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Strategic Determinants of Investment Decisions in Digital Assets: A Systematic Exploration of Climate Risks and Investor Knowledge

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ABSTRAK

Penelitian ini bertujuan untuk menganalisis pengaruh faktor psikologis dan kognitif, khususnya persepsi risiko iklim dan pengetahuan investor, terhadap keputusan investasi aset digital. Studi asosiatif kuantitatif ini dilakukan pada komunitas investasi KOIN dengan populasi 1.240 anggota aktif. Sampel penelitian terdiri dari 62 responden yang dipilih menggunakan metode purposive sampling dengan kriteria investor aset digital yang berpengalaman. Instrumen penelitian menggunakan kuesioner skala Likert tertutup dengan variabel persepsi risiko iklim, pengetahuan investor, dan keputusan investasi. Analisis data dilakukan melalui pengujian regresi linier berganda menggunakan perangkat lunak SPSS. Hasil penelitian menunjukkan bahwa persepsi risiko iklim dan pengetahuan investor secara bersamaan sangat mempengaruhi keputusan investasi aset digital. Sebagian, persepsi risiko iklim memiliki efek negatif yang signifikan, sedangkan pengetahuan investor memiliki efek positif yang signifikan pada keputusan investasi. Penelitian ini memberikan kontribusi teoritis dalam memahami dinamika psikologis investor dalam ranah investasi digital berkelanjutan.

ABSTRACT

This study aims to analyze the influence of psychological and cognitive factors, specifically climate risk perception and investor knowledge, on digital asset investment decisions. This quantitative associative study was conducted on the KOIN investment community with a population of 1,240 active members. The research sample consisted of 62 respondents selected using purposive sampling method with criteria of experienced digital asset investors. The research instrument utilized a closed Likert scale questionnaire with variables of climate risk perception, investor knowledge, and investment decisions. Data analysis was performed through multiple linear regression testing using SPSS software. The research results demonstrate that climate risk perception and investor knowledge simultaneously significantly influence digital asset investment decisions. Partially, climate risk perception has a significant negative effect, while investor knowledge has a significant positive effect on investment decisions. This study provides theoretical contributions in understanding the psychological dynamics of investors in sustainable digital investment domains.

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1. INTRODUCTION

Digital asset investment decisions have become a complex phenomenon reflecting fundamental transformations in the global financial landscape (Viona, 2024). In the current digital era, investors are no longer limited to conventional investment instruments, but are faced with a dynamic and innovative financial ecosystem (Hanafi & Firdaus, 2023). Digital assets, such as cryptocurrencies and blockchain-based tokens, open new spaces for investment strategies that transcend traditional boundaries, presenting opportunities as well as unprecedented challenges (Kadir, 2023). The complexity of digital asset investment decisions lies in the multidimensional interaction between technological, economic, and psychological factors. Each investment decision involves an in-depth assessment of market volatility, potential technological disruption, evolving regulatory frameworks, and individual capacity to understand relatively new investment instruments (Ismail et al., 2024). Modern investors are confronted with the necessity to develop comprehensive digital literacy, understand blockchain technology mechanisms, and be able to read market signals that are often unpredictable using conventional methods (Sunaryono et al., 2024).

The digital asset investment phenomenon shows significant development in the last decade. The growth of investor interest in digital financial instruments indicates a fundamental transformation in global investment perspectives (Manan et al., 2024). Several independent studies reveal that the number of digital asset investors continues to increase, with increasingly diverse demographic variations, crossing various age groups and professional backgrounds (Kaal, 2020). The unique characteristics of digital assets, such as high profit potential and global accessibility, become the primary attraction for investors seeking investment alternatives outside traditional financial instruments (Kochergin, 2022). The digital asset market dynamics are characterized by complex fluctuations, where technological factors, regulatory, and market sentiments interact dynamically (Setiawan et al., 2024). This uncertainty drives investors to continuously update their investment knowledge and strategies. Cross-disciplinary research shows that digital asset investment decisions are no longer dominated by specific age groups but have become a serious consideration for various investor segments, from young professionals to experienced business practitioners (Bhatia et al., 2022). In the context of digital asset investment research, the complexity of investment decisions cannot be separated from a number of dynamically interacting factors. The perception of climate risk and investor knowledge level offer a comprehensive perspective for understanding investment decision-making mechanisms within the continuously evolving digital ecosystem (Alkaraan et al., 2023). These two external factors represent the complexity of interactions between psychological, cognitive, and structural factors that shape modern investment behavior.

Climate risk perception is defined as a cognitive construct that describes investors' subjective assessment of potential systemic uncertainties that can affect the stability and performance of digital asset investments (Kumar et al., 2024). Climate risk perception has a significant relationship with digital asset investment decisions, where the higher the perceived risk by investors, the more complex and cautious the investment decision will be (Weixiang et al., 2022). This concept explains how risk assessment can influence investors' strategic choices in allocating capital to digital asset instruments. The theories explaining this relationship include Investment Decision-Making Theory and Risk Perception Theory (Anggraini & Mulyani, 2022). Both theories demonstrate that investors' cognitive processes in assessing risk directly influence their investment choices and strategies. Several empirical studies have explored the influence of risk perception on investment decisions.

