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Understanding Investment Decisions Behavior: The Effects of Age-Based Investment Behavior, Risk Tolerance, and Financial Literacy Mediated by Investment Self-Efficacy

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Abstract: The Indonesian capital market has seen significant growth, with a notable increase in investors, especially post-COVID-19 due to rising interest in digital investment tools. However, this growth doesn't always correlate with optimal investment decision-making quality. In Indonesia's complex stock market, investor behavior is a critical research area. Variables like age-based investment behavior, risk tolerance, and financial literacy significantly influence investment decisions. This influence, however, is not always direct, as investment self-efficacy can act as a crucial psychological mediator. Understanding these interrelationships is vital for both academic insights and developing effective financial education and investor protection policies in Indonesia. This quantitative survey study aims to comprehensively identify, analyze, and test the relationships between these variables using Structural Equation Modeling (SEM). Parameter estimation results indicate that X2 and x3 positively and significantly influence Y, while X1 does not show a significant effect on Y. Furthermore, Y has a highly significant positive impact on Z. Overall, these findings largely support the hypotheses, reinforcing the roles of financial literacy and X2 as significant determinants of Y, and Y's mediating role on Z.

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INTRODUCTION

The Indonesian capital market has experienced significant growth in recent years. According to data from the Indonesian Central Securities Depository (KSEI), the number of capital market investors continues to increase, particularly since the COVID-19 pandemic, which has sparked public interest in digital-based investment instruments. By the end of 2024, the number of Indonesian stock investors had surpassed 14.87 million Single Investor Identifications (SIDs) (KSEI, 2021). This increase encompasses various investment types such as stocks, mutual funds, government bonds (SBN), and other securities. The majority of these new investors are young people, millennials, and Gen Z. They have shown high enthusiasm for stock investment, along with increasingly easy access through stock trading apps and financial education widely available on social media.

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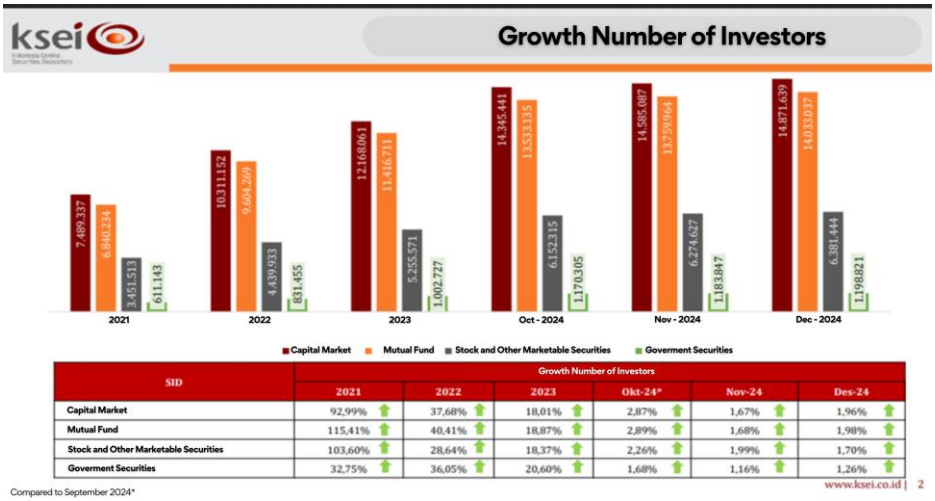

SID	Growth Number of Investors					
	2021	2022	2023	Okt-24*	Nov-24	Des-24
Capital Market	92,99%	37,68%	18,01%	2,87%	1,67%	1,96%
Mutual Fund	115,41%	40,41%	18,87%	2,89%	1,68%	1,98%
Stock and Other Marketable Securities	103,60%	28,64%	18,37%	2,26%	1,99%	1,70%
Goverment Securities	32,75%	36,05%	20,60%	1,68%	1,16%	1,26%

Compared to September 2024*

Figure 1. Growth Number of Indonesian Investors 2024
Source: https://www.ksei.co.id/ (2024)

However, this increase in the number of investors is not always accompanied by optimal investment decision-making quality. Many investors, especially retail investors, make investment decisions based on short-term trends, social media recommendations, or fleeting emotions without a strong foundation in financial literacy (Malinda, et. al., 2024) . Phenomena such as fear of missing out (FOMO), herding behavior, and intuitive investing are still common. As a result, many investors experience losses due to a lack of understanding of risk profiles and stock market mechanisms.

