

The Influence of Financial Literacy, Financial Technology, Herding Bias, and Risk Perception on Cryptocurrency Investment Decision

Rehana Latiefa Rahmani ^{1*}, Trias Madanika Kusumaningrum²

^{1,2}Department of Management, Faculty of Economics, Universitas Negeri Surabaya

Abstract

This study aims to examine the influence of financial literacy, financial technology, herding bias, and risk perception on cryptocurrency investment decisions among Millennials and Generation Z in Indonesia. The phenomenon of cryptocurrency investment in Indonesia is growing rapidly, yet this growth is not matched by adequate financial literacy. The study employs a quantitative approach with an associative-causal design. The study sample consisted of 315 respondents selected through purposive sampling and analyzed using multiple linear regression with SPSS 26. The result indicate that, collectively, financial literacy, financial technology, herding bias, and risk perception have a significant positive effect on cryptocurrency investment decisions. These findings indicate that cryptocurrency investment decisions among the younger generation are driven more by knowledge, access to technology and social influence. This study recommends improving financial literacy, raising awareness of psychological biases, and implementing more inclusive consumer protection policies by regulator.

Keywords: Financial Literacy; Financial Technology; Herding Bias; Risk Perception; Cryptocurrency Investment Decisions

JEL Code: G11; G41; G53

*Corresponding author

Email: rehana.22239@mhs.unesa.ac.id

INTRODUCTION

Investment is the act of allocating funds with the expectation of earning additional money or profits in the future (Adnyana, 2020). This activity is a crucial element in long-term financial planning, such as preparing for retirement, education, or wealth accumulation. As the economy and technology continue to evolve, the variety of investment instruments has expanded, ranging from traditional assets such as gold, stocks, and bonds to mutual funds (Adnyana, 2020). Now, a new class of digital assets cryptocurrency, which has revolutionized investment patterns, particularly

among the younger generation, who possess a high level of technological literacy (Sulaksana & Sumanti, 2025). The concept of cryptocurrency assets originated with the publication of the Bitcoin white paper by Satoshi Nakamoto in 2008 in response to the global financial crisis (Nakamoto, 2020). A pivotal development occurred with the launch of Ethereum in 2015, which introduced smart contracts, facilitating a broader ecosystem such as decentralized applications, decentralized finance, and non-fungible tokens. To date, cryptocurrency assets have evolved into an internationally recognized assets class, attracting participation ranging from retail investors to major financial institutions, with advantages such as the potential for returns from price movements, ease of access, and the underlying technological innovation, although their inherent volatility remains a key characteristic that underscores the need for a deep understanding of their risks and opportunities (Cfx, 2025).

In Indonesia, cryptocurrency assets have undergone significant regulatory changes. Initially, Bank Indonesia Regulation No. 18 of 2016 prohibited the use of cryptocurrency as a means of payment. However, under BAPPEBTI Regulation No. 5 of 2019 which was subsequently revised to No. 8 of 2021 cryptocurrency assets were classified as commodities that can be traded on futures exchanges (BAPPEBTI, 2019). The latest policy change, through Law No. 4 of 2023 on the Development and Strengthening of the Financial Sector (P2SK Law), transfers regulatory authority from BAPPEBTI to the Financial Services Authority (OJK), signaling a deeper integration of cryptocurrency assets into Indonesia's formal financial system. From a consumer perspective, the growth of cryptocurrency has been staggering. The number of cryptocurrency investors in Indonesia reached 18.081.309 users in August 2025, a sharp increase from 13.309.201 users in Februari 2025 (OJK, 2025).

Figure 1.
Growth of Cryptocurrency in Indonesia



Note:

Source: www.ojk.go.id

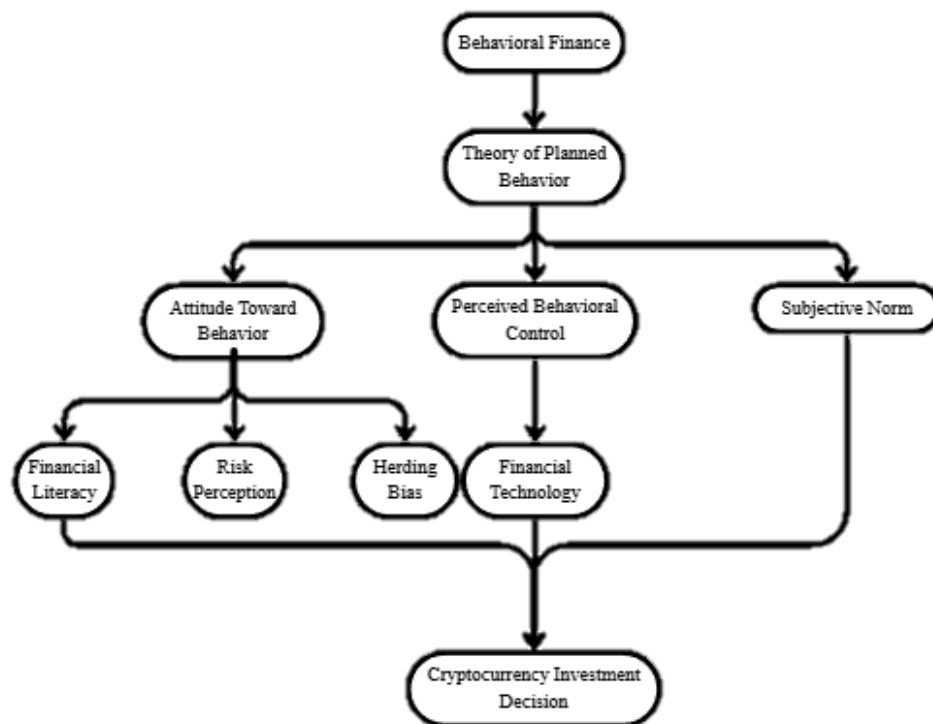
Demographically, approximately 60% of investors are aged 18-30, with 26,9% belonging to Gen Z and 35,1% to young Millennials (Fauziyah, 2024). Data from OJK indicates that although access to financial services among Gen Z and Millennials has increased rapidly, this has not been accompanied by a commensurate and adequate level of financial literacy, resulting in a disparity where they use financial products without understanding the associated risks and long-term obligations.

