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THE INFLUENCE OF PERSONAL FINANCIAL MANAGEMENT, FINANCIAL LITERACY, AND RISK PERCEPTION ON BITCOIN INVESTMENT DECISIONS AMONG GENERATION Z IN MALANG CITY, INDONESIA

Lindananty
Sekolah Tinggi Ilmu Ekonomi (STIE) Malangkuçeçwara
lindana@stie-mce.ac.id

George Michael Hermanto Lioe
Sekolah Tinggi Ilmu Ekonomi (STIE) Malangkuçeçwara
Georgemichael4gm@gmail.com

Abstract

This study analyzes the effects of personal financial management, financial literacy, fundamental analysis, technical analysis, and risk perception on Bitcoin investment decisions among Generation Z in Malang. Using data from 100 respondents and applying PLS-SEM, the results show that only technical analysis has a significant positive influence on investment decisions. The other variables—personal financial management, financial literacy, fundamental analysis, and risk perception—do not show significant effects. The model demonstrates strong explanatory power with an R^2 of 0.979, indicating that these factors collectively explain most of the variation in Bitcoin investment decisions.

Keywords: Personal Financial Management, Financial Literacy, Fundamental Analysis, Technical Analysis, Risk Perception, Bitcoin Investment Decisions.

INTRODUCTION

The digitalization era has profoundly transformed how young generations manage their finances and make investment decisions. Traditional investment instruments are increasingly complemented or replaced by modern, high-risk alternatives, including stocks, mutual funds, and digital assets such as cryptocurrencies. Among these, Bitcoin has emerged as the most prominent digital asset, attracting substantial interest from Generation Z due to its perceived high-profit potential, ease of trading through digital platforms, and influence from social media and peer communities (Amran et al., 2024; Rangga et al., 2025)

Personal Financial Management (PFM) plays a foundational role in shaping investment behavior. PFM involves comprehensive planning, implementation, and evaluation of financial activities to achieve financial goals (Xiao & O'Neill, 2018). Effective PFM allows individuals to allocate resources optimally while considering objectives, constraints, and risk preferences.

Financial literacy complements PFM by equipping individuals with the knowledge and skills necessary for informed financial decision-making (Fadli et al., 2025; Arriqoh & Zoraya, 2024; Lusardi & Mitchel, 2011). High financial literacy enables investors to comprehend the risks and potential returns of various instruments, including cryptocurrencies, and to make rational investment choices.

Investors' analytical abilities, specifically knowledge of fundamental and technical analysis, play a significant role in responding appropriately to Bitcoin market dynamics (Hayes, 2017).

Risk perception further shapes investment behavior and is influenced by cognitive, emotional, social, and cultural factors (Dyhrberg, 2015)

Despite growing research on cryptocurrency investment, gaps remain. Limited studies have integrated personal financial management, financial literacy, fundamental and technical analysis, and risk perception in the context of Bitcoin investment among Generation Z, especially in Indonesia.

Despite growing research on cryptocurrency investment, gaps remain. Few studies have simultaneously examined the effects of personal financial management, financial literacy, fundamental and technical analysis, and risk perception on Bitcoin investment decisions among Generation Z, particularly in Indonesia (Arriqoh & Zoraya, 2024).

RESEARCH METHOD

This study employs a quantitative approach with descriptive and causal designs to examine Generation Z investors' characteristics and the effects of personal financial management, financial literacy, fundamental and technical analysis, and risk perception on Bitcoin investment decisions (Hair et al., 2017).

The population includes 910 Generation Z investors in Malang City, with purposive sampling criteria: born 1997–2012, residing in Malang, basic knowledge of Bitcoin, and prior or potential Bitcoin investment. Based on the Slovin formula (10% margin of error), 100 respondents were selected, sufficient for PLS-SEM analysis.

This study involves six variables, shown in table 1.

Table 1. Research Variables and Variable Indicators

Variable	Indicator	
Personal Financial Management (X_1)	$X_{1.1}$	Financial planning
	$X_{1.2}$	Budgeting
	$X_{1.3}$	Expense monitoring
	$X_{1.4}$	Saving and investing
	$X_{1.5}$	Debt management
Financial Literacy (X_2)	$X_{2.1}$	Understanding of financial concepts
	$X_{2.2}$	Understanding of investment instruments
	$X_{2.3}$	Financial risk management
Understanding of Fundamental Analysis (X_3)	$X_{3.1}$	Understanding of economic factors
	$X_{3.2}$	Understanding of financial factors
	$X_{3.3}$	Evaluation of Bitcoin's intrinsic value
Technical Analysis (X_4)	$X_{4.1}$	Understanding of price patterns
	$X_{4.2}$	Use of technical indicators
	$X_{4.3}$	Timing of transactions
Risk Perception (X_5)	$X_{5.1}$	Perception of Bitcoin volatility
	$X_{5.2}$	Perception of potential losses