Previous research shows that risk perception has a negative relationship with investment intensity, meaning the higher the perceived risk, the lower the investor's tendency to make investment decisions (Aren & Neyman, 2020). An open research gap is the lack of comprehensive studies on the complex mechanisms of how climate risk perception interacts with other factors in the digital asset investment context. Most previous research tends to be partial, not deeply integrating how risk perception shapes investment decisions in a dynamic digital ecosystem.

Investor knowledge level is defined as an individual's comprehensive capacity to understand the characteristics, mechanisms, risks, and opportunities of digital asset investments, encompassing theoretical, technological, and practical dimensions of digital-based investment instruments (Hasan et al., 2024). Investor knowledge level has a positive and significant relationship with the quality of digital asset investment decisions. The higher the investor's knowledge, the more sophisticated and informative the investment decision becomes (Raut, 2020). This concept explains how digital literacy and comprehensive understanding play a role in reducing uncertainty and improving investment choice quality. The theories explaining this relationship include Intellectual Capital Theory and Knowledge-Based Decision Making Theory (Yuksel, 2024). Both theories underline the importance of knowledge as a fundamental capital in economic and investment decision-making. Previous empirical studies consistently show the positive influence of knowledge level on investment decision quality. Research indicates that investors with higher knowledge tend to make more rational decisions, are better able to manage risks, and have more measurable investment strategies (Rosid et al., 2024). An open research gap is the lack of comprehensive studies on the specific mechanisms of how investor knowledge interacts with psychological and structural factors in the digital asset investment context. Most previous research focuses on partial aspects of knowledge, not deeply exploring how knowledge shapes the complexity of investment decisions in an continuously evolving digital ecosystem.

This study aims to conduct a comprehensive investigation into the influence of climate risk perception and investor knowledge levels on digital asset investment decisions. The theoretical contribution of the research lies in developing a conceptual framework that integrates multidisciplinary perspectives, encompassing psychological, cognitive, and structural dimensions within the digital investment ecosystem. Methodologically, this research will employ a quantitative approach with a survey design involving a representative sample of digital asset investors. Research instruments will be developed through comprehensive literature review and validated using rigorous testing techniques. The research results are expected to provide significant empirical contributions in understanding the complex mechanisms of investment decision-making, as well as offer practical implications for investors and practitioners in the digital financial field. The findings of this study have the potential to bridge the knowledge gap between conventional investment theory and emerging markets dynamics in the digital era, thereby providing new perspectives in understanding the fundamental transformation of contemporary investment landscapes.

2. LITERATURE REVIEW

2.1 Digital Asset Investment Decisions

Digital asset investment is a complex construct that reflects systematic decision-making processes within a dynamic digital economic context. This concept refers to the strategic mechanisms by which investors allocate capital into digital-based financial instruments, considering risk factors, profit potential, and unique technological characteristics (Al-Shami *et al*., 2024). Structurally, investment decisions are formed by three primary dimensions: capital allocation strategy, instrument selection, and risk management. The capital allocation strategy dimension includes indicators of investment magnitude, depicting the amount and proportion of funds allocated, as well as portfolio diversification level that demonstrates risk distribution through the selection of various digital asset types. Long-term risk considerations in this dimension include return on investment

(ROI) projections and systemic risk potential analysis influencing investment decisions (Alkaraan *et al*., 2023).

The instrument selection dimension focuses on the specific selection process of digital investment instruments, encompassing evaluation of digital asset types such as cryptocurrencies and blockchain tokens, as well as platform credibility assessment and fundamental project analysis. Sustainable investment criteria become a critical consideration, including technological environmental aspects, carbon footprint impact, and low-carbon technology preferences. The risk management dimension completes the investment decision framework with climate risk mitigation mechanisms, including the use of hedging instruments, hedging strategies, and anticipation of regulatory fluctuations. Risk exposure reduction strategies, such as capital allocation limitations, stop-loss mechanisms, portfolio rebalancing, and continuous monitoring through periodic evaluation and analytical tools usage, become fundamental elements in the decision-making process (Alkaraan *et al*., 2023). In contemporary investment landscapes, digital asset investment decisions are not merely linear economic actions, but represent multidimensional interactions between psychological, technological, and structural factors that demand investors' adaptive capabilities in reading complex and dynamic market signals.

2.2 Climate Risk Perception

Climate risk perception in the digital asset investment context is a complex cognitive construction that describes systematic investor assessment of potential climate change impacts on the digital financial ecosystem (Kubinska *et al*., 2023). This concept reflects investors' ability to interpret, analyze, and respond to environmental threats that can affect investment stability and performance. Theoretically, climate risk perception is constructed through three primary dimensions: environmental risk, technological risk, and economic risk. The environmental risk dimension focuses on assessing climate change impacts on digital infrastructure, including potential blockchain system disruptions and estimated losses from natural disasters. Indicators in this dimension measure investor sensitivity to physical threats that can disrupt digital technology continuity and reliability (Ahmed *et al*., 2022).