Based on a literature review, there are several key factors that are strongly influence investment decisions regarding cryptocurrency, particularly among the younger generation: Financial Literacy, Financial Technology, Herding Bias, and Risk Perception. These variables were selected due to their relevance to the context of modern investor behavior and are supported by previous empirical findings. Financial literacy serves as a crucial foundation because a deep understanding of investment concepts and risk management enables individuals to identify opportunities and threats more effectively, as found by (Frimayasa et al., 2025) and (Dewi et al., 2022), who demonstrated the positive influence of financial literacy on investment decision, although (Fujiki, 2021) found mixed result. Financial technology serves as a key catalyst that reduces barriers to participation through intuitive interfaces, efficient registration processes, and integrated educational features (Frimayasa et al., 2025), although (Abdeldayem et al., 2020) reported non-significant results in the GCC context due to normative uncertainty and theological differences. Herding bias reflects the psychological tendency to follow the behavior of the majority, which is particularly pronounced in volatile markets where inexperienced investors tend to “go with the flow” for the sake of collective security (Gurdgiev & Loughlin, 2020). Risk perception is a subjective assessment of uncertainty and potential losses, where a high perception of risk can hinder participation, but for individuals with high risk tolerance, volatility is actually viewed as a promising prospect for returns (Frimayasa et al., 2025), with (Pamungkas et al., 2025) describing a gap between students knowledge and their actual behavior.

Based on this review of theory and prior research, a conceptual framework was developed linking the four independent variables (financial literacy, financial technology, herding bias, and risk perception) to the dependent variable (cryptocurrency investment decision) among Millennials and Generation Z in Indonesia. This framework draws on the Theory of Planned Behavior (Ajzen, 1991), which explains that a person’s intentions and behaviors are influenced by three main components: attitude toward behavior, subjective norm, and perceived behavior control. In the context of this study, financial literacy, herding bias and risk perception fall under the aspect of attitude toward behavior, while financial technology falls under the aspect of perceived behavioral control. These four variables are hypothesized

to influence cryptocurrency investment decisions among Millenials and Generation Z in Indonesia, both simultaneously and partially.

Figure 2.
Research Framework



Source: Author(s) work

This study aims to analyze the influence of these four variables on cryptocurrency investment decisions among Millenials and Generation Z in Indonesia, in order to enrich our understanding of the dynamic of investment decisions regarding digital assets amid rapid adoption and existing disparities in financial literacy. This study also addresses gaps in recent studies, such as (Frimayasa et al., 2025), which have not integrated herding bias as a primary predictor, as well as the findings of (Dewi et al., 2022), which indicate that the motivation for cryptocurrency investment involves behavioral dimensions that are more complex than more expectations of financial gain.

LITERATURE REVIEW

The Effect of Financial Literacy on Cryptocurrency Investment Decisions

Financial literacy is defined as an individual's level of knowledge, ability, and confidence in managing personal finances, including an understanding of investment instruments and risk management (Thaha &

Afriyani, 2021); (Rehman & Mia, 2024). In the complex and uncertain environment of cryptocurrency investment, a deep understanding of basic investment concepts, the volatility of digital assets, and risk mitigation strategies is essential. Empirical studies by (Frimayasa et al., 2025) on Generation Z in Surabaya and (Dewi et al., 2022) on college students in Bali indicate that financial literacy has a positive and significant influence on investment decisions regarding cryptocurrency. However, (Fujiki, 2021) found that financial literacy has no effect on investment decisions regarding cryptocurrency, so research findings remain mixed and require further examination.

H1: Financial literacy influences cryptocurrency investment decisions among Millennials and Generation Z in Indonesia

The Effect of Financial Technology on Cryptocurrency Investment Decisions

Financial technology or fintech, refers to application of digital technology to simplify, facilitate, and enhance the efficiency of various financial services ((Pratama & Anas, 2024); (Sharma et al., 2025)). Accessibility through fintech platform, such as cryptocurrency trading apps, has emerged as a key catalyst for the adoption of digital investing. These innovations reduce barriers to participation by providing intuitive interfaces, efficient registration processes, and integrated educational support features. Findings from (Frimayasa et al., 2025) confirm the significance of these variables, showing that advances in financial technology significantly facilitate the younger generation's engagement in cryptocurrency investment activities. However, (Abdeldayem et al., 2020) indicate that advances in financial technology do not influence decisions to invest in cryptocurrency due to normative uncertainty and theological differences, rather than a lack of economic relevance. This suggests that there are still inconsistent results that require further research.

H2: Financial technology influences cryptocurrency investment decisions among Millennials and Generation Z in Indonesia

The Effect of Herding Bias on Cryptocurrency Investment Decisions

Herding bias describes a psychological tendency in which individuals mimic the behavior or decisions of the majority group, often setting aside their own evaluation of information ((Addinpujoartanto & Darmawan, 2020); (Nabilah & Widia, 2025)). This phenomenon is particularly pronounced in the volatile cryptocurrency market, where price spikes or social media hype can prompt investor especially inexperienced ones to “go with the flow” in pursuit of a sense of collective security. Research by (Gurdgiev & Loughlin, 2020) reveals that market sentiment characterized by

fear and uncertainty can reinforce herding behavior, which in turn influences the price dynamics of cryptocurrency assets. While this bias can stimulate irrational investment interest, it also risks creating speculative bubbles and long-term losses. However, (Artini & Darma, 2024) indicate that cryptocurrency investors in Indonesia have shifted toward rational, rather than emotional, behavior, suggesting that the influence of herding bias still needs to be re-examined in the current context.

H3: Herding Bias influences cryptocurrency investment decisions among Millennials and Generation Z in Indonesia

The Effect of Risk Perception on Cryptocurrency Investment Decisions

Risk perception refers to an individual's subjective assessment of the level of uncertainty and the likelihood of loss associated with an investment ((Yoga et al., 2025);(Kumar et al., 2024)). (Frimayasa et al., 2025) found that this variable has a significant effect on interest in cryptocurrency investment, although the relationship is nuanced. A high perception of risk tends to hinder participation, whereas for individuals with a higher risk tolerance, the volatility of cryptocurrency may be viewed as a promising prospect for returns. (Pamungkas et al., 2025) described a gap between students' knowledge and their actual behavior: while they are aware of the risks, their interest is not diminished because motivation and curiosity are more dominant. This indicates that risk perception has a complex influence and requires further research in Indonesia.

