among Indonesia's youth population. By integrating rigorous theoretical framing with contextually relevant empirical analysis, this study advances both academic knowledge and practical applications in behavioral finance.market.

Literature Review

Investment Behavior

Investment behavior refers to how individuals allocate their surplus funds into various asset types, influenced by personal, psychological, and market factors (Sarkar & Sahu, 2018). Investment attracts diverse individuals regardless of background, involving decisions to allocate surplus funds into assets like securities, real estate, or business ventures (Sarkar & Sahu, 2018). Sarkar further explains that individual investors tend to invest in non-tradable assets such as real estate or structured products, while institutional investors like pension funds or mutual funds typically invest on behalf of others. Investment behavior is affected by various biases. Heuristics simplify complex judgments but can lead to errors through representativeness, availability, and anchoring effects (Galavotti et al., 2021). Prospect theory highlights loss aversion, mental accounting, and regret aversion. Market-related factors such

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as past trends, stock fundamentals, and customer preferences also influence decision-making (Shahzad et al., 2024). Herding behavior occurs when individuals follow crowd behavior due to lack of information or confidence, often amplifying market inefficiencies (Hsieh, 2013). This is particularly common among individual investors, who may feel safer conforming to group behavior rather than acting independently (Syed Sibghatullah Shah & Asghar, 2023).

Financial Literacy

Financial literacy represents a critical competency that empowers individuals to make informed financial decisions and achieve economic stability (Kumar et al., 2023). It encompasses four key dimensions: understanding basic financial concepts, managing savings and loans, comprehending insurance products, and making sound investment choices (Katnic et al., 2024). These classification of financial literacy levels, ranging from Well Literate (comprehensive understanding) to Not Literate (complete lack of financial awareness). The importance of financial literacy extends beyond personal finance management, as it directly correlates with reduced financial vulnerabilities and improved economic decision-making (Seldal & Nyhus, 2022).

The impact of financial literacy manifests across multiple societal levels. At the individual level, it enhances the ability to navigate complex financial products and avoid common pitfalls like excessive debt (Lone & Bhat, 2024). For financial institutions, a literate population drives demand for sophisticated financial services, fostering market innovation (AlSuwaidi & Mertzanis, 2024). Nationally, financial literacy contributes to economic stability by promoting formal financial inclusion and reducing systemic risks (F. Khan et al., 2022). However, Indonesia's 2024 GFII ranking (33rd out of 41 countries) and modest OCBC Financial Fitness Score (41.25) indicate significant gaps in financial literacy, particularly in investment knowledge (OCBC, 2024). These challenges are amplified by the rapid digital transformation of financial services, which introduces new complexities in financial decision-making (Haoran et al., 2024).

Financial Self-Efficacy

Financial self-efficacy (FSE) originates from Social Cognitive Theory and refers to an individual's belief in their ability to successfully execute financial tasks (Kaur & Singh, 2024). This construct plays a crucial mediating role between financial knowledge and actual financial behaviors, explaining why some individuals fail to implement their financial knowledge effectively (Sajid et al., 2024). FSE comprises three key elements: the scope of financial activities individuals believe they can perform (Level/Magnitude), the strength of their conviction (Strength), and their confidence across different financial contexts (Generality) (M. S. Khan et al., 2024).

The behavioral implications of FSE are particularly evident in investment decisions. Individuals with high FSE demonstrate greater persistence in achieving financial goals and better resilience during market fluctuations (Hossain & Siddiqua, 2022). Among Generation Z investors in Indonesia, who constitute 56.29% of the investor population (KSEI, 2024), varying levels of FSE help explain differences in investment approaches. Those with strong FSE tend to develop clear investment strategies, while others may exhibit herd behavior due to lower confidence in their financial decision-making (M. S. Khan et al., 2024). This dichotomy underscores the need for balanced financial education programs that cultivate both knowledge and realistic self-assessment (Elbanna et al., 2025).

Financial Risk Attitude

Human behavior, especially in financial aspects, is highly complex and influenced by various personal and environmental factors, which are divided into market factors (such as inflation and interest rates) and behavioral factors (including risk attitudes and financial capability)

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(Gerth et al., 2021). Financial risk attitude (FRA) reflects an individual's subjective tolerance for uncertainty in financial decisions, shaped by psychological, demographic, and experiential factors (Omanovic & Zaimovic, 2024). Traditional financial theory assumes rational risk assessment, but behavioral research demonstrates that actual decision-making often deviates due to cognitive biases (Almansour et al., 2023). Key aspects of FRA include risk tolerance (the "sleep factor" describing an investor's comfort with risk), loss aversion (the tendency to prefer avoiding losses over acquiring gains), and herding behavior (the inclination to follow crowd actions) (Indrawati et al., 2025).