The technological risk dimension expands the analysis perspective by evaluating digital infrastructure vulnerability to climate change, covering assessment of unsustainable energy consumption and adaptation costs towards low-carbon technologies. Economic risk as the final dimension explores financial implications of climate change, including digital asset value fluctuation analysis, environmental regulation impacts, and potential investment losses (Ahmed *et al*., 2022). Through these dimensions, climate risk perception is not merely a static assessment but a dynamic process reflecting investors' adaptive capabilities in understanding the complexity of relationships between environmental changes, technology, and digital financial systems. This cognitive construction enables investors to develop responsive mitigation strategies, integrating sustainability considerations into comprehensive investment decision-making frameworks.

2.3 Investor Knowledge

Investor knowledge in the digital asset investment context is a multidimensional intellectual construction that describes an individual's comprehensive capacity to understand the complexity of the digital financial ecosystem (Dwiastuti *et al*., 2024). This concept reflects investors' cognitive ability to integrate technological, climatic, and investment understanding into a strategic decision-making framework.Structurally, investor knowledge is built through three key dimensions: technological literacy, climate literacy, and investment literacy. The technological literacy dimension focuses on investors' ability to understand blockchain mechanisms, cryptocurrency characteristics, and analyze digital technology dynamics. Indicators in this dimension measure the depth of technical understanding and investors' ability to navigate the complexity of digital financial technology infrastructure (Misra *et al*., 2024).

The climate literacy dimension expands the knowledge scope by evaluating investors' understanding of climate change, knowledge about renewable energy, and awareness of

environmental impacts from digital technologies. Investment literacy, as the final dimension, explores investors' strategic capabilities in risk management, integrating digital investment experiences, and analyzing sustainable investment potential (Misra *et al*., 2024). Through these dimensions, investor knowledge is not merely an accumulation of information, but a dynamic representation of adaptive and comprehensive abilities in understanding the intersection between technology, environment, and investment strategy. This intellectual construction enables investors to develop more sophisticated approaches, capable of reading complex market signals and making informed and sustainable investment decisions in the continuously evolving digital financial landscape.

CONCEPTUAL FRAMEWORK

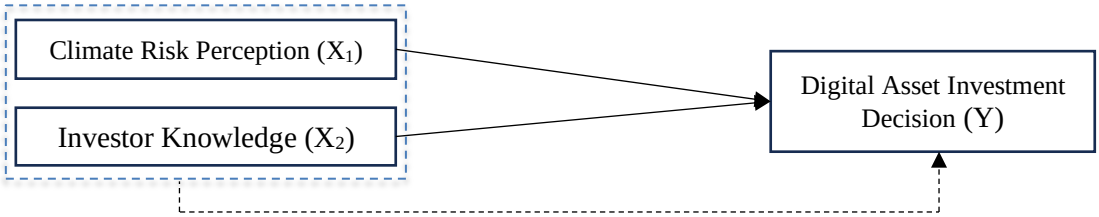


Figure 1. Conceptual Framework

Climate Risk Perception → Digital Asset Investment Decision

Climate risk perception emerges as a critical external factor within the contemporary digital finance ecosystem, representing a sophisticated mechanism of risk assessment and investment decision-making (Settembre-Blundo *et al*., 2021). The theoretical framework posits that investors' nuanced understanding of climate-related financial risks fundamentally transforms their investment strategies in digital asset markets (Idris, 2024).

H1: Climate Risk Perception significantly negatively influences Digital Asset Investment Decision

Investor Knowledge → Digital Asset Investment Decision

Investor knowledge represents a pivotal internal cognitive mechanism that mediates digital asset investment strategies (Shahani & Ahmed, 2022). The theoretical construct suggests that sophisticated understanding of digital asset ecosystems, blockchain technologies, and financial mechanisms critically determines investment outcomes (Toufaily *et al.*, 2021).

H2: Investor Knowledge positively significantly affects Digital Asset Investment Decision

Interaction of Climate Risk Perception and Investor Knowledge → Digital Asset Investment Decision

The interactive relationship between climate risk perception and investor knowledge presents a sophisticated moderating mechanism influencing digital asset investment decisions (Shanmugam *et al.*, 2022). This complex interaction suggests that enhanced investor knowledge can potentially mitigate negative impacts of adverse climate risk perceptions (Todaro *et al.*, 2021).

H3: Climate Risk Perception and Investor Knowledge simultaneously interact to influence Digital Asset Investment Decision

3. METHOD

This study aims to analyze the influence of psychological and cognitive factors, specifically climate risk perception and investor knowledge, on digital asset investment decisions. The research is an associative study with a quantitative approach designed to explore strategic determinants in the investment decision-making process within the digital financial domain. The research population comprises individual investors who have implemented green investments and are members of the KOIN investment community, totaling 1,240 active members. The selection of KOIN as the research object is based on several strategic considerations. First, this community is one of the largest digital investment platforms in Indonesia with 1,240 active members who possess

demographic and psychographic characteristics of contemporary digital investors. Second, the community has a heterogeneous member base, encompassing various age groups, professional backgrounds, and investment experience levels, thus enabling comprehensive representation in exploring factors influencing investment decisions. Third, the community's accessibility and openness to scientific research support the sample selection.

