Asian Management and Business Review, Volume 5 Issue 1, 2025: 19-34

The effect of financial literacy, financial self-efficacy, financial technology literacy, and risk perception on stock investment decisions: Millennials preferences

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Article History
Received : 2024-08-09
Revised : 2024-10-18
Accepted : 2024-11-05
Published : 2025-02-04

Keywords:
Investment decision; financial literacy; financial self-efficacy; financial technology literacy; risk perception; millennials.

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DOI:
10.20885/AMBR.vol5.iss1.art2

Abstract

Nowadays, investment has major importance for future contingencies. The millennials are one that currently take over a large number of capital market investors. To advocate optimal and sustainable decision-making in stock investment, it is important to explore the determinants of investment decisions which include financial literacy, financial self-efficacy, and risk perception. The study was conducted to assess the influence of financial literacy, financial self-efficacy, financial technology literacy, and risk perception on stock investment decisions in the millennial generation of Yogyakarta Special Region. The population of this study was millennial stock investors in the D.I. Yogyakarta province. The sample is used with criteria that age in between investing 28–43 years old; namely 115 people. The data was collected via a survey strategy and then analyzed using the SEM-PLS technique. Based on the research findings, it can be concluded that financial literacy has a significant positive effect on stock investment decisions among the millennials in Yogyakarta. Conversely, financial self-efficacy negatively impacts stock investment decisions significantly. Additionally, financial technology literacy also demonstrates a positive and significant influence on stock investment decisions. In contrast, risk perception does not appear to affect stock investment decisions among millennials in Yogyakarta. Theoretical and practical implications are discussed in the last section of this article.

Introduction

The millennial generation faces the challenge of navigating an increasingly complex landscape of products, services, and financial markets. They also need to anticipate future financial risks. The ability to independently manage finances and make responsible decisions is an important key for this generation. Many of them still need to increase their wisdom in managing their finances. From this financial management, decisions will emerge regarding how to use and allocate the funds owned. To use finances efficiently and wisely, understanding financial literacy is very important, including in terms of investment. According to Hartono (2022), investment involves postponing current consumption to allocate resources to productive assets over a designated timeframe. In other words, investment is an action to obtain future profits through growth in asset value or income generated.

Even though investment has significant relevance for future planning, the reality shows that Indonesian people's participation in investment activities is still low. According to the Financial Fitness Index 2022 from (NielsenIQ, 2022), the results of a survey of 1,335 respondents aged 25-35 years old in five large cities in Indonesia showed that only 9% of them were involved in investing, while only 8% received regular passive income. This data reflects the level of awareness that still needs to be increased in managing finances intelligently and taking advantage of investment opportunities to secure financial conditions in the future.

E ISSN 2775-202X

This research focuses on the millennial generation and generation Z due to their significant role in driving the growth of the investment landscape. They dominate investors in the capital market because they have been familiar with financial technology from an early age. Even though the numbers are still relatively small, data from the Indonesian Central Securities Depository (KSEI) in August 2023 shows that they make up 57.04% of the total individual investors in Indonesia (Annur, 2023). Generation Z tends to actively invest because of the convenience and ease of online transactions in the Indonesian capital market (Tang & Asandimitra, 2023).

Even though the younger generation's investment interest is increasing, literacy about choosing safe investment instruments is still low. According to Damayanti et al. (2023), good investment decisions indicate a high level of financial literacy. However, in Indonesia, the level of financial literacy remains relatively low compared to other ASEAN countries, such as Malaysia, Thailand, and Singapore (Damayanti et al., 2023). Hence, most investors are influenced by fear of missing out (FOMO) or invitations from influencer that they are being invited, the lack of knowledge of the investment products can contribute to holding a wrong investment, including holding in illegal financial instruments. It is important to conduct an in-depth analysis of the factors that influence investment decisions to prevent future losses. According to Altaf and Jan (2023), due to better financial literacy, millennials often exhibit a tendency to be overconfident in their expectations of profitable outcomes. By gaining a better understanding of the factors that influence investment decisions, individuals can make more informed choices and improve their overall investment outcomes. Educational and regulatory measures can be implemented to protect the public from the risks of illegal investment, as well as increase interest in sustainable investment in a safer and more reliable investment environment.

There is need to understand what causes such occurrences in the investment decision processes in order to prevent further mishaps. Millennials are comparatively less experienced, and they mostly lack the required risk analysis and are overconfident. The first and foremost determinant that is comprehended within the scope of investment choices is financial literacy. From the studies carried out by Saputro and Lestari (2019), it notes that financial literacy influences investment decisions in a positive manner. Spokesperson for the Ministry of Finance Sri Mulyani added that while 85% of Indonesians makes a transaction in the financial sector the actual level of financial literacy is roughly 50%; thus, a gap is created that can lead to further instances of illicit investment (Masitoh, 2023). This gap is the main cause of triggering a large number of Indonesians involved in irregular investment schemes.