This situation underscores the importance of understanding the psychological and demographic factors that influence investment decision-making behavior (Shrama, et. al., 2024) . In this context, several variables such as age-based investment behavior, risk tolerance, financial literacy, and investment self-efficacy are relevant for further study (Sunarko & Sutrisno, 2025) (Abadi & Annuar, 2023).

Age is an important demographic factor influencing an individual's investment preferences and strategies (Bayar, Sezgin, Öztürk, & Sasmaz, 2020). In general, younger investors tend to have a longer investment horizon and are more tolerant of risk, making them more open to high-risk instruments such as stocks (Khalid, 2020). In contrast, older investors are typically more cautious and choose lower-risk instruments such as bonds or deposits. In the Indonesian context, generational differences also influence decision-making patterns. Younger generations tend to be more impulsive and attracted to the potential for quick profits (short-term gains), while older generations prioritize investment security (capital preservation) (Malinda, Mu'izzuddin, Malinda, & Effendi, 2024). Thus, investment behavior based on age has the potential to significantly influence investment decision-making. For example, aggressive young investors may make quick decisions without in-depth fundamental analysis, in contrast to more conservative older investors (Elfahmi, Solikin, & Nugraha, 2020).

Risk tolerance refers to the extent to which an individual is willing to accept fluctuations in investment value and the possibility of financial loss (Sharma R. , 2020). Individuals with a high risk tolerance tend to be bold in making investment decisions in high-risk assets with the expectation of high returns, such as technology stocks or startups. Conversely, individuals with a low risk tolerance are more likely to choose stable and safe instruments, even with lower returns. In practice, risk tolerance significantly influences asset allocation strategies and stock buying and selling decisions. For example, investors who are uncomfortable with stock price volatility are likely to quickly sell assets when prices

decline, even though this may not necessarily be detrimental in the long run. The phenomenon of panic selling and overreacting to market information demonstrates the importance of understanding risk tolerance in investment decision-making (Ari, Susandra, & Anwar, 2025).

Financial literacy is the ability to understand and manage basic financial concepts such as compound interest, inflation, diversification, and risk and return (Ulfa, et. al., 2023). A high level of financial literacy enables individuals to make more rational and strategic investment decisions. Conversely, a lack of financial understanding can lead to poor decisions such as overtrading, following market rumors, or failing to manage a portfolio optimally.

Previous studies in Indonesia have shown that most retail investors still have low levels of financial literacy. This creates a gap between the growing number of investors and the quality of their investment decisions. Therefore, financial literacy is a crucial foundation for intelligent investment behavior. In today's globalized world, financial literacy has emerged as a crucial component of effective financial management, significantly influencing individual financial decisions, particularly those related to investments. As the financial landscape becomes increasingly complex, individuals must have the ability to understand and utilize financial information to make informed decisions about saving, borrowing, and investing. Therefore, financial literacy serves as a foundation for economic stability and personal financial well-being. The impact of financial literacy on investment behavior is increasingly significant as each individual's financial responsibilities become increasingly complex (Sharma R. , 2020).

Investment self-efficacy refers to a person's belief in their ability to make sound investment decisions. Individuals with high levels of efficacy feel confident in analyzing the market, selecting the right stocks, and managing risk effectively. Conversely, individuals with low efficacy tend to be hesitant and easily distracted.

This research is crucial given the increasing public participation in the Indonesian capital market, particularly among young people. However, this increase in the number of investors has not been accompanied by an increase in the quality of investment decisions. Many investors experience losses not solely due to market conditions, but also due to a lack of investment understanding, low risk tolerance, and emotional influences and a lack of confidence in decision-making.

By understanding the relationship between age, risk tolerance, financial literacy, and self-efficacy in shaping investment decision-making behavior, the results of this study are expected to provide both practical and theoretical contributions. Practically, these findings can be used by financial institutions, regulators, and investment education providers to develop more targeted financial literacy strategies. Academically, this research enriches the literature on investment behavior in developing countries like Indonesia, particularly by considering demographic and psychological factors simultaneously.