Considering the population's complexity and the uncertainty of the exact number of investors meeting the research criteria, sample determination was conducted through a preliminary survey (pilot survey) involving a small portion of community members, including 50-100 respondents. Based on the preliminary survey results, researchers calculated the proportion of members actively investing in digital assets at 35% of total survey respondents, equivalent to 434 investors. Taking into account the population characteristics that are not fully known, sample calculation used the Lemeshow et al. (1990) formula with a margin of error (e) of 10% or 0.1. Based on calculations, the sample size was established at 62 individual investor respondents with digital asset investment experience. The research instrument utilized a closed questionnaire with a five-point Likert scale, designed to measure variables of climate risk perception, investor knowledge, and digital asset investment decisions. The questionnaire was developed based on comprehensive literature review and underwent construct validation by experts in digital investment and climate change. Data analysis was performed using descriptive statistical approach with the three-box method, categorizing index values into three categories: low: 9-21; medium: 22-33; and high: 34-45, referring to Ferdinand's (2019) procedure. Subsequently, data was analyzed using multiple linear regression through stages: classical assumption test (normality, multicollinearity, heteroscedasticity); hypothesis testing (t-test, F-test); and coefficient of determination test (R^2) using SPSS software.

4. RESULT AND DISCUSSION

4.1 Respondent Characteristics

The characteristics of the research respondents include gender, age, latest education, digital investment experience, and average monthly investment, summarized in the following Table 1.

Table 1. Respondent Characteristics

Characteristic	Category	Number (n)	Percentage (%)
Gender	Male	42	67.7
	Female	20	32.3
Age	18-25 years	15	24.2
	26-35 years	35	56.5
	36-45 years	10	16.1
	>45 years	2	3.2
Latest Education	High School	8	12.9
	Diploma	12	19.4
	Bachelor's Degree	35	56.5
	Postgraduate	7	11.3
Digital Investment Experience	<1 year	10	16.1
	1-3 years	28	45.2
	3-5 years	18	29.0
	>5 years	6	9.7
Average Monthly Investment	<IDR 1 million	15	24.2
	IDR 1-5 million	30	48.4
	IDR 5-10 million	12	19.4

	>IDR 10 million	5	8.1

Source: Data processed (2024)

Based on the analysis of respondent characteristics, this research reveals the demographic profile of digital asset investors dominated by males (67.7%) within the productive age range of 26-35 years (56.5%), indicating that the digital investor segment is primarily young professionals active in the digital investment ecosystem. From an educational perspective, respondents are predominantly bachelor's degree holders (56.5%), signaling a relatively high level of academic literacy that potentially influences risk understanding and investment decision-making capacities. Regarding digital investment experience, the majority of respondents (45.2%) have 1-3 years of experience, demonstrating an active adaptation and exploration phase in digital asset investments. The average monthly investment distribution is centered on the range of IDR 1-5 million (48.4%), reflecting investment patterns from beginner to intermediate levels with measured capital commitment. This distribution of respondent characteristics not only provides a comprehensive overview of the digital investor community but also offers a fundamental context for understanding the complex dynamics of investment decisions in the context of climate risk and investor knowledge.

4.2 Descriptive Statistics of Variables

Descriptive statistical analysis of research variables was conducted using the three-box method referring to Ferdinand's (2019) procedure. The results of the descriptive statistical analysis are presented in Table 2 below.

Table 2. Descriptive Statistics of Variables

Variable	Score Range	Index Value	Percentage	Category
Climate Risk Perception (X_1)	9-21	22.5	45.2%	Moderate
Investor Knowledge (X_2)	22-33	28.7	58.1%	High
Digital Asset Investment Decision (Y)	34-45	36.2	73.4%	High

Source: Data processed (2024)

Descriptive analysis reveals the complex dynamics of factors influencing digital investment decisions. The moderate climate risk perception (index value 22.5) indicates potential negative impacts on investment decisions. Consistent with risk management theory, higher risk perception correlates with lower investor propensity to invest, reflecting an inverse relationship between risk and investment decisions. In contrast to risk perception, investor knowledge reaches a high category with an index value of 28.7. Referring to intellectual capital theory, high investor knowledge positively correlates with investment decisions. The more comprehensive an investor's understanding of digital assets, the higher the likelihood of making informed and strategic investment choices. Digital asset investment decisions are categorized as high, with an index value of 36.2. This indicates that despite moderate risk perception, high investor knowledge significantly contributes to driving investment decisions. This finding aligns with the TAM, which emphasizes the role of knowledge and understanding of digital technology in decision-making processes, particularly in digital asset investment decisions.

4.3 Classical Assumption Tests

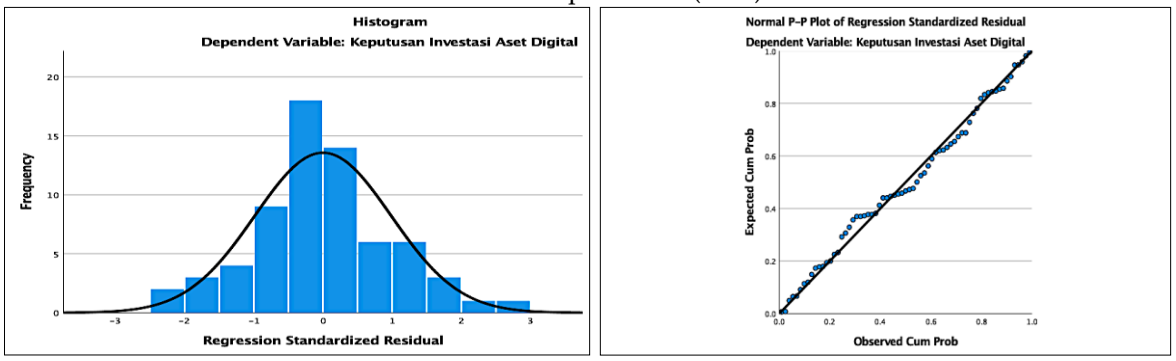
Normality testing of data distribution was conducted through three approaches: Kolmogorov-Smirnov test, residual histogram, and normal P-P plot.