It was surmised that the lack of elementary financial knowledge, financial risks, and investment products can become a major barrier to making correct investment decisions. Such illegitimate investment avenues only become possible when the general population has a low level of economic understanding. Thus, the disconnection between activity in financial transactions and lower levels of financial literacy is the key concept behind why many a person in Indonesia finds himself in an illegal investment which may potentially prove disastrous for personal and country's financial health. In facing this challenge, any endeavor to enhance the level of financial enlightenment becomes a critical tool to enable people to act resourcefully in line investment decisions.

As in the study of Awais et al. (2016), and Saputro and Lestari (2019), it was concluded that financial literacy may affect investment decisions positively. This means that it is easier to influence or guide an individual who possess good amount of financial literacy when it comes to making investment (Saputro & Lestari, 2019). On the other hand, Yundari and Artati (2021) described another view suggesting that financial literacy has a negative impact on investment choices. Thus more literature research on this topic is required in order to meet this gap of research. Although some of them investigate investment behavior none of the previous works focus on millennial generation, let alone studying the generation that is residing in the Special Region of Yogyakarta where there is no prior empirical research done.

The second of these factors that are likely to impact on investment decisions is financial self-efficacy. Concisely, as much as Noor et al. (2020: 457) asserted, financial self-efficacy can be described as the extent to which an individual possesses the confidence in her or his capability to utilize, make decisions and manage often catalytic and complex financial instruments. Financial self-efficacy is a belief system regarding one's capability to handle financial matters and make sound decision in facing certain situations and or problems in managing personal assets. That is, financial self-efficacy refers to the degree to which the person has confidence and faith in managing financial realities of life. As mentioned by Mindra et al. (2017), the person of high financial self-efficacy are supposed to use the financial services and in effect make the lives of people easier as far as investment decisions are concerned. Higher financial self-efficacy can be regarded as the ability of an individual to make proper decisions with regard to financial activities, including investment issues and in general to control monetary situations. It can actually cause people to make sound and reasonable investment choices to be made with a lot of awareness and confidence.

Hassan et al. (2024) using a qualitative research design confirm that financial self efficacy has a positive influence on investment decisions. High self-efficacy eliminates all the questions that one would ask himself/herself while intending to invest. Thus, those with high levels of self-efficacy always think in tracts to the positive outcomes, and the internal barriers expect positive outcomes. However, investigations by Widjaja and Sembel (2020) show that the financial self-efficacy variable is not significantly related with investment decision variables. Hypotheses that have been tested in those studies concerned self-efficacy as a mediator and such variable has not been looked at as an outcome in any other study. Besides, no study has been conducted in the absence of any Special Region of Yogyakarta. Moreover, there is still a research gap about the impact of financial self-efficacy on the investment decision, thus, researches should be conducted to discover the nature of this relationship.

The second macro environment force affecting investment is called financial technology (Fintech). Fintech is understood to mean the process through which service providers of financial products innovate to create value from the aspects of customer experience and product features. In other words, fintech uses the well-designed software and algorithm running in computers, predominantly, and recently, mobile phones to help businesses provide their services more efficiently, entrepreneurs, and individuals manage their financial operations, processes, and activities (Sun & Zhang, 2023). Research by Srivastav et al. (2024) demonstrated that financial technology has a significantly positive impact on investment decisions, while the study by Sun and Zhang (2023) found that financial technology negatively affects investment decisions, highlighting a gap in these studies. However, both studies focus on how fintech is used to aid investment decisions without analyzing users' ability to utilize fintech effectively. In contrast, this research focuses more on fintech literacy, aiming to illustrate respondents' capabilities in using fintech. Additionally, none of these studies have analyzed the condition of investors in Indonesia, leaving a gap that this research seeks to address.

The fourth factor affecting investment decisions is risk perception, which pertains to the trust whether rational or irrational that influences decision-making in uncertain circumstances. An investor's perception highlights significant shifts when faced with potential losses (Waheed et al., 2020). Deb and Singh (2018) research proved that risk perception has a positive influence on mutual fund investment decisions, while Ahmed et al. (2022) study's found that risk perception has no effect on investment decisions. However, these studies were focused on Pakistan, whereas research on the impact of risk perception on investment decisions in Indonesia is still limited, and none have specifically studied a single generation in a particular region.