H4: Risk Perception influences cryptocurrency investment decisions among Millennials and Generation Z in Indonesia

Based on the above discussion, this study aims to analyze the influence of financial literacy, financial technology, herding bias, and risk perception on cryptocurrency investment decision among Millennials and Generation Z in Indonesia. The novelty of this study lies in the integration of these four factors within the framework of the Theory of Planned Behavior (Ajzen, 1991) and the context of an emerging market with a digitally active young population. This study is expected to contribute to the literature on digital asset investment behavior in Indonesia and provide practical implications for investors, fintech platform providers, and regulators.

RESEARCH METHOD

This study employs a quantitative approach with a causal-associative design, aiming to examine the influence of independent variables (financial literacy, financial technology, herding bias, and risk perception) on the dependent variable (cryptocurrency investment decisions).

The population in this study consists of Generation Z (ages 17-27) and Millennials (ages 28-43) in Indonesia who have invested in cryptocurrency at

least once. The sampling technique used is non-probability sampling, combining purposive sampling and snowball sampling. The sampling criteria included: (1) Indonesia citizenship, (2) age 17-43 years, and (3) having at least one prior experience with cryptocurrency transactions. The sample size was determined using the formula by (Hair et al., 2019), which multiplies the number of indicators (26 indicators) by 10, resulting in a minimum of 260 respondents. To account for incomplete data, the sample size was increased by 10% bringing the total number of respondents in this study to 315.

Data were collected via an online questionnaire (Google Forms) distributed through WhatsApp, Instagram, X (Twitter), and Telegram. The research instrument utilized two types of measurement scale. The financial literacy variable was measured using two scale simultaneously, the Guttman scale to measure basic financial knowledge using true-false responses and a 1-5 Likert scale to measure financial understanding and application in daily life. Meanwhile, the others variable like financial technology, herding bias, risk perception and investment decision were measured using a 1-5 Likert scale. The validity of all statement items was tested using pearson product moment correlation, and their reliability was tested using Cronbach's Alpha and the results indicated that all items were valid and reliable (α value > 0,85).

Data analysis was conducted in several stages: descriptive statistic to describe the characteristics of the respondents and the research variable, test of classical assumptions (normality, multicollinearity, heteroscedasticity, and linearity), and hypothesis testing using multiple linear regression analysis with the equation $ID = \alpha + b_1 (FL) + b_2 (FT) + b_3 (HB) + b_4 (RP) + e$. Model fit was assessed using the F-test and the coefficient of determination, while partial hypothesis testing was performed using the t-test at a significance level of 0,05. All analyses were conducted using SPSS version 26.

FINDINGS AND DISCUSSION

Findings

This study involved 315 respondents with Millennials and Generation Z members in Indonesia who have invested in cryptocurrency. Based on the data collected, the majority of respondents were from Generation Z (64,44%) and resided on the island of Java, with East Java being the province with the highest number respondents (13,65%). Since respondents were allowed to select more than one type of cryptocurrency asset they owned (multiple responses), the total frequency for assets types exceeded the number of 315 respondents.

Table 1.
Respondents Characteristics

Characteristic	Category	Frequency	Percentage
Age	17-26 Years (Gen Z)	203	64,44%
	27-35 Years (Millenials)	112	35,56%
Residence	East Java	43	13,65%
	Central Java	37	11,75%
	West Java	30	9,52%
	Other	205	65,08%
	Bitcoin (BTC)	231	48,23%
Cryptocurrency Asset Types*	Etherium (ETH)	99	20,67%
	Solana (SOL)	57	11,90%
	Stablecoins (USDT/USDC)	49	10,23%
	Memecoins	26	5,43%
	Other Altcoin	17	3,55%

Source: Data processed by the researcher (2026)

*Respondents could select more than one asset type (multiple responses), so the total frequency for asset types 479 exceeds the number of 315 respondents.

Table 1 above presents the characteristics of respondents based on age, place of residence, and the type of cryptocurrency assets they hold. This data shows that the respondents in this study are predominantly from Generation Z, reside on the island of Java, and the majority hold is Bitcoin (BTC) assets, accounting for 48,23% of the total selections.

Before testing the hypotheses, the instrument was first evaluated through validity and reliability tests. The validity test using Pearson's product-moment correlation showed that all items for each variable had calculated r-values greater than the table r-values with a significance level of 0,000 ($< 0,05$), meaning all items were deemed valid. The reliability test using Cronbach's Alpha showed that all variables had an Alpha value above 0,70, meaning the instrument was deemed reliable. After the instrumen was deemed valid and reliable, classical assumption test were conducted, including test for normality, multicollinearity, heteroscedasticity, and linearity. The results of the normality test using the One-Sample Kolmogorov-Smirnov test showed an Asymp. Sig. (2-tailed) value of 0,200 ($> 0,05$), indicating that the residuals are normally distributed. The multicollinearity test showed that all variabels had VIF values < 10 and Tolerance values $> 0,1$, indicating that multicollinearity was not present. The heteroscedasaticity test using a scatterplot showed that the data points were randomly distributed, and the linearity test indicated that the significance value for Linearity for the variabes financial literacy, financial technology, herding bias and risk perception were all $< 0,05$, meaning that the relationship between each independent variable and the dependent variable is linear.

Next, a multiple linear regression analysis was conducted to test the effect of the independent variables on the dependent variable. The result are presented in Table 2.

Table 2.