The practical implications of FRA are evident in investment portfolio composition and market dynamics. Risk-tolerant individuals typically allocate more assets to equities, while risk-averse investors prefer stable instruments like bonds (Eling et al., 2021). Demographic differences significantly influence FRA, with older investors generally exhibiting lower risk tolerance than their younger counterparts (Dewi, 2022). In Indonesia's capital market, these attitudinal differences contribute to the observed disparity between Generation Z's numerical dominance (56.29% of investors) and their relatively small asset share (Rp35.09 trillion compared to Rp889.99 trillion for investors aged ≥60) (KSEI, 2024). Understanding these risk attitudes is crucial for developing targeted financial products and educational programs that address the specific needs and biases of different investor groups (Sobia Shafaq Shah et al., 2024).

Hypothesis Development

Financial literacy positively influences financial self-efficacy. Individuals with high financial literacy better manage uncertainty and maintain a long-term focus, boosting confidence in financial decisions (Katnic et al., 2024). Studies show positive correlation between self-efficacy and financial literacy (Liu & Zhang, 2021). Furthermore, an increase in financial knowledge encourages risk-taking confidence (Lone & Bhat, 2024), while low literacy leads to poor financial management and diminished self-efficacy (Farrell et al., 2016).

Hypothesis 1: Financial Literacy has a positive effect on Financial Self-efficacy.

Financial self-efficacy has a positive impact on investment behavior. Studies indicate that financial self-efficacy is a predictor of individual investment behaviors (Sobia Shafaq Shah et al., 2024). Additionally, improvements in investment behavior are shown to enhance financial self-efficacy (Tang, 2021). These studies suggest that that individual exhibiting higher self-efficacy demonstrate greater proactivity and strategic thinking in investment decision-making.

Hypothesis 2: Financial Self-Efficacy has a positive effect on Investment Behavior.

Financial literacy leads to improved investment behavior by equipping individuals with skills to assess and choose appropriate investment vehicles (Lusardi & Messy, 2023). Systematic approaches in goal-setting and reviewing investment alignments are emphasized (Yeo et al., 2024). Literacy also supports personal financial management (Sobia Shafaq Shah et al., 2024) and correlates positively with daily financial management skills, as well as increased participation in financial markets (Hermansson et al., 2022).

Hypothesis 3: Financial Literacy has a positive effect on Investment Behavior.

Financial risk attitude significantly affects investment behavior. It varies with individual needs, market understanding, and prior investment experiences (Shehzad et al., 2023). Clear comprehension of risk preferences is crucial for making balanced investment decisions. Studies find that financial knowledge, attitude, and control beliefs shape financial behavior, with risk attitude acting as a moderating factor (Akhter & Hoque, 2022). Risk attitude also moderates the link between psychological biases and financial decisions, illustrating its broader impact on investment choices (Ahmad, 2020).

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Hypothesis 4: Financial Risk Attitude has a positive effect on Investment Behavior.

Financial self-efficacy mediates the relationship between financial literacy and investment behavior. Those with strong financial self-efficacy are more confident in evaluating investment options and creating effective strategies (Sobia Shafaq Shah et al., 2024). Higher financial self-efficacy improves financial resilience, such as coping with bankruptcy or financial stress (Lone & Bhat, 2024), and leads to wiser investment decisions (Furrebøe & Nyhus, 2022). On the other hand, limited financial knowledge decreases self-efficacy (Tang, 2021). Ambitious investment goals can emerge with high self-efficacy, but overconfidence must be managed (Furrebøe & Nyhus, 2022). Studies have often applied financial self-efficacy as a mediator in financial behavior research (Obenza et al., 2024).

Hypothesis 5: Financial Literacy mediated by Financial Self-efficacy has a positive effect on Investment Behavior.