Table 3. Kolmogorov-Smirnov Test Results

One-Sample Kolmogorov-Smirnov Test		
		Unstandardized Residual
N		62
Normal Parameters[a,b]	*Mean*	0.0000000
	Std. Deviation	2.27934492
Most Extreme Differences	*Absolute*	0.071

	Positive	0.061
	Negative	-0.071
Test Statistic		0.071
Asymp. Sig. (2-tailed)[c]		.200[d]

Source: Data processed (2024)



(a) (b)

Figure 2. (a) Residual Histogram (b) Normal P-Plot

Based on the Kolmogorov-Smirnov test and residual histogram and P-Plot visualizations, the data demonstrates a normal distribution. This is evidenced by the Asymp. Sig. (2-tailed) value of 0.200, which exceeds 0.05, indicating normally distributed residuals. The histogram reveals symmetrically distributed data approximating a normal curve, while the P-Plot displays data points closely aligned with the diagonal line, both supporting data normality. The results of the multicollinearity test are presented in Table 4 as follows.

Tabel 4. Multicollinearity Test Results

Variable	Tolerance	Variance Inflation Factor (VIF)
Climate Risk Perception	0.492	2.032
Investor Knowledge	0.492	2.032

Source: Data processed (2024)

Multicollinearity analysis in Table 4 shows no multicollinearity issues in the research model. The Variance Inflation Factor (VIF) for Climate Risk Perception and Investor Knowledge variables is 2.032, well below the critical threshold of 10. Similarly, the Tolerance values of 0.492 exceed the 0.1 criterion. These indicators confirm no high correlations between independent variables, rendering the regression model appropriate for subsequent analysis. Meanwhile, Heteroscedasticity testing via scatterplot reveals randomly dispersed points without specific pattern formation, confirming the absence of heteroscedasticity in the constructed regression model (Figure 3).

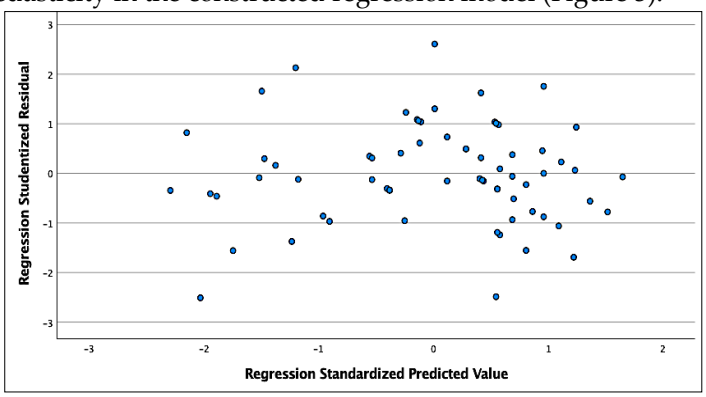


Figure 3. Scatterplot

4.4 Multiple Linear Regression Analysis

Multiple linear regression analysis was used to examine the impact of climate risk perception and investor knowledge on investment decisions.

Table 5. Multiple Linear Regression Analysis

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	5.070	2.830		1.791	0.078
	Climate Risk Perception	-0.212	0.097	-0.242	-2.233	0.029
	Investor Knowledge	0.447	0.108	0.433	4.150	0.000
a. Dependent Variable: Digital Asset Investment Decision						

Source: Data processed (2024)

The regression analysis produced the structural equation Y = 5.070 - 0.212X1 + 0.447X2, describing the relationship between Climate Risk Perception and Investor Knowledge on Digital Asset Investment Decisions. The Climate Risk Perception variable (X1) demonstrates a significant negative relationship with Investment Decisions. The regression coefficient of -0.212 with Beta -0.242 indicates that each unit increase in climate risk perception will decrease Investment Decisions by 0.212, assuming other variables remain constant. The significance value of 0.029 (<0.05) shows a significant effect. Investor Knowledge (X2) exhibits a strong positive relationship, with a regression coefficient of 0.447 and Beta 0.433. This means each unit increase in investor knowledge will increase Investment Decisions by 0.447, with other variables held constant. The primary difference in interpretation is the more moderate influence of Climate Risk Perception. The Beta value of -0.242 indicates a more realistic negative impact on investment decisions, reflecting the complexity of risk considerations in digital asset investment. Both variables significantly influence investment decisions, with Investor Knowledge remaining the primary predictor. This underscores the importance of education and understanding in driving digital asset investment participation while carefully considering climate risks.

