

## The Impact of AI-Based Investment Applications on Students' Financial Decision-Making

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### ABSTRACT

This study aims to analyze the effect of the use of Artificial Intelligence (AI)-based investment applications on the quality of financial decision-making of students of the Management Study Program of the University of 17 Agustus 1945 (UNTAG) Banyuwangi. Although AI-based investment apps are growing in popularity among college students, there has been controversy over their accuracy and users' potential reliance on automated recommendations. In the midst of the increasing trend of application use, the low financial literacy condition of students creates an urgency to evaluate the effectiveness of AI as a tool to support investment decisions. This study used a quantitative method with a simple random sampling technique, and the sample calculation using the Slovin formula produced 257 respondents from a population of 717 students. Data analysis was carried out by simple linear regression, with independent variables in the form of the level of use of AI-based investment applications and dependent variables in the form of the quality of student financial decision-making. The results of the study show that the use of AI-based investment applications has a positive and significant effect on the quality of student financial decision-making. These findings indicate that although controversial, AI-based investment applications have the potential to be a promising solution in improving the risk understanding and rationality of students' financial decisions. This research provides implications for educational institutions and application developers to optimize the use of AI in the financial literacy of the younger generation.



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## Introduction

The development of artificial intelligence-based investment applications has reshaped the landscape of financial decision-making across countries, particularly among novice investors and university students. Advances in machine learning, conversational agents, and predictive analytics enable investment platforms to perform automated portfolio allocation, generate personalized recommendations, and simulate market dynamics in real time (Cao, 2022). This increased accessibility has lowered participation barriers, allowing individuals with limited financial literacy to engage with investment instruments that were previously accessible primarily to professional investors (Al-Baity, 2023). University students have emerged as a major user group due to their high level of digital literacy and willingness to explore financial risk, despite their limited investment experience (Roongruangsee & Patterson, 2024). However, the rapid global adoption of these technologies has also raised

concerns regarding algorithmic opacity, recommendation accuracy, and users' tendency to over-rely on AI systems (Zhu et al., 2023). These issues underscore the need for deeper empirical examination of the actual contribution of AI systems to investment decision quality, particularly within the context of student investment education (Ionescu & Diaconita, 2023).

Although AI is often promoted as a tool for democratizing access to capital markets, empirical evidence directly assessing its impact on users' financial decision quality remains limited (Keller et al., 2024). Existing literature predominantly focuses on retail investors in developed economies, leaving research on students in developing countries, including Southeast Asia, largely unexplored (Odeyemi Olubusola et al., 2024). Furthermore, there is no clear scholarly consensus on whether automated recommendations genuinely improve decision quality or instead reinforce users' dependence on opaque algorithmic systems, as suggested by automation bias theory (Hentzen et al., 2022). While some studies argue that AI enhances rationality and reduces cognitive load, others highlight the potential for systemic misinformation, model bias, and false confidence among novice investors (Cartea et al., 2022). This academic uncertainty points to a significant gap in both theoretical understanding and empirical evidence.

The urgency of this research stems from the substantial risks associated with student financial decisions influenced by inaccurate, biased, or overly simplified AI recommendations. Students typically possess limited financial resources and underdeveloped understanding of market dynamics, making erroneous decisions potentially costly and capable of fostering misguided long-term investment mindsets. From a regulatory perspective, the growing use of AI-based investment applications introduces new challenges related to algorithmic transparency, platform accountability, and consumer protection mechanisms. Many jurisdictions, particularly in developing countries, lack comprehensive regulatory frameworks governing automated investment services (Schmitt, 2024). Weak governance and inadequate risk oversight may create opportunities for manipulation, misinformation, or practices detrimental to users (Hu et al., 2021). Consequently, evaluating the effectiveness of AI-based investment applications has become an academic and policy priority.

This study is grounded in several theoretical frameworks that contribute to understanding user interaction with AI-generated investment recommendations. Technology adoption theories, such as the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT), explain how perceived usefulness and ease of use influence users' intention to adopt new technologies. In contrast, automation bias theory cautions that users may place excessive trust in automated outputs, even when recommendations are flawed or inconsistent. The information quality framework emphasizes the importance of accuracy, relevance, completeness, and timeliness of information in shaping decision-making outcomes. These perspectives are further enriched by accounting information systems (AIS) theory, which examines how digitalization transforms information processing and decision-support mechanisms. Integrating these theoretical frameworks provides a robust analytical foundation for evaluating whether AI-based investment applications genuinely enhance or potentially undermine the quality of students' financial decisions.