Financial risk attitude moderates the effect of financial self-efficacy on investment behavior negatively. Defined as the willingness to pursue goals despite uncertain outcomes, financial risk attitude enhances an investor's capacity to endure financial volatility, thereby strengthening self-efficacy (Lathief et al., 2024; Nadeem et al., 2020). Moreover, higher risk-taking tendencies improve optimism and resilience in facing financial challenges (Sabouripour et al., 2021). It also shapes investment behavior based on financial needs, market understanding, and past experiences (Shehzad et al., 2023). Nevertheless, Shah et al., (2024) indicated no significant moderating effect of financial risk attitude on the relationship between financial self-efficacy and investment behavior.

Hypothesis 6: Financial Self-Efficacy which is moderated by Financial Risk Attitude has a negative effect on Investment Behavior

Based on the review of literature and phenomena that occur, the framework in this study theoretically describes the relationship between the variables to be studied. The independent variables in this study include Financial Literacy (X1), Financial Self-efficacy (X2), and Demographics (X3). The dependent variable is financial self-efficacy, investment behavior, and risk attitude act as intervening variables (Z).
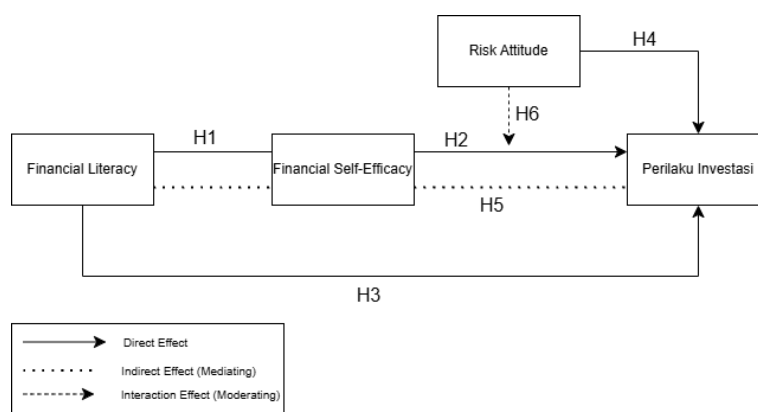

Figure 1. Research Framework

Methodology

Previous studies provided insights, but specific research connecting financial risk attitude, financial self-efficacy, and financial literacy to the investment behavior of Generation Z through stock investment applications in Indonesia remains limited. Therefore, this study seeks to fill that gap by analyzing the effects of these variables comprehensively in a digital context. The research framework is built to illustrate theoretical relationships among

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variables. Independent variables include Financial Literacy (X1), Financial Self-Efficacy (X2), and Demographic (X3), while the dependent variable is Investment Behavior (Y). Financial Self-Efficacy (Z1) and Financial Risk Attitude (Z2) function as intervening variables

Participants

The unit of analysis in this study is individuals, specifically Generation Z users of stock investment applications in Indonesia. Shahzad et al., (2024) emphasized that analyzing individual behavior yields comprehensive insights about the targeted phenomenon. The researcher acts primarily as an observer and data collector, maintaining objectivity and minimal influence throughout the study (Lim, 2025).

Measurement Scales

In this study, the measurement approach combines the use of ordinal scales and Likert scales to capture participants' responses effectively. Potrich et al., (2025) defines a measurement scale as a standardized agreement that allows an instrument to produce quantitative data. Meanwhile, ordinal scales are used to categorize and rank constructs based on their order, without measuring the magnitude of difference between them (Block et al., 2021). The Likert scale is utilized to assess individual or group attitudes, opinions, and perceptions related to social phenomena, organized on a five-point agreement scale (Koo & Yang, 2025). In this research, respondents evaluate each statement using the Likert scale, ranging from 1 ("Strongly Disagree") to 5 ("Strongly Agree").

The variables are carefully operationalized based on prior scholarly references. Investment Behavior is measured through indicators developed by (Sarkar & Sahu, 2018), addressing aspects such as heuristics, prospect theory, market reactions, and herding effects. Financial Literacy is evaluated using questions adapted from (Johri et al., 2023), focusing on financial attitude, financial behavior, and financial knowledge. Financial Self-Efficacy is assessed according to frameworks by (Johri et al., 2023; Nadeem et al., 2020), emphasizing confidence in managing finances effectively. Furthermore, Financial Risk Attitude is measured based on perceptions shaped by previous experiences and beliefs.