Variable		Indicator
	$X_{5.3}$	Investment risk tolerance
	$Y_{1.1}$	Willingness to invest in Bitcoin
Investment Decision (*Y*)	$Y_{1.2}$	Fund allocation for Bitcoin
	$Y_{1.3}$	Frequency of Bitcoin investment
	$Z_{1.1}$	Interest in Bitcoin
Bitcoin Investment	$Z_{1.2}$	Intention to invest in Bitcoin
Interest (*Z*)	$Z_{1.3}$	Preference for Bitcoin over other instruments

Data were collected via an online questionnaire, using Likert-scale items adapted from prior studies. Analysis was conducted with SmartPLS 4, assessing reliability, validity, path coefficients, and R-square values.

RESULT AND DISCUSSION

This section presents the results of the quantitative analysis conducted using Partial Least Squares Structural Equation Modeling (PLS-SEM). The analysis comprises two main stages: the assessment of the measurement model and the evaluation of the structural model. The measurement model is assessed through outer loadings, average variance extracted (AVE), composite reliability, and discriminant validity based on both cross-loading and HTMT criteria. Subsequently, the structural model is examined to evaluate the relationships among latent variables, including the significance of path coefficients, the coefficient of determination (R^2), effect size (f^2), and predictive relevance (Q^2). The results are then interpreted and discussed in relation to the proposed hypotheses and relevant theoretical and empirical literature.

Table 2. Respondent Demographics

Variable	Frequency	%
Gender		
Male	50	50%
Female	50	50%
Age		
19-22 years	99	99%
23-26 years	1	1%
27-28 years	0	0%
Education		
Senior High School/Vo Vocational High School	79	79%
Diploma	0	0%
S1	21	21%
S2		
Investment Experience		
< 1 year	43	43%
1-3 years	39	39%
> 3 years	18	18%

The demographic profile of respondents in this study provides an overview of the characteristics of Generation Z individuals in Malang who are involved or interested in Bitcoin investment.

Based on gender distribution, the respondents consisted of 50 males (50%) and 50 females (50%), indicating an equal representation of both genders. This balanced composition suggests that interest and participation in Bitcoin investment among Generation Z are not dominated by a particular gender.

In terms of age, the majority of respondents were in the 19–22 years category, accounting for 99%, while only 1% were between 23–26 years, and none were above 26 years old. This finding reflects that Bitcoin investment interest is concentrated among younger members of Generation Z, particularly those who are in college or early adulthood.

Regarding educational background, most respondents held a Senior High School or Vocational High School education (79%), followed by Bachelor's degree (S1) holders (21%), with no respondents from the Diploma or Master's (S2) level. This indicates that the majority of Bitcoin investors among Generation Z in Malang are still pursuing or have recently completed their secondary education.

In terms of investment experience, 43% of respondents had invested for less than one year, 39% had 1–3 years of experience, and 18% had been investing for more than three years. These results suggest that most Generation Z investors are relatively new to the cryptocurrency market, highlighting the emerging trend of early exposure to digital investments.

Overall, the demographic data show that the respondents are predominantly young, equally distributed by gender, and mostly at the early stages of both their educational and investment journeys—characteristics that align with the profile of Generation Z as digital natives with growing curiosity about cryptocurrency investments.

The measurement model evaluation (outer model) was conducted to assess the validity and reliability of the constructs. The following criteria were applied a) Convergent Validity, evaluated using *loading factor* and *Average Variance Extracted (AVE)*. A *loading factor* greater than 0.7 and an AVE above 0.5 indicate good convergent validity. b) Reliability, evaluated using *Cronbach's Alpha* and *Composite Reliability*. Both coefficients exceeding 0.7 indicate acceptable reliability. c) Discriminant Validity, assessed through *cross-loadings*, the *Fornell-Larcker criterion*, and the *Heterotrait-Monotrait Ratio (HTMT)*. Each indicator's loading should be higher on its associated construct than on others, the square root of AVE should exceed inter-construct correlations, and HTMT values should remain below 0.9.

Table 3. Construct Validity and Reliability Test

Variable	Cronbach's Alpha	Composite Reliability (ρ_a)	Composite Reliability (ρc)	Average Variance Extracted (AVE)
Personal Financial Management (X_1)	0.974	0.976	0.980	0.908
Financial Literacy (X_2)	0.982	0.982	0.987	0.948
Fundamental Analysis Understanding (X_3)	0.993	0.993	0.994	0.972
Technical Analysis (X_4)	0.986	0.987	0.989	0.949
Risk Perception (X_5)	0.985	0.986	0.989	0.957
Investment Decision (Y)	0.985	0.986	0.988	0.920

Construct validity was tested using two approaches, composite Reliability ρ_a ranged from 0.976 to 0.993 and ρc ranged from 0.980 to 0.994. Both values far exceeded the 0.70 threshold, even surpassing 0.95, indicating very high construct reliability.