Result of the Multiple Linear Regression Test and Hypotesis Testing

Variable	Regression Coefficient	t-value	Sig.	Notes
(Constant)	1,773	1,209	0,228	
Financial Literacy	0,203	6,905	0,0000	Significant
Financial Technology	0,228	7,904	0,0000	Significant
Herding Bias	0,288	7,551	0,0000	Significant
Risk Perception	0,258	6,450	0,000	Significant

Source: Data processed by the researcher (2026)

Table 2 above presents the results of the multiple linear regression test, which shows the effects of each independent variable on the dependent variable. Based on Table 2, all four independent variables were found to have a positive and significant effect on cryptocurrency investment decisions, as all variables had a significance value of 0,0000. Financial Literacy has a regression coefficient of 0.203 with a t-value of 6.905. Financial Technology has a coefficient of 0.228 with a t-value of 7.904. Herding Bias has a coefficient of 0.288 with a t-value of 7.551 the largest coefficient among them, and Risk Perception has a coefficient of 0.258 with a t-value of 6.450. Thus, the higher level of financial literacy, access to and use of financial technology, the tendency to follow the majority's behavior and risk perception the greater the tendency for Millennials and Generation Z in Indonesia to make investment decisions regarding cryptocurrency assets. These findings confirm that cryptocurrency investment decisions among younger generation are not only driven by rational factors such as financial knowledge and access to technology but are also significantly influenced by psychological factors, with herding bias and risk perception serving as the primary drivers of their participation in the volatile digital asset market. Based on Table 2, the regression obtained is:

$$ID = 1.773 + 0,203 (FL) + 0,228 (FT) + 0,288 (HB) + 0,258 (RP) + e$$

The coefficients of determination is 0,577, meaning that 57,7% of the variation in the cryptocurrency investment decision variable can be explained by the four independent variables, while the remaining 42,3% is explained by other variables not examined in this study. The F-test yielded an F-Value of 105.502 with a significance level (Sig.) of 0,0000 (< 0,05), indicating that all independent variables collectively have significant effect on cryptocurrency investment decision.

Discussion

The Effect of Financial Literacy on Cryptocurrency Investment Decisions

The results of the first hypothesis test show that financial literacy has a positive and significant effect on cryptocurrency investment decisions, with a calculated t-value of 6,905 and a significance level of 0,000. This finding indicates that the higher a person's level of financial understanding and knowledge, the better the quality of their investment decisions regarding cryptocurrency assets. Young investors with adequate financial literacy tend to be more rational, better informed, and less susceptible to short-term market volatility or the "Fear of Missing Out" (FoMO) phenomenon prevalent on social media.

These findings align with research by (Frimayasa et al., 2025) on Generation in Surabaya, (Dewi et al., 2022) on college students in Bali, and (Amran et al., 2024), which demonstrated that financial literacy plays a significant role in making rational and informed investment decisions. Research by (Sa'diyah et al., 2024) also indicates that investment knowledge and financial behavior can enhance the decision-making process, with financial literacy serving as a crucial moderating factor. (Zhao & Zhang, 2021) found that financial literacy has a greater influence than investment experience in the context of cryptocurrency investment decisions.

Theoretically, these findings reinforce the framework of the Theory of Planned Behavior (Ajzen, 1991), in which financial literacy acts as a factor shaping attitudes toward behavior, that individuals with high financial literacy hold positive beliefs regarding the benefits of investing and make better assessments of potential consequences. Thus, the higher a person's level of financial literacy, the greater the likelihood that they will make rational, planned, and non-impulsive cryptocurrency investment decisions.

The Effect of Financial Technology on Cryptocurrency Investment Decisions

The result of the second hypothesis test indicate that financial technology has a positive and significant influence on cryptocurrency investment decisions, with a calculated t-value of 7,904 and a significance level of 0,000. These results indicate that the easier, faster, safer, and more beneficial a financial technology platform is according to user perceptions the higher their tendency to make investment decisions regarding cryptocurrency assets. Accessibility and key features such as an intuitive interface, efficient deposit processes, and two-factor authentication are the primary drivers of young people's participation in the digital asset market.

These findings align with the research by (Rijanto & Utami, 2024), which confirmed the positive influence of fintech on cryptocurrency investment decisions through ease of transactions and real-time portfolio monitoring. (Gunawan et al., 2024) also highlighted the benefits of financial technology in providing transparency and efficiency in digital asset transaction processes. (Muslikh et al., 2025) highlight the role of cryptocurrency adoption in Generation Z's personal financial management strategies. (Frimayasa et al., 2025) also found that advances in financial technology significantly facilitate the younger generation's engagement in cryptocurrency investment activities.

Theoretically, these findings reinforce the framework of the Theory of Planned Behavior (Ajzen, 1991), in which financial technology falls under the aspect of perceived behavioral control the ease of access, transaction speed, and security features offered give individuals confidence that they are capable of conducting cryptocurrency transactions comfortably and securely. This belief in one's own capabilities subsequently increases intention and drives actual investment behavior, thereby making financial technology both a psychological catalyst and a technical tool within the digital investment ecosystem.

The Effect of Herding Bias on Cryptocurrency Investment Decisions

The results of the third hypothesis test show that herding bias has a positive and significant effect on cryptocurrency investment decisions, with a calculated t-value of 7.551 and a significance level of 0,000. These results indicate that the higher the tendency among young investors to follow the actions or decisions of the majority group without conducting independent analysis, the higher their tendency to make investment decisions regarding cryptocurrency assets. This behavior reflects the use of "mental shortcuts" in complex and uncertain market situations, where investors choose to follow the crowd rather than conduct independent fundamental analysis because it is perceived as "safer" than other approaches.

These findings align with the research by (Gurdgiev & O'Loughlin, 2020), which revealed that market fear and uncertainty can reinforce herding behavior, which in turn influences the price dynamics of cryptocurrency assets. (Zhafira & Pramono, 2025) demonstrated that this bias can degrade the quality of investment decisions, particularly when investors follow market trends without considering risk factors. Their study of investors in the Greater Bandung area revealed a strong tendency to follow the majority's choice in cryptocurrency selection, even without a comprehensive understanding of the inherent risk. (Sugianto et al., 2024) found that Generation Z is easily influenced by herding behavior, which directly impacts investment decisions.

(Lee & Jae, 2017) confirmed that herding bias can trigger irrational decisions, particularly during periods of crisis or geopolitical turmoil, when investors prefer to follow the crowd rather than base their decisions on objective understanding.