Sampling and Data Collection

The population in this study consists of Generation Z individuals who are users of stock investment applications in Indonesia. Nowell et al., (2017) describes the population as a generalization area containing elements that meet specific criteria set by researchers. Given that OJK's 2024 data indicates that Generation Z comprises around 55.07% of Indonesia's 14.21 million investors, the estimated population relevant to this study is approximately 7,826,807 individuals. The sampling technique utilized in this research is non-probability purposive sampling, allowing for the selection of respondents who meet pre-determined criteria. Specifically, the selected participants are those who were born between 1995 and 2010, actively use digital investment applications, and are willing to engage in the study (McCrindle & Ashley, 2022). The sample size was determined using the G*Power 3.1.9.7 software. The calculated minimum sample size to achieve sufficient statistical power was 119 respondents, with parameters including an effect size of 0.15, a significance level of 5%, and a power of 0.95.

This study uses primary sources, directly collected from Generation Z respondents, to ensure authenticity and avoid alterations from secondary processing (Ngo et al., 2024). Data was collected through structured questionnaires to capture investment behaviors and independent, mediating, and moderating variables (Mahmood et al., 2024). The quality and validity of the data collection instrument were tested using Pearson Product Moment correlation and SPSS Version 30. All items were confirmed as valid, indicating successful measurement of the intended construct. The reliability of the questionnaire was assessed using the Cronbach's Alpha method, with a reliability coefficient greater than 0.7 considered

acceptable (Taber, 2018). All key constructs had strong reliability, with Investment Behavior having a Cronbach's Alpha of 0.915, Financial Literacy 0.779, Financial Self-Efficacy 0.870, and Financial Risk Attitude 0.860.

Research Result

Demographic Profile

The respondents involved 200 Generation Z investors across Indonesia. Based on gender, 78% were male and 22% female. In terms of education, 75.5% were already employed, 21% were undergraduate students, and 3.5% were high school students. Regarding age, 32% were aged 25–28 years, and 31% were aged 28–30 years. The largest provincial groups were East Java (17.5%), West Java (16.5%), and Central Java (16%) For monthly income, 52% earned between Rp 2,500,000 and Rp 5,000,000, while 24.5% earned less than Rp 2,500,000. In terms of investment experience, the majority (69.5%) had been investing between 1–5 years. The most commonly used investment application was Bareksa (31%), followed by IPOT (20.5%).

Table 1 Descriptive Statistics

Characteristics	Frequency	Percentage (%)
Gender		
Male	156	78.0
Female	44	22.0
Status of Education		
Student (High School/Equivalent)	7	3.5
Undergraduate Student (S1)	42	21.0
Employed	151	75.5
Province		
East Java	35	17.5
Central Java	32	16.0
West Java	33	16.5
Others	100	50.0
Income		
< Rp 2,500,000	49	24.5
Rp 2,500,000–Rp 5,000,000	104	52.0
Rp 5,000,000–Rp 7,500,000	38	19.0
> Rp 7,500,000	9	4.5
Investment Experience		
< 1 year	11	5.5
1–5 years	139	69.5
6–10 years	38	19.0
> 10 years	12	6.0
Investment Application Used		
Bareksa	62	31.0
IPOT	41	20.5

Ajaib	31	15.5
Others	66	33.0

Reliability and Validity

The reliability and validity testing in this study were carried out using Cronbach's Alpha, Composite Reliability, and Average Variance Extracted (AVE). Based on the results, all constructs, namely Financial Literacy, Financial Risk Attitude, Financial Self-Efficacy, and Investment Behavior, showed Cronbach's Alpha and Composite Reliability values above 0.70, thus fulfilling the criteria for reliability (Núñez-Letamendia et al., 2025). Furthermore, the AVE values for all constructs exceeded the threshold of 0.50, indicating that each construct demonstrated good convergent validity (Hair et al., 2021).

Table 2 Reliability and Validity Outer Model Test

Construct	Cronbach's Alpha	Composite Reliability (ρA)	Composite Reliability (ρC)	Average Variance Extracted (AVE)	Reliability Status	Validity Status
Financial Literacy	0.859	0.858	0.895	0.583	RELIABLE	VALID
Financial Risk Attitude	0.898	0.911	0.921	0.620	RELIABLE	VALID
Financial Self-Efficacy	0.912	0.913	0.932	0.691	RELIABLE	VALID
Investment Behavior	0.965	0.967	0.966	0.581	RELIABLE	VALID

Inner Model Test

The multicollinearity test using the Variance Inflation Factor (VIF) revealed that all VIF values were below 3, indicating no multicollinearity issues between constructs, with acceptable and ideal collinearity levels (Hair et al., 2021). Regarding the explanatory power of the model, the R-Square (R^2) value for Financial Self-Efficacy was 0.331, suggesting a weak to moderate explanatory level (Zebon et al., 2025). Meanwhile, the R-Square value for Investment Behavior was 0.649, demonstrating that financial risk attitude, financial self-efficacy, and financial literacy collectively explained 64.9% of the variance in Investment Behavior, considered moderate (Hair et al., 2021).