Based on Table 4.6, the Average Variance Extracted (AVE) values were as follows; X_1=0.908, X_2=0.948, X_3=0.972, X_4=0.949, X_5=0.957 and Y=0.920. All AVE values exceeded 0.50, meaning that each construct explained more than 50% of the variance of its indicators. Moreover, all AVE values above 0.90 demonstrate excellent convergent validity.

Reliability test, reliability was evaluated using Cronbach's Alpha to measure internal consistency, X_1=0.974, X_2=0.982, X_3=0.993, X_4=0.986, X_5=0.985, Y=0.985. All Cronbach's Alpha values exceeded 0.90, indicating excellent reliability and well above the minimum threshold of 0.70 for exploratory and 0.80 for confirmatory research (Hair et al., 2017). Thus, the measurement instruments demonstrated high reliability and validity, confirming that they consistently and accurately measure their intended constructs.

Discriminant validity test (Heterotrait-Monotrait Ratio – HTMT), all HTMT values were below 0.90, confirming satisfactory discriminant validity and demonstrating that each construct is distinct.

Table 4. Discriminant Validity (HTMT Criterion)

	X_1	X_2	X_3	X_4	X_5	Y
X_1						
X_2	0.895					
X_3	0.887	0.875				
X_4	0.788	0.805	0.865			
X_5	0.815	0.789	0.810	0.882		
Y	0.784	0.817	0.859	0.801	0.868	

The structural model evaluation (inner model) evaluation in PLS-SEM aims to assess the predictive strength and interrelationships between constructs. Multicollinearity test (Variance Inflation Factor – VIF), all VIF values were below the threshold of 5.0, indicating no serious multicollinearity issues among the independent variables

Table 5. Variance Inflation Factor (VIF)

	VIF		VIF
X1.1	2.135	X4.2	4.342
X1.2	3.814	X4.3	1.262
X1.3	1.536	X4.4	2.798
X1.4	4.788	X4.5	3.918
X1.5	2.952	X5.1	4.070
X2.1	3.168	X5.2	2.179
X2.2	2.213	X5.3	3.838
X2.3	4.821	X5.4	1.784
X2.4	3.098	Y.1	4.481
X3.1	1.742	Y.2	2.034
X3.2	3.282	Y.3	3.355
X3.3	2.417	Y.4	1.704
X3.4	4.098	Y.5	2.897
X3.5	3.574	Y.6	4.134
X4.1	2.815	Y.7	3.636

An R^2 value of 0.979 indicates that 97.9% of the variance in Bitcoin investment decisions is explained by personal financial management, financial literacy, fundamental analysis understanding, technical analysis, and risk perception, while 2.1% is explained by other variables not included in the model.

Table 6. R-Square Values

Construct	R Square	Adjusted R Square	Category
Investment Decision (Y)	0.979	0.977	Substantial

Technical analysis (X_4) demonstrated a substantial effect ($f^2 = 0.588$), whereas the other predictors exhibited weak effects.

Table 7. Effect Size (f^2)

Relationship	f^2	Effect Size
$X_1 \rightarrow Y$	0.046	Weak
$X_2 \rightarrow Y$	0.020	Weak
$X_3 \rightarrow Y$	0.002	Weak
$X_4 \rightarrow Y$	0.588	Substantial
$X_5 \rightarrow Y$	0.059	Weak

The predictive relevance Q-Square (Q^2) was calculated as $Q^2=1-(1-R^2)=1-(1-0.979)=0.979$. A Q^2 value of 0.979 indicates strong predictive relevance of the model for the Bitcoin investment decision construct.

Hypotheses were tested using the *bootstrapping* procedure with 5,000 resamples in PLS-SEM. Hypotheses were accepted if *t-statistics > 1.96* or *p-value < 0.05* at a 5% significance level.