Theoretically, these findings reinforce the framework of the Theory of Planned Behavior (Ajzen, 1991), in which herding bias is included as a component of attitude toward behavior individuals tend to view a financial action positively when they see many others doing it, under the perception that the risk are lower and the benefit are higher. Young, inexperienced investors who lack strong analytical skills are more likely to fall into herding behavior, resulting in investment decisions driven more by collective behavior than by independent analysis.

The Effect of Risk Perception on Cryptocurrency Investment Decisions

The results of the fourth hypothesis test show that risk perception has a positive and significant effect on cryptocurrency investment decisions, with a calculated t-value of 6.450 and a significance level of 0,000. These results indicate that the higher an individual's perception of the risks associated with cryptocurrency investments, the greater their tendency to make investment decisions.

The finding may seem to contradict conventional logic, which suggests that a high risk perception should deter investment. However, in the context of young investors in Indonesia, a high risk perception does not necessarily act as a barrier; rather, it reflects a realistic awareness accompanied by a high risk tolerance.

The result align with a study (Frimayasa et al., 2025) that found risk perception has a significant influence on interest in cryptocurrency investment, although the relationship is complex. A high risk perception tends to inhibit participation; however, for individuals with higher risk tolerance, cryptocurrency volatility is actually viewed as a promising prospect for profit. (Pamungkas et al., 2025) describe a gap between students knowledge and their actual behavior: although they are aware of risk, their interest does not diminish because motivation and curiosity are more dominant.

Theoretically, these findings reinforce the framework of the Theory of Planned Behavior (Ajzen, 1991), in which risk perception influences an individual's attitude toward behavior. For young investors, a high perception of risk can foster a more realistic attitude, which combined with strong behavioral control, leads to deliberate investment decisions despite the risks. This suggest that, in the context of Indonesia's younger generation, risk perception is not a barrier but rather a consideration that can be addressed through technological convenience and social influence.

CONCLUSIONS

This study aims to analyze the influence of financial literacy, financial technology, herding bias, and risk perception on cryptocurrency investment decisions among Millennials and Generation Z in Indonesia. Based on the results of the analysis and discussion, it can be concluded that all hypotheses proposed in this study are accepted, meaning that the four independent variables have been proven to influence cryptocurrency investment decisions.

Financial literacy has proven to be a crucial foundation driving young people to make cryptocurrency investment decisions. Investors with strong financial literacy not only understand investment terminology but are also able to evaluate risks and opportunities more objectively. They are less likely to be swayed by short-term price volatility or the Fear of Missing Out (FoMO) hype prevalent on social media. Conversely, investors with low financial literacy are more prone to making impulsive decisions based on fleeting market sentiment rather than sound fundamental analysis. This finding supports the first hypothesis: the higher a person's level of financial literacy, the higher the quality of their investment decisions, as these are grounded in rational considerations and comprehensive understanding.

Financial technology has proven to be a key catalyst accelerating the younger generation's participation in digital asset investment. The ease of access offered through intuitive trading apps, quick registration processes, and multi-layered security features has lowered the barriers to entry for novice investors. Young people who have grown up with digital technology feel more confident and comfortable conducting cryptocurrency transactions because fintech platforms provide a simple and transparent user experience. Without the support of financial technology, cryptocurrency investment might remain the exclusive domain of institutional investors or those with limited access to technology. This finding supports the second hypothesis that the development of financial technology directly drives an increasing number of young people to engage in cryptocurrency investment decisions.

Herding bias, the tendency to follow the behavior of the majority, has proven to be a strong psychological factor in shaping the investment decisions of the younger generation. In the highly volatile and uncertain cryptocurrency market, investors who lack sufficient experience or knowledge tend to take mental shortcuts by following what the crowd is doing. They assume that collective decisions are inevitably safer and more profitable, even though this behavior actually risks creating speculative bubbles. Young people caught in herding bias often buy assets when prices are surging out of fear of missing out, and sell when prices fall out of panic, following the crowd. These findings support the third hypothesis: the stronger a person's tendency to follow the group, the greater its influence on the

investment decisions made even if those decisions are not necessarily based on thorough analysis.

Risk perception in this study reveals a unique and intriguing relationship. Contrary to conventional logic, which suggest that the higher the perceived risk, the more likely someone is to avoid an investment, the study's findings indicate that young people in Indonesia continue to make investment decisions even when they are aware of high risks. This doesn't mean they ignore risk, rather they possess a high risk tolerance and view volatility as an integral part of profit opportunities. Younger generations tend to view risk as a challenge that can be managed through the right strategies, rather than as an insurmountable obstacle. Furthermore, their strong curiosity and motivation to achieve quick financial gains keep them optimistic and bold enough to make investment decisions even when faced with high uncertainty. These findings support the fourth hypothesis: that risk perception serves as a consideration that actually strengthens their conviction to invest in a planned manner.

Overall, these four factors have been shown to collectively act as complementary elements in shaping cryptocurrency investment decisions among Millennials and Gen Z in Indonesia. Investment decisions are not the result of a single factor but rather a complex interaction between existing knowledge, the ease of access to available technology, surrounding social influences, and subjective assessments of the risk involved. The combination of these four factors creates an ecosystem that encourages the younger generation to actively engage in the digital asset market. These findings underscore that to fully understand the investment behavior of the younger generation, a multidimensional approach is necessary one that considers not only rational aspects such as financial knowledge but also technological, psychological, and risk perception factors simultaneously.

Based on the conclusions presented, the recommendations that can be offered through this study are as follows:

Millennials and Gen Z investors should continue to enhance their financial literacy through credible educational resources, such as attending investment training sessions, reading financial reports, and studying digital asset whitepapers before deciding to make a purchase. Investors also need to be aware that herding bias can trap anyone, so it is important to always conduct independent analysis and not simply follow trends on social media. Establishing a clear investment strategy, including loss limits and profit targets, will help investors remain disciplined and avoid making decisions based on emotions.

For fintech platform providers, it is recommended to continue improving security features, fee transparency, and ease of use so that users feel safe and comfortable conducting transactions. Service providers can also

add interactive educational features that help users understand the risks and mechanisms of the cryptocurrency market before they actually start investing, thereby fostering a more informed and responsible investor base.