The predictive relevance (Q^2) test results supported the model's strength, showing Q-Square values of 0.322 for Financial Self-Efficacy and 0.401 for Investment Behavior, both indicating good predictive relevance (Kante & Michel, 2023; Liengaard et al., 2021). Moreover, the effect size (f^2) evaluation highlighted that Financial Literacy had a large effect on Financial Self-Efficacy ($f^2 = 0.495$). Financial Literacy and Financial Risk Attitude had moderate effects on Investment Behavior ($f^2 = 0.267$ and 0.174, respectively), while Financial Self-Efficacy exhibited a small effect on Investment Behavior ($f^2 = 0.137$; Hair et al., 2021).
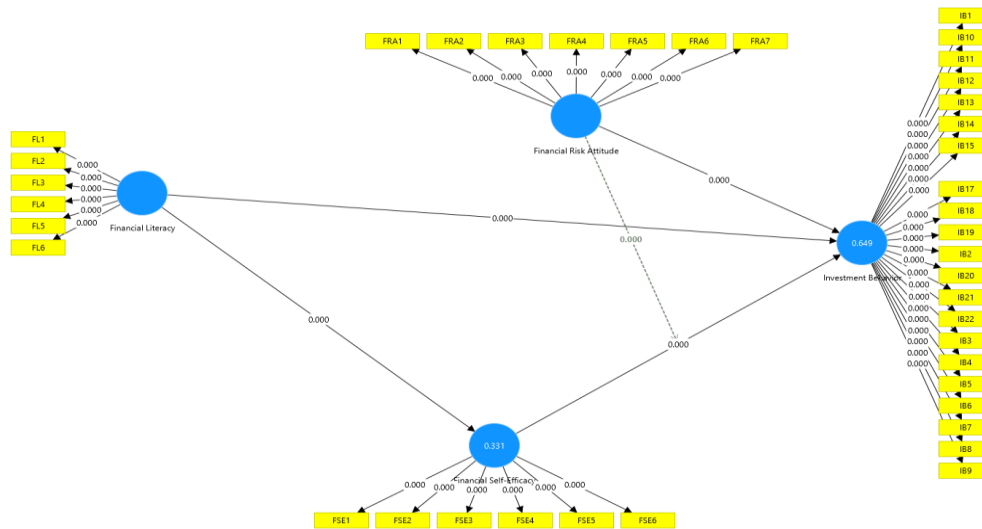
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Figure 2 Inner Model Test

Table 3 Inner Model Test

Analysis Type	Construct	Predictor/Measure	Value	Additional Information
Collinearity (VIF)	Financial Self-Efficacy	Financial Literacy	1.000	No Multicollinearity
	Investment Behavior	Financial Literacy	1.498	No Multicollinearity
	Investment Behavior	Financial Risk Attitude	1.000	No Multicollinearity
	Investment Behavior	Financial Self-Efficacy	1.500	No Multicollinearity
R-Square (R^2)	Financial Self-Efficacy	—	0.331	R² Adjusted = 0.328
	Investment Behavior	—	0.649	R² Adjusted = 0.641
Q-Square (Q^2)	Financial Self-Efficacy	—	0.322	Good Predictive Relevance
	Investment Behavior	—	0.401	Good Predictive Relevance
Effect Size (f^2)	Financial Self-Efficacy	Financial Literacy	0.495	Large Effect
	Investment Behavior	Financial Literacy	0.267	Medium Effect
	Investment Behavior	Financial Risk Attitude	0.174	Medium Effect
	Investment Behavior	Financial Self-Efficacy	0.137	Small-Medium Effect