4.5 Coefficient of Determination (R^2)

Coefficient of Determination Test results are presented in Table 6 as follows.

Table 6. Coefficient of Determination

Model Summary[b]				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.810[a]	0.656	0.646	2.315
a. Predictors: (Constant), Climate Risk Perception, Investor Knowledge				
b. Dependent Variable: Digital Asset Investment Decision				

Source: Data processed (2024)

The coefficient of determination analysis shows that Climate Risk Perception and Investor Knowledge variables are able to explain the variation in Digital Asset Investment Decisions by 65.6% (R Square 0.656), with an Adjusted R Square of 0.646 indicating a strong model predictive capability. The R value of 0.810 depicts a very close correlation between independent and dependent variables, while the remaining 34.4% is influenced by factors outside the research model. The Standard Error of Estimate at 2.315 demonstrates the model's accuracy in predicting Investment Decisions, with lower values indicating an increasingly better regression model in estimating the dependent variable.

4.5 Hypothesis Testing

Hypothesis testing was conducted through simultaneous significance test (F-test) and partial significance test (t-test). The F-test results are presented in Table 7.

Table 7. F-Test

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	655.043	2	327.522	61.130	.000[b]
	Residual	342.897	59	5.358		
	Total	997.940	61			
a. Predictors: (Constant), Climate Risk Perception, Investor Knowledge						
b. Dependent Variable: Digital Asset Investment Decision						

Source: Data processed (2024)

The F-test results show a significance value of 0.000, which is far less than 0.05, indicating that the regression model is overall significant and suitable for predicting Digital Asset Investment Decisions. The F-calculated value of 61.130, significantly larger than the F-table (3.15), demonstrates that Climate Risk Perception and Investor Knowledge variables simultaneously have a very significant influence on Investment Decisions. Therefore, the research hypothesis stating a simultaneous effect between Climate Risk Perception and Investor Knowledge on Digital Asset Investment Decisions is accepted with a 95% confidence level.

Table 8. T-Test

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	5.070	2.830		1.791	0.078
	Climate Risk Perception	-0.212	0.097	-0.242	-2.233	0.029
	Investor Knowledge	0.447	0.108	0.433	4.150	0.000
a. Dependent Variable: Digital Asset Investment Decision						

Source: Data processed (2024)

The t-test results reveal interesting significance differences between the two independent variables in influencing Digital Asset Investment Decisions. For the Climate Risk Perception variable, the significance value of 0.029 (<0.05) with a t-calculated of -2.233 indicates a significant but negative influence, meaning an increase in climate risk perception will statistically significantly decrease investment decisions. The Investor Knowledge variable shows a much stronger effect with a significance of 0.000 and t-calculated of 4.150, indicating that consistent and significant increases in investor knowledge will enhance investment decisions. Consequently, the research hypothesis stating that Climate Risk Perception and Investor Knowledge partially influence Digital Asset Investment Decisions is accepted, with Investor Knowledge contributing more dominantly in explaining variations in digital asset investment decisions.

DISCUSSION

Impact of Climate Risk Perception and Investor Knowledge on Investment Decisions

The F-test results demonstrate that climate risk perception and investor knowledge simultaneously significantly influence digital asset investment decisions (sig. 0.000 < 0.05; F-calculated 61.130 > F-table 3.15), with investor knowledge having a more dominant effect. This finding is supported by Harahap (2023), who discovered a significant simultaneous influence of both variables on investment decisions. It also aligns with Alkaraan *et al*. (2023), confirming that an optimal combination of climate risk understanding and investor knowledge significantly drives investment decisions in the digital asset context.

Impact of Climate Risk Perception on Digital Asset Investment Decisions

The research reveals a negative and significant effect of climate risk perception on digital asset investment decisions, with a regression coefficient (β) of -0.242 and significance value of 0.029. This finding is supported by Aren *et al*. (2020) and Landi *et al*. (2022), who found a significant negative impact of climate risk perception on investment decisions. The negative relationship

indicates that as investors' climate risk perception increases, their tendency to invest in digital assets decreases. This suggests that uncertainty and potential climate change impacts play a crucial role in investment considerations, with investors becoming more defensive and selective in choosing investment instruments they perceive as environmentally risky (Ma *et al*., 2023).

Impact of Investor Knowledge on Digital Asset Investment Decisions

The study shows a positive and significant influence of investor knowledge on digital asset investment decisions, with a regression coefficient (β) of 0.433 and significance value of 0.000. This finding is supported by Nurbarani & Soepriyanto (2022) and Putri & Santoso (2024), who discovered a significant positive impact of investor knowledge on investment decisions. The positive relationship indicates that as investors' knowledge of digital assets increases, their tendency to invest also increases. This suggests that a comprehensive understanding of digital investment instrument characteristics, mechanisms, and potential can boost investor confidence in making investment decisions (Rolando *et al*., 2024).

5. CONCLUSION

The conclusion of this study is as follows.

1) Climate risk perception and investor knowledge simultaneously have a significant impact on digital asset investment decisions.
2) Climate risk perception has a negative and significant effect on digital asset investment decisions. This indicates that higher climate risk perception reduces investors' tendency to make digital asset investment decisions.
3) Investor knowledge has a positive and significant influence on digital asset investment decisions. This suggests that as investor knowledge increases, their digital asset investment decisions also increase.