Given this phenomenon, the researchers are motivated to investigate the impact of financial literacy, financial self-efficacy, financial technology, and risk perception on investment decisions among the millennial generation in the Special Region of Yogyakarta (DIY). The selection of the Yogyakarta Special Region is related to the rapid growth of investors in the province. According to the head of the Yogyakarta Indonesia Stock Exchange (BEI), during 2023 the number of investors in DIY will experience growth of 25.40% (Umah, 2023). Meanwhile, the selection of the millennial generation is related to investors. The millennial generation represents a significant portion of investors in the capital market and the millennial generation has been close to technology since childhood, so the millennial generation is no stranger to financial technology and its use for investing.

Literature Review and Hypotheses Development

Theoretical Framework

According to Prospect theory the aversion of investors towards risk consists with holding a loser and on the other hand selling a winner (Ahmed, 2022). Prospect theory posits that an individual's economic decision-making processes are not only founded on outcomes and risks; but are also determined by psychological aspects such that the economic decisions are most often irrational (Sukamulja, 2022). Thus, in order to weaken this theory in investing, a person must meet the requirements of certain parameters related to the level of financial literacy, financial technology and the assessment of risks.

According to Khan et al. (2022), with financial literacy, investors are able to provide for their financial management on a regular basis, using a certain knowledge and skills with an ultimate goal of enhancing their standards of welfare. It endows a person with capacity to factor in and determine risk comprehensively thus not only enables a person to make intelligent financial decisions but also shapes investment decisions made. Financial literacy helps a person to have a sound investment plan most importantly for the management of assets in order to achieve the intended welfare objectives.

In the perspective of economic behavior, self-efficacy means that people with higher level of perceived self-efficacy regarding their financial situation are likely to perceive financial troubles as 'opportunities to be accomplished rather than as risks to be avoided'. Often such attitude leads to higher performance and, in turn, more successful personal financial outcomes (Farrel et al., 2016). In the circumscription of finance, financial self-efficacy is vital because people believe they have skills to handle financial decisions and decision-making.

Financial technology or commonly known, as "FinTech". FinTech is used to describe numerous technology startups that have followed to challenge the role of bank or other financial market participants and provide a broad range of services such as mobile payments, crowdfunding, portfolio and investment management or cross-border money transfers (Ahmi et al., 2020). To the investors and to the general public, FinTech offers features that make it easier for the investors through the provision of analytic features. Thus, FinTech with the help of being frugal allows those investors who have proper financial technology literacy to meet all the necessary options in the correct way and make the proper investment decisions.

According to Bhattacharjee et al. (2021), risk is a core concept that defines the adverse consequences affecting assets or value attributes; it could result from current activities or future events. Risk management can be viewed as an individual preparatory process, as it largely depends on how each person perceives risk. This readiness is closely associated with the prospect of future losses or gains, to the extent that the information can skew the outcome of the subject's investment.

According to the description above, the framework of thought can be described as follows:

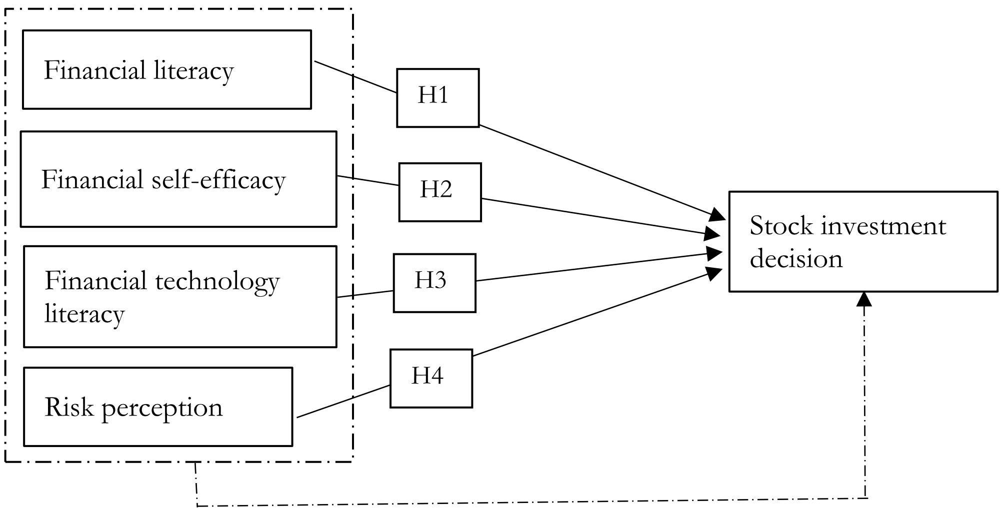

Figure 1. Conceptual Framework

Financial Literacy and Stock Investment Decisions

According to prospect theory the economical decisions are based not only on the outcomes and probabilities but the psychological factors which may lead to the increase of the irrationality of the decision-making prognosis. To mitigate the negative effects of this theory in investing, it is crucial for individuals to possess strong financial literacy. Financial literacy encompasses the ability to manage finances effectively, utilizing specific knowledge and skills to enhance one's overall well-being in life. In line with this, Siriopoulos (2021) argued that financial literacy can be a tool for risk management for investors to prevent severe losses. Effective working of assessing risk impacts people's possibility to make correct monetary decisions and determine their investment strategies. When properly informed financially, a person can come up with a proper investment plan to have adequate welfare whenever one wants to in life. In other words, financial literacy can be seen as the starting for every person in terms of making some investments.