For regulators such as OJK and BAPPEBTI, it is necessary to strengthen financial literacy programs targeting the younger generation, particularly regarding understanding digital assets and their risks. Public awareness campaigns regarding the dangers of illegal investments and the importance of using officially registered platforms must also be continuously intensified. Regulators should formulate consumer protection policies that are inclusive and adaptable to technological developments, as well as ensure that all cryptocurrency trading platforms operate in accordance with applicable regulations to protect investor's interests.

For future academics and researches, the results of this study are expected to serve as an additional reference for the development of financial management science, particularly in the study of digital asset investment behavior. Future researchers are advised to expand the scope of their research by including additional variables such as overconfidence bias, availability bias, or financial attitudes, and employ qualitative research methods to delve deeper into investors personal motivations and experiences.

LIMITATION & FURTHER RESEARCH

Research Limitation

This study examined only four independent variables: financial literacy, financial technology, herding bias, and risk perception. Many other factors that influence cryptocurrency investment decisions were not included in this research model, such as overconfidence, investment knowledge, financial attitudes, or macroeconomic conditions. This indicates that there is sample opportunity for further research with a broader range of variables.

The use of an online questionnaire with a self-reporting method makes this study susceptible to various biases, such as social bias where respondents tend to provide answers considered more socially recall their investment experience. Additionally, respondents may also have difficulty accurately assessing their level of financial literacy or risk perception due to limitations in self-awareness.

The use of purposive and snowball sampling techniques means the sample is not fully representative of all cryptocurrency investors in Indonesia. The majority of respondents are from the island of Java, so the research results better reflect investor behavior in that region and may not necessarily be generalizable to other parts of Indonesia, which may have different investor characteristics.

This study focuses only on Millennials and Generation Z therefore, the results may not necessarily be generalizable to other generations, such as

Generation X and Baby Boomers, who may exhibit different behavioral characteristics. Each generation has distinct experiences, backgrounds, and approaches to technology and financial risk

This study uses a cross-sectional design that only describes conditions at a specific point in time, whereas the cryptocurrency market is highly dynamic and rapidly changing. The investment decisions observed in this study may differ if examined during a different time period, especially given that the cryptocurrency market is heavily influenced by various global events as well as evolving policy and regulatory changes in Indonesia.

Future Research

Given the limitations identified, future research should expand the scope of variables by including other psychological factors such as overconfidence bias, availability bias, and anchoring bias or contextual variables such as market sentiment and applicable regulations. The variables of peer influence and income, which were not included in this study, may be important considerations for further research, given their potential influence on the investment decisions of the young generation, as indicated by theoretical reviews and previous studies. Future researches are also advised to use more representative sampling techniques, such as probability sampling with a clear sampling frame through collaboration with registered cryptocurrency trading platforms or investor associations, as well as to expand the geographic scope beyond just the island of Java to include all regions of Indonesia.

Future researches are advised to use a mixed-methods approach that combines quantitative surveys with in depth interviews or focus group discussions to explore investors' experience, motivations, and thought processes on a more personal level aspects that may not be revealed through closed-ended questionnaires. A comparative study across generations is also an intriguing research agenda, comparing the investment behaviors of Generation Z, Millennials, Generation X, and Baby Boomers. This would reveal how difference in background, life experiences, and approaches to technology shape distinct investment decisions information that regulators and service providers can use to design educational programs and policies tailored to the characteristics of each generation.

Longitudinal studies can also be conducted to observe how cryptocurrency investment decisions evolve over time, particularly in light of regulatory change in Indonesia such as the transfer of supervisory authority from BAPPEBTI to OJK under Law No. 4 of 2023 on the Development and Strengthening of the Financial Sector. This approach will provide a more dynamic understanding of investor behavior and how they adapt to policy changes and market conditions, thereby enabling the research findings to

make a more comprehensive contribution to the development of financial management science, particularly in the study of digital asset investment behavior in Indonesia.

AUTHOR CONTRIBUTION

Author:

Rehana Latiefa Rahmani: Conceptualisation, Research Design, Data Collection, Methodology, Manuscript Writing, Data Analysis, Editing and Layout, **Trias Madanika Kusumaningrum:** Supervision, Review, and Validation. All authors have read and approved the final version of this manuscript.

Declaration of interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Acknowledgements

The authors would like to express gratitude to Surabaya State University, particularly the Faculty of Economics and Business and the Bachelor of Management Program, for the facilities and support provided throughout the research process. The author also extend his deepest gratitude to her advisor, Trias Madanika Kusumaningrum, S.E., S.Pd., M.M., for her invaluable guidance, direction, and motivation throughout the completion of this research. Appreciation is also extended to the examiner for their constructive criticism and suggestions. Special thanks are extended to all respondent who participated in this research, as well as to family, friends, and everyone who contributed directly or indirectly to the completion of this research.

References

- Abdeldayem, M. M., Dulaimi, S. H. A. L., & Nekhili, R. (2020). Cryptocurrency as a Fin Tech instrument and islamic finance: The GCC perspective. *Journal of Xi'an University of Architecture & Technology*, *XII*(II), 2736–2747.
- Addinpujoartanto, N. A., & Darmawan, S. (2020). Pengaruh Overconfidence, Regret Aversion, Loss Aversion, dan Herding Bias Terhadap Keputusan Investasi Di Indonesia. *Jurnal Riset Ekonomi Dan Bisnis*, *13*(3), 175–187.
- Adnyana, I. M. (2020). *Manajemen Investasi dan Portofolio* (Melati (ed.); 1 (1)). Lembaga Penerbitan Universitas Nasional.
- Ajzen, I. (1991). The Theory of Planned Behavior. *Academic Press*, 179–211.
- Amran, K. M., Adrianto, F., & Hamidi, M. (2024). Exploring Digital Literacy, Financial Literacy, and Social Media's Impact on Cryptocurrency Investment Decisions. *Jurnal Riset Entrepreneurship*,