RECOMMENDATIONS

Based on the research findings, the following recommendations are proposed:

1) Practitioners and stakeholders in digital investment should continuously develop comprehensive educational programs to enhance investor knowledge about digital assets, with a specific focus on climate risk and environmental impacts.
2) Digital financial industry players should design transparent and informative communication strategies that reduce negative risk perceptions by providing in-depth understanding of environmental risk mitigation mechanisms in digital investments.
3) Investment communities and financial institutions should develop more innovative green investment instruments that consider not only financial aspects but also environmental sustainability factors, thereby increasing investor confidence and encouraging broader participation in sustainable digital investment ecosystems.

REFERENCES

Ahmed, Z., Rasool, S., Saleem, Q., Khan, M. A., & Kanwal, S. (2022). Mediating role of risk perception between behavioral biases and investor's investment decisions. *Sage Open*, *12*(2), 21582440221097394.

Al-Shami, S. A., Damayanti, R., Adil, H., & Farhi, F. (2024). Financial and digital financial literacy through social media use towards financial inclusion among batik small enterprises in Indonesia. *Heliyon*, *10*(15).

Alkaraan, F., Elmarzouky, M., Hussainey, K., & Venkatesh, V. G. (2023). Sustainable strategic investment decision-making practices in UK companies: The influence of governance mechanisms on synergy between industry 4.0 and circular economy. *Technological Forecasting and Social Change*, *187*, 122187.

Anggraini, F., & Mulyani, E. (2022). Pengaruh informasi akuntansi, persepsi risiko dan citra perusahaan dalam pengambilan keputusan investasi di masa pandemi covid-19. *Jurnal Eksplorasi Akuntansi*, *4*(1), 25-39.

Aren, S., & Nayman Hamamci, H. (2020). Relationship between risk aversion, risky investment intention, investment choices: Impact of personality traits and emotion. *Kybernetes*, *49*(11), 2651-2682.

Bhatia, A., Chandani, A., Divekar, R., Mehta, M., & Vijay, N. (2022). Digital innovation in wealth management landscape: the moderating role of robo advisors in behavioural biases and investment decision-making. *International Journal of Innovation Science*, *14*(3/4), 693-712.

Dwiastuti, M. M. P., Pramukti, A. M., Isfaatun, E., & Kholisoh, L. (2024). Faktor-faktor yang mempengaruhi minat investasi cryptocurrency: studi empiris pada mahasiswa di daerah istimewa yogyakarta. *Prosiding Simposium Nasional Manajemen dan Bisnis*, *3*, 75-83.

Ferdinand, A. (2019). *Metode Penelitian Manajemen: Pedoman Penelitian untuk Penulisan Skripsi, Tesis, dan Disertasi Ilmu Manajemen*. Badan Penerbit Universitas Diponegoro.

Hanafi, A. I., & Firdaus, M. A. (2023). Mengeksplorasi Dampak Inovasi Teknologi Terbaru dalam Investasi Syariah. *Religion: Jurnal Agama, Sosial, dan Budaya*, *1*(6), 1316-1335.

Harahap, K. (2023). The Effect of Knowledge Investment, Perceived Return and Risk and Technological Advances on Investment Interest of Medan City Students in the Capital Market. *Journal of Finance and Business Digital*, *2*(3), 415-428.

Hasan, M., Jannah, M., Supatminingsih, T., Ahmad, M. I. S., Sangkala, M., Najib, M., & Elpisah. (2024). Understanding the role of financial literacy, entrepreneurial literacy, and digital economic literacy on entrepreneurial creativity and MSMEs success: a knowledge-based view perspective. *Cogent Business & Management*, *11*(1), 2433708.

Idris, H. (2024). Exploring Financial Risk Management: A Qualitative Study on Risk Identification, Evaluation, and Mitigation in Banking, Insurance, and Corporate Finance. *Golden Ratio of Finance Management*, *4*(2), 213-225.

Ismail, A., Herbenita, H., Desliniati, N., & Andriyati, Y. (2024). *Mengenal Investasi di Pasar Modal: Melalui Sekolah Pasar Modal Bursa Efek Indonesia*. Asadel Liamsindo Teknologi.

Kaal, W. A. (2020). Digital asset market evolution. *J. Corp. L.*, *46*, 909.

Kadir, S. (2023). Keuangan Terdesentralisasi (DeFi) Dan Teknologi Keuangan (FinTech) Syariah Dalam Sistem Keuangan Abad 21. *Journal of Accounting and Finance (JACFIN)*, *5*(2), 1-14.

Kochergin, D. (2022). Crypto-assets: Economic nature, classification and regulation of turnover. *International organisations research journal*, *17*(3), 75-113.

Kubińska, E., Adamczyk-Kowalczuk, M., & Macko, A. (2023). *Behavioral Finance in the Digital Era: Saving and Investment Decisions*. Taylor & Francis.

Kumar, P., Islam, M. A., Pillai, R., & Tabash, M. I. (2024). Risk Perception-Perceived Investor Performance Nexus: Evaluating the Mediating Effects of Heuristics and Prospects With Gender as a Moderator. *SAGE Open*, *14*(2), 21582440241256444.