A literature study in Gustiarum and Kusumwardhani (2023), Herliana et al. (2023), Baihaqqy et al. (2020), and Kumari (2020) concludes that financial literacy has a positive impact on stock investment decisions. This work is in support of Chandra et al. (2023) who also revealed that financial literacy significantly influences stock investment decisions. Based on this description, the first hypothesis formulation is:

H_1: Financial literacy has a significant positive effect on stock investment decisions.

Financial Self-Efficacy and Stock Investment Decisions

As described by Brady et al. (2021), financial self-efficacy refers to an individual's confidence in managing their financial processes and making investment decisions. This sense of self-efficacy positively influences both a person's motivation and their overall performance. When people have high-self efficacy, they will exert maximum effort so as to solve issues and accomplish determined targets. Financial self-efficacy is important in a financial context because it trusts that one can handle decisions well. Financial self-efficacy convinces people to approach the ways of handling their finances in a better way and financially. The results also demonstrate that higher financial self-efficacy leads to better suitability of investment decisions with ability and necessity Suresh (2021), and Srinivasan and Karthikeyan (2023). Based on this description, the second hypothesis formulation is:

H_2: Financial self-efficacy has a significant positive effect on stock investment decisions.

Financial Technology Literacy and Stock Investment Decisions

On this basis, knowledge prospect theory indicates that people's economic decisions are not only based on outcomes and probabilities but are also psychological; therefore, many decisions are irrational. In order to minimize the influence of this theory of investing, it is vital that someone has adequate knowledge, including financial technology. Suryono et al. (2020) emphasized that Fintech is a significant innovation within the financial services sector, propelled by factors such as economic sharing, regulations, policies, and advancements in information technology. Financial technology is focused on providing financial services using modern software and technology, such as applications as a new means for investing. The progress, comfort, security and productivity offered by financial technology are considered factors that can increase the attractiveness of the millennial generation to get involved in investing. Research by Vigo et al. (2022), and Saputro and Lestari (2019) has proven that financial technology literacy has a significant positive influence on stock investment decisions. Based on this description, the third hypothesis formulation is:

H_3: Financial technology literacy has a significant positive effect on stock investment decisions.

Risk Perception and Stock Investment Decisions

According to Grima et al. (2021), risk perception is a subjective evaluation that individuals create regarding the characteristics, severity, and management of risks. Following the research of Bhattacharjee et al. (2021) defined risk as a concept that encourages a view of the possibility of an undesirable effect on assets or value in the present or future process. The procedures a person

takes in facing those risks are relative to how they perceive those risks and given that investment returns can be greatly influenced by inaccurate information. The investors in high risk seek higher precaution when investing as compared to investors in low risk who tend to be wiser when investing. According to the prospect theory, a person avoids risk when he is in gains position but, is more tolerant of risks when he is in a position of losses. Research by Chandra et al. (2023), Saputro and Lestari (2019), Halim and Pamungkas (2023), Mulyani et al. (2021), and Hidayah and Irowati (2021), have proven that risk perception has a significant positive influence on stock investment decisions. Based on this description, the formulation of the fourth hypothesis is:
H_4: Risk perception has a significant positive effect on stock investment decisions.

Research Methods

Population and Sample

In this research, the sampling method used was a non-probability sampling technique, specifically a purposive sampling technique. The research population consists of millennial generation stock investors in Yogyakarta Province who were born between 1981 and 1996 (aged 28 to 43 years old), and have invested or are currently investing using financial technology application platforms. A sample of 115 respondents was selected using non-probability sampling techniques.

Data Collection Technique

In this study, we gathered data by sharing questionnaires through Google Forms with various investment groups in the Special Region of Yogyakarta. The initial page of the questionnaire included a respondent profile section that required only individuals who had previously invested in stocks at Indonesia Stock Exchange (IDX) to participate.