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Hypothesis Result

The hypothesis testing using bootstrapping method indicated that all proposed hypotheses were accepted. Financial Literacy positively affected Financial Self-Efficacy with a *p*-value of 0.000 and a t-statistic of 13.398 (Sobia Shafaq Shah et al., 2024). Financial Self-Efficacy positively influenced Investment Behavior with a *p*-value of 0.000 and a t-statistic of 4.014 (Montford & Goldsmith, 2016; Sobia Shafaq Shah et al., 2024). Financial Literacy was found to have a positive effect on Investment Behavior with a p-value of 0.000 and a t-statistic of 7.073 (Fitriyana et al., 2020; Mandell, 2008). Moreover, Financial Risk Attitude also positively influenced Investment Behavior with a *p*-value of 0.000 and a t-statistic of 3.741 (Sarkar & Sahu, 2018). Additionally, Financial Literacy mediated by Financial Self-Efficacy had a positive effect on Investment Behavior with a *p*-value of 0.000 and a t-statistic of 3.729 (Furrebøe & Nyhus, 2022). Lastly, Financial Self-Efficacy moderated by Financial Risk Attitude had a negative effect on Investment Behavior with a *p*-value of 0.000 and a t-statistic of 6.843 (Sobia Shafaq Shah et al., 2024).

Table 4 Bootstrapping Test

Hypothesis	Relationship	Beta	*T* Value	*P* Value	Accepted/Rejected
H1	Financial Literacy -> Financial Self-Efficacy	0.575	13.398	0.000	Accepted
H2	Financial Self-Efficacy -> Investment Behavior	0.268	4.014	0.000	Accepted
H3	Financial Literacy -> Investment Behavior	0.375	7.073	0.000	Accepted
H4	Financial Risk Attitude -> Investment Behavior	0.247	3.741	0.000	Accepted
H5	Financial Literacy -> Financial Self-Efficacy -> Investment Behavior (Indirect Effect)	0.154	3.729	0.000	Accepted
H6	Moderating Effect (Financial Self-Efficacy x Financial Risk Attitude) -> Investment Behavior	-0.512	6.843	0.000	Accepted

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### Importance-Performance Map Analysis

IPMA is used to extend the basic findings of PLS-SEM by utilizing latent variable scores. The IPMA analysis is measured based on the structural model, where the importance value is derived from the total effects received by the construct, and the performance value is derived from the variable scores (Hair, Hult, Ringle & Sarstedt, 2016) IPMA is useful for providing a more in-depth description and justification of the results for managerial implications (Hair et al., 2017)

Table 5 IPMA Result

Variabel	Total Effects of Investment Behavior	Performance of Investment Behavior
Financial Literacy	0.527	69.378
Financial Risk Attitude	0.245	31.270
Financial Self-Efficacy	0.268	60.264

Based on the Importance-Performance Map Analysis (IPMA) results presented in Table 5, it can be observed that the constructs exhibit varying levels of importance and performance regarding their influence on investment behavior. Specifically, Financial Literacy demonstrates a substantial total effect (importance) of 0.527, accompanied by a performance score of 69.378. In contrast, Financial Risk Attitude shows a lower total effect of 0.245 with a corresponding performance score of 31.270, suggesting room for improvement in practical application. Similarly, Financial Self-Efficacy registers a total effect of 0.268 and attains a performance score of 60.264, highlighting its moderate influence on investment behavior.

Based on these results, individual Generation Z investors in Indonesia need to maintain and further develop their Financial Literacy, as it is considered to have performed well. At the same time, greater focus should be given to Financial Self-Efficacy and Financial Risk Attitude to enhance their performance, even though these aspects are not as influential as Financial Literacy in shaping Investment Behavior.

Figure 3. IPMA
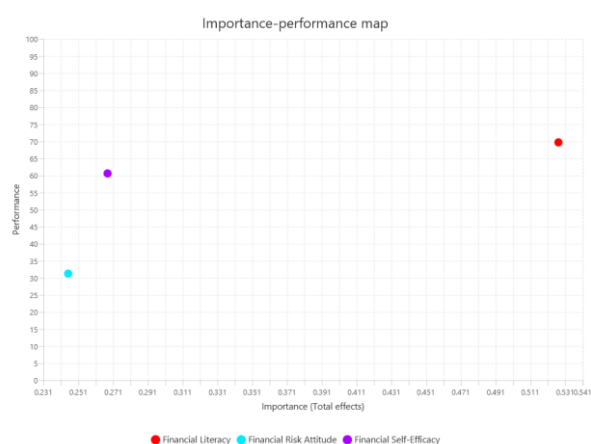
Discussion

The findings of this study revealed that Financial Literacy significantly and positively influences Financial Self-Efficacy among Generation Z investors in Indonesia. This is evident

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from the *p*-value (0.000 < 0.05) and t-statistic (13.398 > 1.65), with a positive path coefficient (0.575), indicating that individuals with higher financial knowledge tend to develop greater confidence in their financial decision-making capabilities. This result supports the view of Shah et al., (2024), who asserted that sufficient financial knowledge influences one's belief in achieving financial goals.