- 8(1), 16–34. <https://doi.org/10.30587/jre.v8i1.8266>
- Artini, N. M. S., & Darma, G. S. (2024). Determinants of Cypto Investment Decisions: Rational Behavior or Irrational Behavior? *Eduvest - Journal of Universal Studies*, 4(10), 8523–8539.
- BAPPEBTI. (2019). Peraturan BAPPEBTI. *BAPPEBTI*.
- Cfx. (2025, July 10). Aset Kripto Keuntungan Aset Kripto. *Cfx.Co.Id*, 6–7. <https://www.cfx.co.id/id/products-and-services/aset-kripto>
- Dewi, L. G., Herawati, N., & Wati, L. P. (2022). Pengaruh Pengetahuan Investasi dan Pengetahuan Cryptocurrency Terhadap Minat Investasi Mata Uang Kripto Pada Mahasiswa di Provinsi Bali. *Jurnal Akuntansi Profesi*, 13(3), 649–659.
- Fauziyah, D. (2024). Investasi Kripto di Indonesia Didominasi Milenial dan Gen Z. *Coinvestasi*, 1–6. <https://coinvestasi.com/berita/investasi-kripto-di-indonesia-didominasi-milenial-dan-gen-z>
- Frimayasa, A., Pandin, M. Y. R., & Kusmaningtyas, A. (2025). The Influence of Financial Literacy and Fintech Usage on Investment Interest Among Generation Z in Jakarta : The Mediating Role of Financial Self-Efficacy. *Jurnal Multidisiplin Sahombu*, 5(04), 795–802.
- Fujiki, H. (2021). Crypto asset ownership , financial literacy , and investment experience. *Applied Economics*, 53(39), 4560–4581. <https://doi.org/10.1080/00036846.2021.1904125>
- Gunawan, A., Hilda, Jayanegara, O., & Wang, R. (2024). The Role of Blockchain Technology and Financial Literacy in Shaping Cryptocurrency Investment Decisions. *Journal Pandawan*, 4(2).
- Gurdgiev, C., & Loughlin, D. O. (2020). Journal of Behavioral and Experimental Finance Herding and anchoring in cryptocurrency markets : Investor reaction to fear and uncertainty. *Journal of Behavioral and Experimental Finance*, 25, 100271. <https://doi.org/10.1016/j.jbef.2020.100271>
- Gurdgiev, C., & O’Loughlin, D. (2020). Herding and anchoring in cryptocurrency markets: Investor reaction to fear and uncertainty. *Journal of Behavioral and Experimental Finance*, 25, 100271. <https://doi.org/10.1016/j.jbef.2020.100271>
- Hair, J. F. J., Black, W. C., Babin, B. J., Anderson, R. E., Black, W. C., & Anderson, R. E. (2019). *Multivariate Data Analysis*. <https://doi.org/10.1002/9781119409137.ch4>
- Kumar, P., Islam, A., & Pillai, R. (2024). Risk Perception-Perceived Investor Performance Nexus : Evaluating the Mediating Effects of Heuristics and Prospects With Gender as a Moderator. *Sageppub*, June, 1–18. <https://doi.org/10.1177/21582440241256444>
- Lee, I., & Jae, Y. (2017). Fintech : Ecosystem , business models , investment decisions , and challenges. *Business Horizons*. <https://doi.org/10.1016/j.bushor.2017.09.003>

- Muslikh, S. A., Syamlan, A. F., & Hasanah, A. (2025). The Impact of Cryptocurrency Adoption on Personal Financial Management Strategies Among Generation Z. *Jurnal Manajemen Bisnis Kewirausahaan*, 4(April).
- Nabilah, D., & Widia, S. (2025). Peran Mediasi Risk Perception antara Behavioral Bias dan Investor Investment Decisions. *Unnes Business Quarterly*, 1(1), 1–17.
- Nakamoto, S. (2020). A peer-to-peer electronic cash system. *Bitcoin*, 4(2), 15. https://www.klausnordby.com/bitcoin/Bitcoin_Whitepaper_Document_HD.pdf
- OJK. (2025). *Statistik Berkala Penyelenggara Perdagangan Aset Keuangan Digital termasuk Aset Kripto (AKD AK) Bidang Pengawasan Inovasi Teknologi Sektor Keuangan , Aset Keuangan Digital dan Aset Kripto (IAKD) Agustus 2025*.
- Pamungkas, A. S. A., Safitri, M., Kurniawan, R., & Oktavia, V. (2025). Pengaruh Pengetahuan Investasi , Motivasi Investasi dan Persepsi Risiko terhadap Minat Investasi Cryptocurrency pada Mahasiswa (Studi pada Mahasiswa Manajemen Angkatan 2021-2022 Universitas Dian Nuswantoro Semarang). *JESYA: Jurnal Ekonomi Dan Ekonomi Syariah*, 8(2), 952–967.
- Pratama, A., & Anas, E. P. (2024). Financial Technology Adoption On Payment Systems and Financial Transactions Among Millenials In Indonesia. *Syntax Literate: Jurnal Ilmiah Indonesia*, 9(3).
- Rehman, K., & Mia, A. (2024). Determinants of financial literacy: a systematic review and future research directions. *Future Business Journal*, 10(1), 1–25. <https://doi.org/10.1186/s43093-024-00365-x>
- Rijanto, B. P., & Utami, N. (2024). Financial Technology, Social Media Influencers, and Experience of Cryptocurrency Investment Decisions: Financial Literacy's Role. *JMM: Jurnal Manajemen Marantha*, 23, 201–216.
- Sa'diyah, C., Widagdo, B., & Fitriasari, Fi. (2024). Cryptocurrency Investment: Evidence of Financial Literacy, Experience and Risk Tolerance. *Investment Management and Financial Innovations*. [https://doi.org/10.21511/imfi.21\(3\).2024.13](https://doi.org/10.21511/imfi.21(3).2024.13)
- Sharma, A., Mohan, A., Johri, A., & Asif, M. (2025). Determinants of Financial Technology (FinTech) Adoption by The Farmers in Agrarian Economy. *Social Sciences & Humanities Open*, 11(August 2024), 101370. <https://doi.org/10.1016/j.ssaho.2025.101370>
- Sugianto, D. F., Wijaya, L. I., & Sutejo, B. S. (2024). Herding dan Overconfidence dalam Investasi Gen Z : Dampak dan Moderasi Literasi Keuangan. *JAFM: Journal of Accounting and Finance Management*, 5(5), 1088–1099.
- Sulaksana, D., & Sumanti, M. (2025). Peran Cryptocurrency Dalam Diversifikasi Portofolio Investasi Di Era Digital. *JUKONI: Jurnal Ilmu Ekonomi Dan Bisnis*, 02(01), 79–84.
- Taha, S., & Afriyani, A. (2021). Pentingnya Financial Literacy dalam Tata Kelola Keuangan Pribadi (Suatu Studi Pustaka). *Jurnal Edueco*, 4(1), 57–73.