Research Variables

In this research there is one dependent variable, namely stock investment decisions, three independent variables consisting of financial literacy, financial self-efficacy, financial technology literacy, and risk perception. Each variable had its own indicators, measured using a Likert scale ranking from 1 to 5. The indicators and the questionnaire for each variable are as follows:

Table 1. Variables and Indicators

Variables	Indicator Themes	Source
Financial Literacy	1. Understanding of finances in general 2. Understanding of savings and loans 3. Understanding of investment	(Tiffani, 2023)
Financial Self-Efficacy	4. Difficulty in resolving financial challenges 5. Progress in achieving financial targets 6. Stick to a spending plan 7. Confidence in managing finances 8. Use a credit card for unexpected expenses 9. Worrying about finances in retirement	(Nadeem et al., 2020)
Financial Technology Literacy	10. Understand financial technology 11. Understand application-based investment 12. Understand data security risks in electronic transactions 13. Understand supporting facilities in electronic transactions 14. Understand the user interface in financial technology	(Zakiyyah et al., 2023)
Risk Perception	15. Confidence in the chosen investment 16. Confidence in investment performance according to target 17. Confidence in long-term returns	(Ainia & Lutfi, 2019)
Stock Investment Decision	18. How much amount of money you used for investment 19. How many shares you own	(Wahyuni, 2021)

Table 2. Questionnaire Items

Variables	Questionnaire Statements
Financial Literacy	(FL1) Financial knowledge will enable me avoid all forms of money fraud. (FL2) I will only borrow money from other people when situation emergency of course need it. (FL3) Currently, I save solely For ensure welfare in the future front. (FL4) I realize that investing is a way to set aside funds now to achieve financial stability in the future. (FL5) I realize that profits from shares can be in the form of dividends or capital gains.
Financial Self-Efficacy	(FS1)I will try to ensure that every expense is in line with the income I have. (FS2) I always set priority in scale expenditure finance that I will do. (FS3) I experience difficulty when faced with on challenge financial. (FS4) I feel confident and capable of managing my finances well. (FS5) If there are any unexpected expenses, I will use my savings to cover them. (FS6) I am confident that with good financial management, my financial condition in the future will change.
Financial Technology Literacy	(FT1) I have a good understanding of financial technology. (FT2) I know that financial technology is a financial service outside of banking. (FT3) I understand data security in financial technology. (FT4) I find it easier to make transactions with financial technology. (FT5) I prefer to use financial technology because it is more practical.
Risk Perception	(RP1) I am sure that the investment I choose will provide good and appropriate results. (RP2) I will show you performance which strong and results which satisfying. (RP3) The investment which I choose will have improvement mark which significant in the future front. (RP4) The investment I choose will provide good results according to my goals. (RP5) The investments I choose will have excellent rates of return in the medium and long term.
Stock Investment Decision	(KI1) The size use income monthly for investment. (KI2) The number of shares owned.

Data Analysis

This research uses SEM-PLS data analysis techniques to measure the relationship between latent constructs (measurement model) and the relationship between these latent constructs (structural model). Partial Least Squares (PLS) is used to evaluate the relationship between research variables simultaneously, which is more comprehensive compared to other methods which only measure direct relationships between observed variables. Model evaluation involves assessment of the outer model which links the latent variables with the observed indexes, assessment of the inner model that test the relation between the research variables and the assessment of suitability of the model to analyze the feasibility of the model as a whole.

This research uses a reflective model which emphasizes the relationship between latent variables (constructs) and indicators. This model reflects that the latent variable is reflected in its various indicators, so that understanding of the construct can be obtained through cumulative measurements of these indicators. The reflective model was chosen as an analytical framework in PLS to explore and interpret the relationships between variables and measurements.

Results and Discussion

Respondent Characteristics

The study's respondents included 62 females (53.91%) and 53 males (46.9%), mostly aged 28-33 years old (59.13%), with only 19.13% over 38. Most were employees (76.52%), while students formed the smallest group (7.83%). Regarding income, 46.09% earned below IDR 5,000,000, and just 3.48% exceeded IDR 30 million.

Evaluation Results of the Measurement Model (Outer Model)

Loading factor

Table 3. Loading Factor

Indicators	Financial Literacy	Financial Self-Efficacy	Financial Technology Literacy	Stock Investment Decision	Risk Perception
FL1	0.791				
FL2	0.893				
FL3	0.831				
FL4	0.905				
FL5	0.876				
FS1		0.812			
FS2		0.905			
FS3		0.803			
FS4		0.886			
FS5		0.777			
FS6		0.901			
FT1			0.745		
FT2			0.815		
FT3			0.783		
FT4			0.840		
FT5			0.755		
KI1				0.875	
KI2				0.860	
RP1					0.830
RP2					0.869
RP3					0.832
RP4					0.866
RP5					0.851

Note. Financial literacy = FL; Financial self-efficacy = FS; Financial technology literacy = FT; Stock investment decision = KI; Risk perception = RP.
Source: SmartPLS Output, 2024

Internally, reliability is known as the loading factor, which measures the relationship between each of the items used in the measurement and the variable being measured. Factor loading is used to describe the extent to which indicator items reflect variable measurements. The results of this research show that all indicators have a loading factor (LF) value greater than 0.70. Thus, all indicator items exceed the minimum standard of LF ≥0.70, so the LF value is considered to meet the accepted criteria. Therefore, all research indicators are considered valid for use.