The second hypothesis also received strong support, indicating that Financial Self-Efficacy positively affects Investment Behavior. With a *p*-value of 0.000, a t-statistic of 4.014, and a path coefficient of 0.268, the results align with Montford & Goldsmith, (2016), who emphasized the role of financial confidence in investment planning (Sharma et al., 2022). Shah et al., (2024) similarly noted that self-efficacy enhances investor confidence and facilitates more rational decision-making.

The study further confirmed that Financial Literacy has a direct positive effect on Investment Behavior ($p = 0.000$, $t = 7.073$, $\beta = 0.375$). This aligns with the findings of (Fitriyana et al., 2020; Mandell, 2008), who underscored the importance of financial knowledge in enabling better investment planning and assessment of company performance indicators such as profitability, liquidity, and volatility.

Additionally, Financial Risk Attitude was shown to positively influence Investment Behavior ($p = 0.000$, t = 3.741, β = 0.247). This finding supports Sarkar & Sahu, (2018), who argue that attitudes toward risk significantly shape how investors choose instruments and assess risk exposure.

The mediation analysis indicated that Financial Self-Efficacy partially mediates the relationship between Financial Literacy and Investment Behavior ($p = 0.000$, $t = 3.729$, $\beta = 0.154$). Furrebøe & Nyhus, (2022) highlighted the mediating role of self-efficacy in supporting informed financial decision-making, while Widyastuti et al., (2024) emphasized the importance of financial education in enabling better financial control and risk management.

Finally, Financial Risk Attitude was found to negatively moderate the effect of Financial Self-Efficacy on Investment Behavior ($p = 0.000$, $t = 6.843$, $\beta = -0.152$), suggesting that higher sensitivity to risk can reduce the positive influence of financial confidence. This is consistent with Shah et al., (2024), who noted that greater literacy can lead to more conservative risk-taking behavior.

This study enriches the theoretical understanding of investment behavior by validating an integrated model that combines Financial Literacy, Financial Self-Efficacy, and Financial Risk Attitude. It supports the notion that Financial Literacy alone is not sufficient to predict investment behavior unless it is reinforced by self-efficacy. Furthermore, the moderating role of risk attitude introduces a more nuanced view of investor psychology, expanding on the theoretical frameworks proposed by (Furrebøe & Nyhus, 2022; Sobia Shafaq Shah et al., 2024). The model demonstrates that both direct and mediated pathways contribute significantly to understanding Generation Z investment behavior, highlighting the complex interaction between cognition, affect, and decision-making in financial contexts.

Practically, the findings emphasize the urgent need for financial education programs targeting Generation Z. Policymakers and financial institutions should design interventions to improve financial knowledge while also nurturing financial confidence. Fitriyana et al., (2020) state that understanding a company's profitability, liquidity, activity, rotation, and volatility ratios simplifies its evaluation, highlighting the need for sound financial literacy in making investments. For example, training modules could include scenario-based learning to enhance risk evaluation skills and financial planning. Given that Financial Risk Attitude can dampen the effectiveness of self-efficacy, it is vital to strike a balance in promoting risk awareness without instilling excessive caution. Financial literacy campaigns should therefore not only convey factual knowledge but also foster psychological resilience and adaptive attitudes toward financial risk (Widyastuti et al., 2024).

Conclusion

This study concludes that Financial Literacy, Financial Self-Efficacy, and Financial Risk Attitude all significantly influence Investment Behavior among Generation Z investors in Indonesia. Notably, Financial Literacy influences Investment Behavior both directly and indirectly via Financial Self-Efficacy. The moderating effect of Financial Risk Attitude was found to be negative, suggesting a need for careful attention to risk education. With an R² of 64.9% for Investment Behavior and predictive relevance (Q²) values of 0.401 and 0.322 for Investment Behavior and Financial Self-Efficacy respectively, the model demonstrates strong explanatory and predictive power. Future studies are encouraged to explore additional variables that might account for the remaining variance and to test the model in different demographic and cultural contexts.

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