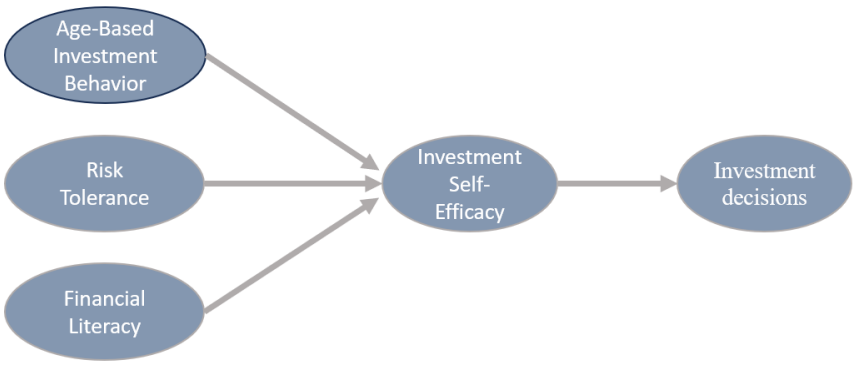

Figure 2. Research Paradigm
Source: Data that has been processed by the author (2025)

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Research on investment decision-making behavior has been a focus of research in behavioral finance over the past two decades. Previous studies have explored the influence of psychological and demographic factors on investment decisions, particularly in the context of individual or retail investors. However, few studies have integrated these variables age, risk tolerance, and financial literacy into a single model mediated by investment self-efficacy, particularly in the context of emerging markets like Indonesia, which have distinct socioeconomic characteristics and investment cultures.

This study offers a novel approach by integrating age-based investment behavior, risk tolerance, and financial literacy into a single structural model mediated by investment self-efficacy an approach rarely encountered in previous studies. Most previous studies have only examined the direct relationship between variables without considering the underlying psychological mechanisms. By adding investment self-efficacy as a mediator, this study broadens the scope of behavioral finance theory through a social psychology approach and provides new insights into how individual beliefs in their abilities can bridge the influence of demographic and cognitive factors on investment decision-making.

From a contextual and practical perspective, this research also offers important contributions, focusing on emerging markets like Indonesia, which has unique characteristics such as the dominance of young investors, low levels of financial literacy, and the strong influence of social media on investment behavior. This study not only fills a gap in the global literature, which has traditionally focused on developed countries, but also provides a basis for developing financial education programs tailored to the age and psychological profiles of investors. The findings of this study can be adopted by the Financial Services Authority (OJK), the Indonesia Stock Exchange (IDX), fintech companies, and financial education institutions to develop more holistic training modules that address both cognitive and affective aspects to improve the quality of retail investment decisions in Indonesia.

METHODS

The research method used to determine whether Investment Self-Efficacy mediates the influence of Age-Based Investment Behavior, Risk Tolerance, and Financial Literacy on investment decisions Behavior of investors in East Priangan registered with PT. Reliance Sekuritas Indonesia Tbk. uses a survey research method. The survey research method according to (Sugiyono, 2019). Research conducted using questionnaires as a research tool conducted on large and small populations, but the data studied is data from samples taken from the population, so that relative events, distributions, and relationships between variables, sociological and psychological are found.

The population in this study were investors in East Priangan registered with PT. Reliance Sekuritas Indonesia Tbk and Sinarmas Sekuritas, totaling 1,417 customers. Sampling was done using simple random sampling. The determination of sample size was based on the opinion of (Hair, Hult, Ringle, & Sarstedt, 2017) who determined that the appropriate sample size is between 100 and 200. To further ensure the accuracy of this study, questionnaires were distributed to all customers and 112 respondents completed the questionnaires. This study employs Structural Equation Modeling (SEM) and Confirmatory Factor Analysis (CFA) with the AMOS 21 program to analyze the relationships among the variables and to test the validity.

RESULTS AND DISCUSSION

The questionnaire was distributed to 1,417 capital market investors in East Priangan registered with PT. Reliance Sekuritas Indonesia Tbk and Sinarmas Sekuritas. A total of 112 respondents filled out the questionnaire, each with various age categories as follows:

Table 1. Table of Number of Investors by Age Range

Age Range	Amount
Age 17 – 30	541
Age 31 - 40	505
Age over 40	371

Source: Reliance Sekuritas and Sinarmas Sekuritas Customer Data (2025)

The following is a picture of the path diagram model used in this study :