Composite Reliability (CR) and Average Variance Extracted (AVE)

The measurement of variables is done by composite reliability (CR) and for number of measurement items contained in the variable is given by average variance extracted (AVE).

Table 4. CR and AVE Result

Variables	Composite Reliability (CR)	Average Variance Extracted (AVE)
Financial Literacy	0.925	0.713
Financial Self-Efficacy	0.924	0.673
Financial Technology Literacy	0.907	0.663
Stock Investment Decision	0.838	0.726
Risk Perception	0.914	0.684

Source: SmartPLS Output, 2024

As indicated in the Table 4, it reveals that all the variables have a Composite Reliability (CR) above 0.7 thus satisfying the reliability criterion. In addition to that, all the variables possess considerable Average Variance Extracted (AVE) value that is greater than 0.5.

Discriminant Validity

Discriminant validity describes how far the variable or construct constructed is statistically different from other variables/constructs.

Table 5. Discriminant Validity Result

Variables	Financial Literacy	Financial Self-Efficacy	Financial Technology Literacy	Stock Investment Decision	Risk Perception
Financial Literacy	0.860				
Financial Self Efficacy	-0.074	0.849			
Financial Technology Literacy	0.305	-0.066	0.788		
Stock Investment Decision	0.409	-0.206	0.679	0.868	
Risk Perception	0.574	0.000	0.453	0.476	0.850

Source: SmartPLS Output, 2024

Looking at the Table 5, the following realization is brought to bearing; by evaluating AVE at its most basic level, it can be seen to be greater than the coefficient of variables, which is a sign that discriminant validity testing criterions have been met. Thus, discriminant validity for all the constructs or latent variables indicated have been supported. This shows that the five indicators in each construct are more valid in portraying its related concept than the indicators that belong to the other construct.

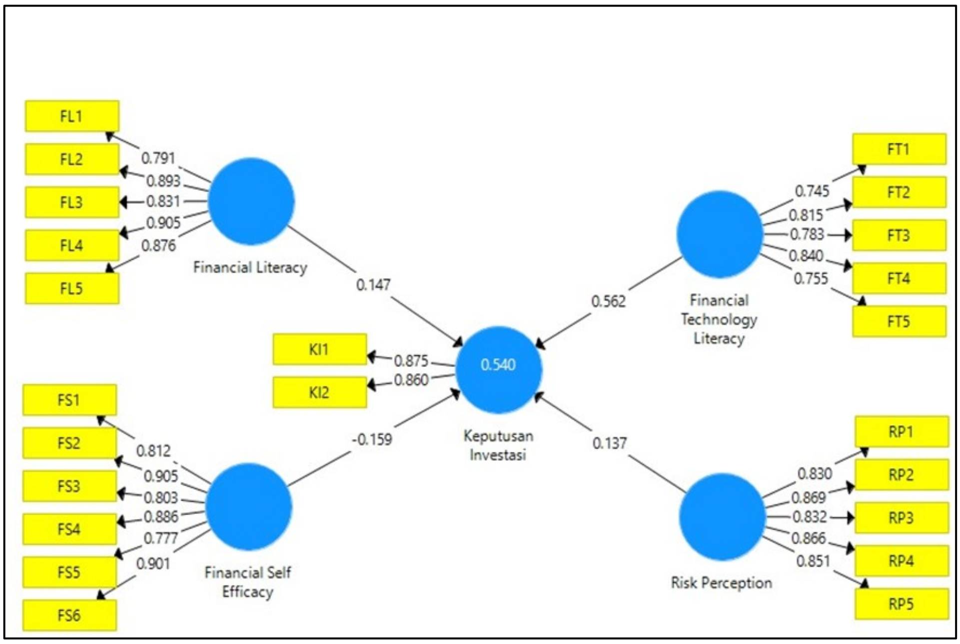

Figure 2. Structural Model Evaluation Result (Inner Model)
Source: SmartPLS Output, 2024

Multicollinearity Test

The multicollinearity test is used to examine the relationship between variables in PLS-SEM analysis. This check is important because multicollinearity can cause bias in parameter estimates, high standard error values, and wider path coefficient confidence intervals, and can affect the significance of hypothesis testing. Decision-making in the multicollinearity test is based on the Variance Inflation Factor (VIF) value. If VIF <10, then there is no multicollinearity problem.