Landi, G. C., Iandolo, F., Renzi, A., & Rey, A. (2022). Embedding sustainability in risk management: The impact of environmental, social, and governance ratings on corporate financial risk. *Corporate Social Responsibility and Environmental Management*, *29*(4), 1096-1107.

Lemeshow, S., Hosmer, D. W., Klar, J., & Lwanga, S. K. (1990*). Adequacy of sample size in health studies*. Chichester: John Wiley & Sons.

Ma, F., Cao, J., Wang, Y., Vigne, S. A., & Dong, D. (2023). Dissecting climate change risk and financial market instability: Implications for ecological risk management. *Risk Analysis*.

Manan, I. S., Sujud, F. A., & Umiati, K. (2024). Dampak Instrumen Keuangan Syariah Terhadap Pertumbuhan Ekonomi Di Indonesia. *Economics and Digital Business Review*, *5*(2), 662-671.

Misra, A., Bohra, N. S., & Sharma, M. (2024). Impact of Financial Literacy Towards ESG Investing Among Salaried Employees: A Mediating Effect of Perceived Usefulness of Robo-Advisors. In *Robo-Advisors in Management* (pp. 274-284). IGI Global.

Nurbarani, B. S., & Soepriyanto, G. (2022). Determinants of investment decision in cryptocurrency: evidence from indonesian investors. *Universal Journal of Accounting and Finance*, *10*(1), 254-266.

Putri, I. H. A., & Santoso, A. (2024). Pengaruh Pengetahuan Investasi, Persepsi Risiko Dan Kemajuan Teknologi Terhadap Keputusan Investasi. *Ekono Insentif*, *18*(1), 34-46.

Raut, R. K. (2020). Past behaviour, financial literacy and investment decision-making process of individual investors. *International Journal of Emerging Markets*, *15*(6), 1243-1263.

Rolando, B., Al-Amin, A. A., Rahmat, R., Zuwardi, Z., & Izmuddin, I. (2024). Memahami Nilai Tukar Kripto dalam Ekonomi Digital: Pendekatan Investasi di Masa Kini. *COSMOS: Jurnal Ilmu Pendidikan, Ekonomi dan Teknologi*, *1*(6), 560-571.

Rosid, A., Isabella, A. A., Hartoto, H., Siswantini, T., & Suharyati, S. (2024). Behavioral Finance In Decision Making: An Experimental Study Of Investor Bias And Indonesian Private Market Anomalies. *Jurnal Ekonomi*, *13*(03), 579-589.

Setiawan, Z., Nurdiansyah, N., Kushariyadi, K., & Sari, M. D. (2024). *Strategi Pemasaran: Konsep dan Inovasi Pemasaran di Era Digital*. PT. Sonpedia Publishing Indonesia.

Settembre-Blundo, D., González-Sánchez, R., Medina-Salgado, S., & García-Muiña, F. E. (2021). Flexibility and resilience in corporate decision making: a new sustainability-based risk management system in uncertain times. *Global Journal of Flexible Systems Management*, *22*(Suppl 2), 107-132.

Shahani, R., & Ahmed, S. F. (2022). Psychological and Social Factors Determining Investment Decisions in Cryptocurrency: Exploring the Mediating Role of Cognitive Biases. *Journal of Organisational Studies & Innovation*, *9*(4).

Shanmugam, K., Chidambaram, V., & Parayitam, S. (2022). Effect of financial knowledge and information behavior on sustainable investments: Evidence from India. *Journal of Sustainable Finance & Investment*, 1-24.

Sinen, K. (2024). Analisis Pengaruh Islamic Corporate Governance (ICG) dan Intellectual Capital (IC) Terhadap Maqashid Syariah Index (MSI) pada Bank Umum Syariah di Indonesia Periode 2018-2022. *Bongaya Journal of Research in Accounting (BJRA)*, *7*(1), 21-42.

Sunaryono, S., Sepriano, S., & Uzma, I. (2024). *Investasi Syariah Terpadu: Strategi dan Peluang Saham Tanpa Riba*. PT. Sonpedia Publishing Indonesia.

Todaro, N. M., Testa, F., Daddi, T., & Iraldo, F. (2021). The influence of managers' awareness of climate change, perceived climate risk exposure and risk tolerance on the adoption of corporate responses to climate change. *Business Strategy and the Environment*, *30*(2), 1232-1248.

Toufaily, E., Zalan, T., & Dhaou, S. B. (2021). A framework of blockchain technology adoption: An investigation of challenges and expected value. *Information & Management*, *58*(3), 103444.

Viona, F. (2024). Transformasi pasar modal di era digital sebuah kajian komprehensif dan strategi investasi dalam keuangan global. *Judakum: jurnal dedikasi hukum*, *3*(1), 28-36.

Weixiang, S., Qamruzzaman, M., Rui, W., & Kler, R. (2022). An empirical assessment of financial literacy and behavioral biases on investment decision: Fresh evidence from small investor perception. *Frontiers in psychology*, *13*, 977444.

Yuksel, A. (2024). Relationship between human capital and entrepreneurship orientation from the intellectual capital perspective of innovative literacy. *Journal of Intellectual Capital*, *25*(5/6), 1259-1284.