Tabel 8. Path Coefficient Results

Hypothesis	Relationship	T-Statistics	P-Value	Decision
H_1	$X_1 \rightarrow Y$	1.301	0.193	Rejected
H_2	$X_2 \rightarrow Y$	1.072	0.284	Rejected
H_3	$X_3 \rightarrow Y$	0.444	0.657	Rejected
H_4	$X_4 \rightarrow Y$	5.614	0.000	Accepted
H_5	$X_5 \rightarrow Y$	1.809	0.071	Rejected

Hypothesis 1 (H_1), personal financial management negatively affects Bitcoin investment decisions among Generation Z in Malang. With $p = 0.193 > 0.05$ and $t = 1.301 < 1.96$, H_1 is rejected, indicating no significant effect. Hypothesis 2 (H_2), financial literacy negatively affects Bitcoin investment decisions. With $p = 0.284 > 0.05$ and $t = 1.072 < 1.96$, H_2 is rejected, showing no significant influence. Hypothesis 3 (H_3), understanding of fundamental analysis has no significant impact ($p = 0.657 > 0.05$; $t = 0.444 < 1.96$). This suggests that Generation Z investors are less likely to rely on fundamental metrics in Bitcoin investment decisions. Hypothesis 4 (H_4), technical analysis positively and significantly influences Bitcoin investment decisions ($p = 0.000 < 0.05$; $t = 5.614 > 1.96$). This confirms that respondents who better understand technical analysis are more likely to invest in Bitcoin. Hypothesis 5 (H_5), risk perception negatively affects Bitcoin investment decisions ($p = 0.071 > 0.05$; $t = 1.809 < 1.96$). Although not statistically significant, the negative direction implies that higher perceived risk lowers investment tendency. Hypothesis 6 (H_6), all five independent variables jointly influence Bitcoin investment decisions among Generation Z. With $R^2 = 0.979$, the simultaneous effect is substantial and statistically significant.

Discussion

The results indicate that personal financial management (PFM) does not significantly affect Bitcoin investment decisions among Generation Z in Malang (p=0.193). While PFM encourages budgeting, saving, and disciplined financial planning, it does not directly influence engagement with high-risk digital assets. Lusardi and Mitchel (2011) suggest that financially disciplined individuals tend to adopt conservative investment behavior, favoring stable assets over speculative ones like Bitcoin. This implies that conventional financial management practices may not translate into cryptocurrency investment behavior.

Financial literacy also shows no significant effect on Bitcoin investment decisions (p=0.284). Although financial knowledge enables risk evaluation and informed decision-making, it does not necessarily lead to cryptocurrency adoption. Highlight that higher financial literacy often promotes caution toward high-risk assets. Generation Z investors may rely more on real-time market cues and digital platforms than traditional financial knowledge when making investment decisions.

Understanding fundamental analysis does not significantly influence Bitcoin investment decisions (p=0.657). Bitcoin's valuation depends on on-chain metrics, network activity, and technological factors, which may be unfamiliar to young investors (Hayes, 2017). This suggests that fundamental analysis, while important for traditional assets, has limited relevance in cryptocurrency markets dominated by volatility and rapid information flows.

In contrast, technical analysis significantly affects investment decisions (p = 0.000). Generation Z investors rely heavily on technical indicators, chart patterns, and historical price data to determine entry and exit points. Digital natives prefer interactive, real-time trading tools, making technical analysis more practical than fundamental evaluation in guiding their investment behavior.

Risk perception shows a negative but non-significant effect (p = 0.071). While higher perceived risk discourages investment, many young investors accept substantial risk for potential gains. Weber et al. (2013) suggest that risk perception moderates investment behavior but does not entirely dictate it. Familiarity with digital platforms and social influence may mitigate perceived risk, resulting in diverse risk-taking behavior.

Collectively, PFM, financial literacy, understanding of fundamental and technical analysis, and risk perception explain 97.9% of the variance in Bitcoin investment decisions, indicating strong model explanatory power. This implies that Bitcoin investment decisions are multifactorial, shaped by technical skills, behavioral tendencies, and risk considerations rather than any single variable alone.

The findings reveal that Generation Z investors rely more on technical cues and digital analytics than on traditional financial fundamentals. Their preference for real-time data, visual dashboards, and platform-mediated tools highlights the impact of digital nativity on investment behavior. Financial education and advisory services should therefore focus on enhancing digital and technical analytic skills while integrating behavioral finance principles to help young investors make informed yet balanced decisions in highly volatile cryptocurrency markets.

CONCLUSION

This study concludes that among Generation Z investors in Malang, technical analysis is the most significant factor influencing Bitcoin investment decisions, while personal financial management, financial literacy, and understanding of fundamental

analysis do not have a significant direct effect. Risk perception shows a negative but non-significant impact, suggesting that although young investors recognize potential losses, many are willing to tolerate high risk in pursuit of gains.

The combined influence of all variables explains 97.9% of the variance in investment decisions, indicating that Bitcoin investment behavior is multifactorial. Generation Z relies heavily on real-time market data, digital platforms, and technical indicators rather than conventional financial fundamentals or formal financial knowledge.

These findings imply that educational programs and advisory services for young investors should emphasize digital and technical analytic skills, alongside behavioral finance awareness, to support informed and balanced decision-making in volatile cryptocurrency markets.

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