Table 6. Multicollinearity Test

Variables	VIF Score
Financial Literacy	1.507
Financial Self-Efficacy	1.013
Financial Technology Literacy	1.269
Risk Perception	1.717

Source: SmartPLS Output, 2024

From the Table 6, it can be observed that all the VIF values and thus satisfy the condition of having less than 10 for all the variables incorporated in the analysis. This goes to prove that the multicollinearity has not affected the research variables hence all the independent variables qualify for the test on multicollinearity.

Model Suitability Evaluation Result

R square

R Square describes the overall influence of exogenous variables on other endogenous variables.

Table 7. R Square Test

Variable	R Square	Adjusted R Square
Stock Investment Decision	0.540	0.523

Source: SmartPLS Output, 2024

As can be viewed from the Table 7, the adjusted R Square value is 0.523. A brief discussion of the total variance in the estimated research findings display that the selected variables of financial literacy, financial self-efficacy, financial technology literacy, and risk perception on the one hand, and stock investment decision on the other hand bear a moderate influence, which amounts to 52.3%.

F square

F Square describes how much influence each variable has in the structural model.

Table 8. F Square Test

Variables	Stock Investment Decision
Financial Literacy	0.031
Financial Self-Efficacy	0.054
Financial Technology Literacy	0.541
Stock Investment Decision	
Risk Perception	0.024

Source: SmartPLS Output, 2024

From the Table 8, it is clear that in the small category, the F square of the financial literacy variable is 0.031. The third variable which is called financial self-efficacy was ranked in the small category after presenting an F square of 0.054. The result of the analysis proves that the large category to have an F square value equal to 0.541 for the financial technology literacy variable. Perception of risk has also been aligned to the small category with an F square value of 0.024.

Q square

It tests how well the exogenous variables could predict the endogenous variable in a model; with Q Square. If the value of Q Square is greater than 0 it clearly indicates that the exogenous variable is able to predict the endogenous variable.

Table 9. Q Square Test

Variable	Q^2 (=1-SSE/SSO)
Stock Investment Decision	0.391

Source: SmartPLS Output, 2024

From the Table 9, it is seen that the variable most relevant to in stock investment decision has the highest of the Q Square value of 0.391 and that is greater than 0. This means that the variables financial literacy, financial self-efficacy, financial technology literacy, and risk perception are likely to be good predictors of the stock investment decision variable.

Hypothesis Test Result

Based on the results of the analysis in this research, the following hypothesis testing results were obtained:

Table 10. Hypothesis Testing

Variable	Original Sample (O)	T Statistics (|O/STDEV|)	P-Value	Result
Financial Literacy → Investment Decision	0.147	3.051	0.001**	Supported
Financial Self-Efficacy → Investment Decision	-0.159	1.804	0.037*	Rejected
Financial Technology Literacy → Investment Decision	0.562	6.771	0.000***	Supported
Risk Perception → Investment Decision	0.137	1.398	0.082	Rejected

Note. *p<0.05; **p<0.01; ***p<0.000.
Source: SmartPLS Output, 2024

As demonstrated in the Table 10, four independent variables have been identified, of which financial literacy and financial technology literacy were discovered to have a positive effect on the investment decision but financial self-efficacy records negative effects. While examining the impact of the degree of risk perception on investment choices, it was revealed that risk perception did not affect investment decisions.

Financial Literacy and Stock Investment Decisions

As the research findings suggesting it was possible to affirm that in some extent, financial literacy affected stock investment decisions Therefore, the analysis of the data supports the assertion by showing that there was an effect of financial literacy on stock investment decisions with a significance value of 0.001 < 0.05. It is a positive relationship, which can be seen from the regression coefficient equal to 0.147. Thus, the fact that hypothesis 1 is proven allows to give a positive conclusion that financial literacy affect positively the stock investment decisions. These findings corroborate Gustiarum and Kusumawardhani (2023), Herliana et al. (2023), Baihaqqy et al. (2020), as well as Kumari (2020), that also described a positive relationship between financial literacy and stock investment.

Financial literacy affects decision-making, proper financial literacy would enable a person to make sensible decisions about investments such as diversification, risks, and markets among others. On the other hand, low financial literacy can lead to wrong choices including; speculative or high-risk investment without proper understanding. According to Setiyawati (2021), those who have high levels of financial literacy are capable of making better decisions since the information that is used in the decision-making process, includes the level of financial literacy. The education of the investor makes him/her less likely to succumb to an 'emotional' decision and is capable of logical reasoning in risk and return management and in the exploitation of opportunities in the market. Therefore, financial literacy is an important factor in the long-term financial planning and for retirement.