- Yoga, I., Hastuti, R., Pramesti, W., & Rahmayati, A. (2025). The Power of Social Media : Shaping Risk Perception and Investment Decisions Among Young Equity Investors. *Al-Intaj: Jurnal Ekonomi Dan Perbankan Syariah*, 11(1), 187–203.
- Zhafira, A., & Pramono, T. D. (2025). The Influence of Herding Behavior on Cryptocurrency Investment Decision Among Investors in Bandung Raya Area. *RISK: Jurnal Riset Bisnis Dan Ekonomi*, 06(01), 93–107.
- Zhao, H., & Zhang, L. (2021). Financial Literacy or Investment Experience: Which is More Influential in Cryptocurrency Investment. *Research Gate, June*. <https://doi.org/10.1108/IJBM-11-2020-0552>

(Appendix)

Appendix 1.

Validity and Reliability Test

Variable	Item	Loading Factor	AVE	CR
Financial Literacy	X1.1	0,765	0,361	0,922
	X1.2	0,830		
	X1.3	0,808		
	X1.4	0,828		
	X1.5	0,730		
	X1.6	0,830		
	X1.7	0,808		
	X1.8	0,828		
Financial Technology	X2.1	0,755	0,361	0,925
	X2.2	0,760		
	X2.3	0,777		
	X2.4	0,859		
	X2.5	0,852		
	X2.6	0,759		
	X2.7	0,859		
	X2.8	0,852		
Herding Bias	X3.1	0,779	0,361	0,919
	X3.2	0,887		
	X3.3	0,884		
	X3.4	0,751		
	X3.5	0,887		
	X3.6	0,884		
Risk Perception	X4.1	0,799	0,361	0,892
	X4.2	0,800		
	X4.3	0,818		
	X4.4	0,823		
	X4.5	0,808		
	X4.6	0,786		
Investment Decision	Y1.1	0,860	0,361	0,955
	Y1.2	0,855		
	Y1.3	0,868		
	Y1.4	0,886		
	Y1.5	0,886		
	Y1.6	0,868		
	Y1.7	0,860		
	Y1.8	0,855		

Appendix 2.

Classical Assumption Test

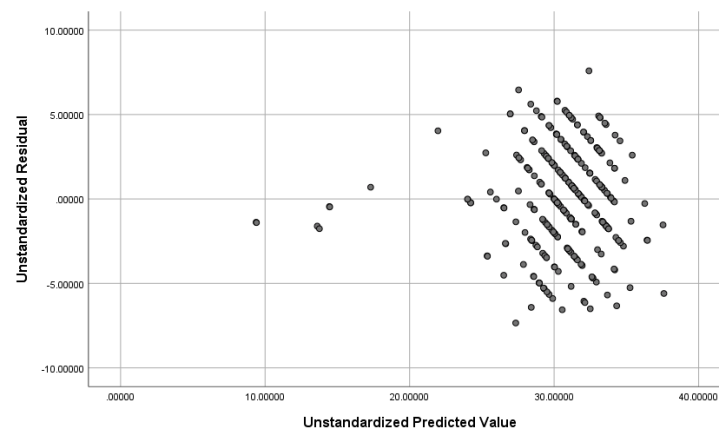
Normality test

		Unstandardized Residual
N		315
Normal Parameters	Mean	,0000000
	Std. Deviation	2,93656520
Most Extreme Difference	Absolute	,033
	Positive	,033
	Negative	-,033
Test Statistic		,033
Asymp. Sig. (2-tailed)		,200
a. Test distribution is Normal.		
b. Calculated from data.		
c. Lilliefors Significance Correction.		
d. This is a lower bound of the true significance		

Multicollinearity test

		Collinearity Statistics	
Model		Tolerance	VIF
1	(Constant)		
	FL	,944	1,059
	FT	,952	1,050
	PI	,935	1,069
	HB	,905	1,105
	RP	,923	1,083
	INC	,991	1,009
a. Dependent Variable: ID			

Heteroscedastisity test



Linearity test

Financial Literacy

ANOVA Table							
ID*FL	Between Groups	(Combined) Linearity Deviation from Linearity	Sum of Squares	df	Mean Square	F	Sig.
			2799,010	29	96,518	7,233	,000
			1071,843	1	1071,843	80,323	,000
			1727,167	28	61,685	4,623	,000
	Within Groups		3803,072	285	13,344		
Total			6602,083	314			

Financial Technology

ANOVA Table							
ID*FT	Between Groups	(Combined) Linearity Deviation from Linearity	Sum of Squares	df	Mean Square	F	Sig.
			2782,092	28	99,360	7,439	,000
			1217,314	1	1217,314	91,139	,000
			1564,778	27	57,955	4,339	,000
	Within Groups		3819,991	286	13,357		
Total			6602,083	314			

Herding Bias

ANOVA Table							
ID*HB	Between Groups	(Combined) Linearity Deviation from Linearity	Sum of Squares	df	Mean Square	F	Sig.
			3204,939	22	145,679	12,522	,000
			1527,575	1	1527,575	131,302	,000
			1677,365	21	79,875	6,866	,000
	Within Groups		3397,143	292	11,634		
Total			6602,083	314			

Risk Perception

ANOVA Table							
ID*RP	Between Groups	(Combined) Linearity Deviation from Linearity	Sum of Squares	df	Mean Square	F	Sig.
			2731,778	22	124,217	9,374	,000
			1157,937	1	1157,937	87,385	,000
			1574,842	21	74,992	5,659	,000
	Within Groups		3869,304	292	13,251		
Total			6602,083	314			