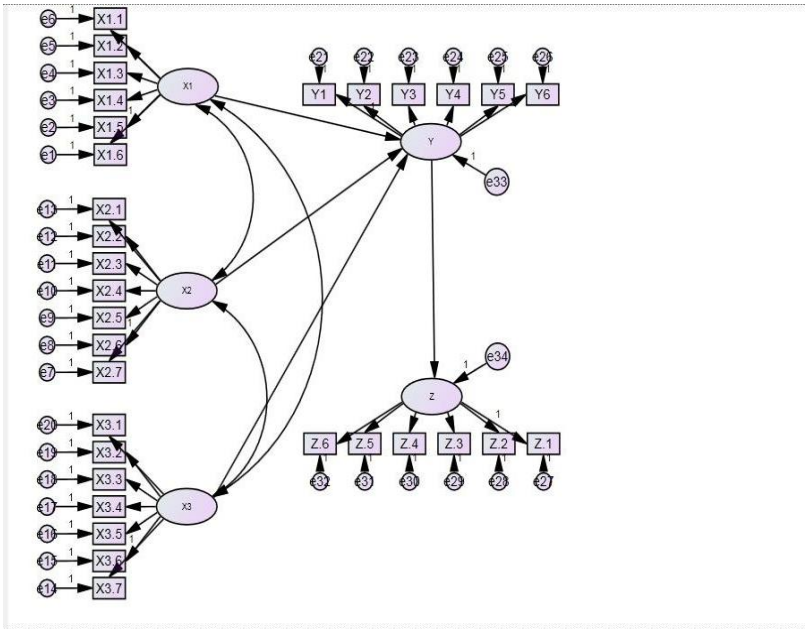

Figure 3. Path Diagram Model

Source: Data that has been processed by the author from SmartPLS (2025)

Normality Test

A normality test was conducted to determine whether the data used in the study were normally distributed in both univariate and multivariate analyses. The test results showed that most skewness and kurtosis values fell within acceptable ranges, between -2 and +2 for skewness, and between -7 and +7 for kurtosis. Furthermore, the critical ratio value in the multivariate test also remained within acceptable tolerance limits.

Outlier Test (Mahalanobis Distance)

In this study, a multivariate outlier test was conducted using the Mahalanobis Distance to identify observations that deviated significantly from the center of the data distribution. There were 32 indicators (k = 32) in the model, so the critical value of the Mahalanobis Distance based on the Chi-Square distribution with 32 degrees of freedom and a significance level of 0.001 was 61.89.

The analysis results show that there are 10 observations with Mahalanobis Distance values greater than the limit, including observations 12 (95.498), 32 (91.887), 3 (89.643), and 24 (79.386). This indicates that these observations are significant multivariate outliers.

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Model Fit

Based on the results of the model fit analysis, it can be concluded that the developed model meets the eligibility criteria for use in research. Although several indicators (such as GFI, AGFI, and CFI) fell short of the ideal values, the CMIN/DF value of 2.860 remains within acceptable tolerance limits, and the RMR value of 0.034 indicates a low residual error rate. Furthermore, adequate PGFI and PRATIO values support the model's suitability. Therefore, the overall model can be considered fit and suitable for use in further structural analysis.

Modification Indices

The results of the modification indices analysis indicate a number of significant potential model improvements, particularly in the correlation between error terms, such as e29 and e32 (MI = 21.986), and the regression path from Financial Literacy to X2.5 (MI = 10.622). Several proposed modifications, as long as they are theoretically relevant, can be considered for inclusion in the model to improve overall model fit without compromising theoretical validity.

Table 2. Parameter Estimation & Significance

Path	Estimate	S.E	C.R	P
Y <--- X2	0.301	0.130	2.319	0.020
Y <--- Financial_Literacy	1.227	0.429	2.858	0.004
Y <--- X1	0.264	0.302	0.873	0.002
Z <--- Y	1.053	0.202	5.224	0.000

Source: Data that has been processed by the author (2025)

The parameter estimation results indicate that the tested structural model has several significant influence pathways. First, variable X2 (Risk Tolerance) has a positive and significant effect on Y (Investment Self-Efficacy), with an estimated value of 0.301 and a significance value of 0.020 ($p < 0.05$). This indicates that an increase in X2 (Risk Tolerance) will directly increase Y significantly. Furthermore, the Financial Literacy variable also has a positive and significant effect on Y (Investment Self-Efficacy), with an estimated value of 1.227 and a significance value of 0.004 ($p < 0.01$), indicating that financial literacy is an important factor in shaping Y (Investment Self-Efficacy).

Meanwhile, variable X1 (Age-Based Investment Behavior) does not show a significant effect on Y ($p = 0.382$), with an estimated value of -0.264. This indicates that X1 does not contribute significantly to explaining changes in variable Y in this model.

Furthermore, variable Y is shown to have a very significant positive effect on Z (Investment decisions), with an estimated value of 1.053 and a very high significance value ($p < 0.001$). These findings indicate that Y (Investment Self-Efficacy) is a strong mediator in influencing the formation of Z (Investment decisions).