Financial Self-Efficacy and Stock Investment Decisions

The results of the conducted research can indicate that the number of the significance of the impact of financial self-efficacy on stock investment decisions equals 0.037 and is less than 0.05. This points to a moderate relationship between financial self-efficacy and investment in stocks. Regarding the relationship between financial self-efficacy and stock investment decisions, we have a regression coefficient of -0.159 making the relationship negative in this case. In this context, it can be concluded that self-efficacy of financial is factor that has a negative influence on stock investment decisions and due to this the second hypothesis must be rejected.

Financial self-efficacy can negatively impact investment decisions due to technological advancements. New investment instruments that leverage technology, such as cryptocurrency, have become more appealing to young people. Cryptocurrency is highly volatile, which also makes it a high-risk investment (Sonkurt & Altinoz, 2021). Despite the high risk, this investment offers potentially high returns, leading investors with high financial self-efficacy to focus on achieving higher returns while disregarding the associated risks. As a result, millennials, who are part of the younger generation, are more likely to choose cryptocurrency over stock investments if they have high financial self-efficacy.

Financial Technology Literacy and Stock Investment Decisions

Based on the research results, the influence of financial technology literacy on stock investment decisions has a significance value of 0.000 <0.05, indicating that there is a significant influence of financial technology literacy on stock investment decisions. This variable has a regression coefficient of less than one hence meaning that there is a positive association between the two; 0.562. Therefore, it could be stated that financial technology literacy influences stock investment decisions positively and significantly; therefore, the hypothesis 3 is also verified. From the results obtained it is concluded that when a good understanding of the financial technology is possessed, then the influence of the prospect theory in making the investment decisions will be minimized and the investors will act more rationally.

It also confirms the results obtained in the studies that were carried out earlier (Vigo et al., 2022), as per which, financial technology literacy also has a positive impact on the stock investment decisions. According to Suresh (2021), it is found that the knowledge of financial technology leads to providing better investment quality due to effective utilisation of information as well as efficient management of the portfolio. Stock investment decision-making can be made less cumbersome and time-consuming through the use of financial technology literacy that provides immediate and enhanced analytical tools relating to the market. It not only enhances confidence about investment decisions but also helps to overcome errors for inadequate knowledge of the technology or platform involved. Therefore, it is pivotal to understand what financial technology is, due to the fact that facilitating investors with a suitable approach and tools when entering dynamic and complex markets prevents them from being surpassed and helps in achieving their investment aims.

Risk Perception and Stock Investment Decisions

The study results indicate that risk perception is not significant in contributing to the stock investment as seen in the betas which yields a value 0.082 which is greater than 0.05. This means that risk perception is not an influential factor for stock investment hence the rejection of the fourth hypothesis in the study. The prospect theory helps unravel this result for it holds that people are inclined to acting risk-averse when trying to gain and risk-loving when trying to avoid loss.

Risk perception does not influence because the generation is copied and the millennial in investing and copying the results of someone they deem influential in investing and these and most of the time they copy their investment managers. According to Altaf and Jan (2023), the research shows that millennials can also make the appropriate comparison of their investment. This evaluative comparison may lead them to think that their own social group has a better return on investment in experience. Besides that, each individual possesses a distinct perception of risk compared to others (Chenini & Jarboui, 2024), principally because risk perception depends on psychological states such as personality traits and self-efficacy which are quite volatile most of the time hence risk perception may not always control investment decisions (Tagini et al., 2021).

Implication and Conclusion

In line with the conclusion drawn from the research evidence, this study concludes that financial literacy has a positive effect on stock investment decision among the Millennial generation in the Special Region of Yogyakarta. On the other, financial self-efficacy is the factor that is negatively related to decisions like these. Also, the level of financial technology literacy affects the stock investment decision in a positive manner. But in this context risk perception does not affect the decision of the stock investment of the individuals.

These findings show how important financial and technological literacy is in shaping investment behavior among the Millennial generation in the Special Region of Yogyakarta. It is recommended that the Indonesian Stock Exchange and related parties continue to increase financial and technological literacy in society to improve investment decisions.

In addition, investors need to be careful of excessive self-confidence. This research also shows that there are other variables that might influence stock investment decisions, considering the coefficient of determination is 52.3%, so future researchers are advised to explore additional variables for a deeper understanding.

Limitations of this research include the sample being limited to the Millennial generation in the Special Region of Yogyakarta, the lack of analysis of other factors that influence investment decisions, and the moderate coefficient of determination which indicates that the model only explains part of the variability in investment decisions. Additionally, data collection methods and instruments may have limitations in accuracy and representativeness.

Acknowledgment

We are grateful to the Universitas Islam Indonesia for offering facilities and resources for this project. Their support facilitated the smooth execution of the research. We extend great appreciation to our friends and colleagues, who have been supportive throughout and provided a stimulating academic environment.

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