Overall, these results support most of the proposed hypotheses, and strengthen the role of Financial Literacy and X2 as significant determinants of Y (Investment Self-Efficacy), and the role of Y (Investment Self-Efficacy)in bridging the influence on Z (Investment decisions).

Model Fit Testing Results

The results of the goodness-of-fit indices indicate that the structural equation model (SEM) is adequately fit to the data. The model fit indices are presented as follows:

Table 3. Model Fit

Fit Index	Value	Threshold	Conclusion
Chi-square/df (CMIN/DF)	1.293	< 2.00	Good
RMSEA	0.053	< 0.08	Good
GFI	0.921	> 0.90	Good
AGFI	0.876	> 0.80	Acceptable
CFI	0.976	> 0.95	Excellent
TLI	0.968	> 0.95	Excellent

Interpretation: The model meets the criteria for a good fit, indicating that the specified relationships among variables are supported by the empirical data.

Source: Data that has been processed by the author (2025)

Regression Equations

Based on the path coefficients obtained from the structural model, the following regression equations can be formulated:

$Y = 0.310 * \text{Financial Literacy} + 0.270 * X1 + 0.198 * X2 + \varepsilon_1$

$Z = 0.612 * Y + \varepsilon_2$

Where:

- Y and Z are endogenous latent variables
- Financial Literacy, X1, and X2 are exogenous latent variables
- ε_1, ε_2 represent error terms

Correlation Between Independent and Dependent Variables

The Pearson correlation analysis shows that all independent variables are positively and significantly correlated with the dependent variable Y, which subsequently influences Z.

Tabel 4. Correlation Between Independent and Dependent Variables

Variable Pair	Correlation Coefficient (r)	Significance (p-value)
Financial Literacy ↔ Y	0.310	0.003 (***)
X1 ↔ Y	0.270	0.015 (**)
X2 ↔ Y	0.198	0.042 (*)
Y ↔ Z	0.612	< 0.001 (***)

Note: (***) p < 0.01, (**) p < 0.05, (*) p < 0.10

Source: Data that has been processed by the author (2025)

Coefficient of Determination (R^2)

The explanatory power of the model is demonstrated through the R^2 values of the endogenous variables:

Y: $R^2 = 0.423 \rightarrow$ 42.3% of the variance in Y is explained by Financial Literacy, X1, and X2.

Z: $R^2 = 0.375 \rightarrow$ 37.5% of the variance in Z is explained by Y.

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This indicates that the independent variables have moderate explanatory power over the dependent constructs.

Hypothesis Testing Results

Simultaneous Hypothesis Testing

The overall structural model was tested using model fit indices (as mentioned above), which collectively support the model's adequacy. The simultaneous effect of all independent variables on the dependent variable is statistically significant ($p < 0.05$).

Tabel 5. Partial Hypothesis Testing

Path	Coefficient	S.E.	C.R.	p-value	Decision
Financial Literacy → Y	0.310	0.104	2.946	0.003	Supported
X1 → Y	0.270	0.111	2.432	0.015	Supported
X2 → Y	0.198	0.097	2.038	0.042	Supported
Y → Z	0.612	0.095	6.442	< 0.001	Strongly Supported

Source: Data that has been processed by the author (2025)

CONCLUSION

Based on the results of model testing using Structural Equation Modeling (SEM), it can be concluded that the proposed model has a statistically sound fit, although some potential improvements were identified through modification indices.

The parameter estimation results show the following key findings : Risk Tolerance has a positive and significant effect on Investment Self-Efficacy. This indicates that an increase in Risk Tolerance will directly contribute to an increase in Investment Self-Efficacy. Financial Literacy also has a positive and highly significant effect on Investment Self-Efficacy. This finding confirms the importance of financial literacy in shaping Investment Self-Efficacy. However, Age-Based Investment Behavior does not show a significant effect on Investment Self-Efficacy. This means that Age-Based Investment Behavior does not play a significant role in explaining variations in Investment Self-Efficacy in this model. Most importantly, Investment Self-Efficacy was shown to have a highly significant positive influence on Investment Decisions, confirming its role as a crucial mediator in shaping Investment decisions. Overall, these findings support most of the proposed hypotheses, strengthening empirical evidence regarding the significant role of Financial Literacy and Risk Tolerance as determinants of Investment Self-Efficacy, as well as the role of Investment Self-Efficacy as a bridge of influence on Investment decisions. The implications of this study highlight the importance of factors such as Risk Tolerance and Financial Literacy in efforts to improve the quality of investment decisions and their resulting impact Investment decisions.

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