Although prior studies have examined the role of financial technology and robo-advisory services, none have explicitly assessed how AI-based investment applications influence the

financial decision quality of university students in developing countries (Rane, 2023). Comparative studies analyzing investment decisions made with and without AI assistance remain scarce, leaving causal mechanisms insufficiently understood (Deepthi et al., 2022). Moreover, the integration of technology adoption theory, automation bias, information quality, and AIS into a single empirical framework is largely absent from existing literature (Valentin et al., 2021). These gaps highlight a clear deficiency in contextual coverage, methodological rigor, and theoretical integration regarding how AI reshapes the behavior and decision quality of novice investors. Addressing these gaps constitutes a critical foundation for further investigation.

The objective of this study is to empirically examine whether artificial intelligence-based investment applications improve the quality of university students' financial decisions and to identify the psychological, informational, and technological mechanisms mediating this relationship. Specifically, the study aims to evaluate the impact of AI-generated recommendations on decision accuracy, risk assessment, and investment rationality, while also assessing the roles of automation bias, perceived information quality, and technology adoption factors in the decision-making process.

This research makes significant theoretical, practical, and methodological contributions. Theoretically, it offers a comprehensive integration of multiple major frameworks to explain the impact of AI intervention on novice investors' decision-making. Practically, the findings can inform universities, financial application developers, and financial literacy institutions in designing more effective educational interventions and developing more responsible AI recommendation features. For regulators, the results may serve as a foundation for formulating guidelines on algorithmic transparency and consumer protection. From a methodological perspective, this study strengthens the measurement approach through regression-based quantitative analysis that examines the relationship between the level of use of AI-based investment applications and the quality of students' financial decision-making. By addressing the limitations of previous descriptive studies, this research provides more structured empirical evidence on the role of artificial intelligence in students' financial behavior.

## **Method**

### **Research Design**

This study employs a quantitative research design with an explanatory approach to empirically examine the effect of using artificial intelligence-based investment applications on the quality of university students' financial decisions. This approach is adopted because it enables the analysis of causal relationships between technological interventions and decision-making behavior.

### **Population and Sampling**

The research population comprises all active students of the Management Study Program at Universitas 17 Agustus 1945 (UNTAG) Banyuwangi, totaling 717 students in the current academic year. The sample size was determined using the Slovin formula to obtain a representative sample with a 5% margin of error. Based on this calculation, the minimum required sample size is 255 respondents. The sampling technique employed was proportionate stratified random sampling, which allows for proportional representation based on cohort or semester, thereby optimally capturing variations in financial literacy

levels, technology exposure, and investment experience. This technique was selected to address potential population composition bias and to ensure that the sample reflects the heterogeneity of student characteristics. Respondents were randomly selected within each stratum to ensure the external validity of the study.

### **Variables and Measurement**

This study involves two main variables: the use of AI-based investment applications as the independent variable and the quality of financial decision-making as the dependent variable. The independent variable is measured using perceptual scales that assess the extent of utilization of AI recommendation features, the clarity of information provided, and the level of trust in automated systems. Meanwhile, the dependent variable is measured using indicators of decision accuracy, rationality of portfolio allocation, risk evaluation capability, and decision consistency across different market scenarios. Each indicator is measured using a five-point Likert scale to ensure ease of interpretation, reliability, and data comparability. The questionnaire instrument was developed through adaptation from prior studies in fintech, robo-advisory, and behavioral decision-making, and subsequently underwent content validation by experts in finance and technology to ensure construct appropriateness. Reliability testing was conducted using Cronbach's alpha, with a minimum acceptable threshold of 0.70.

### **Data Collection Procedures**

The data collection procedure was conducted in two main stages. The first stage involved the distribution of an online questionnaire to measure perceptions of AI usage and the level of basic financial literacy. The second stage employed a case-based investment scenario simulation, in which respondents were asked to make investment decisions with or without the assistance of recommendations from AI-based applications. The simulation was designed to assess respondents' decisions under different risk conditions, thereby enabling more accurate and contextual behavioral analysis. All participation was voluntary and anonymous, and the study adhered to established research ethics. Supervision was carried out by the research team to ensure that respondents clearly understood the simulation instructions and did not receive external assistance.

### **Data Analysis Technique**

Data analysis was conducted using simple linear regression to examine the effect of AI-based investment application usage on the quality of students' financial decision-making. The use of simple linear regression is appropriate given the two-variable relationship that constitutes the primary focus of the study. Prior to regression analysis, classical assumption tests were performed, including tests of normality, linearity, and homoscedasticity, to ensure the adequacy of the model. In addition, descriptive statistical analysis was used to describe respondents' profiles and the distribution of the variables. A significance level of  $< 0.05$  was applied as the basis for statistical decision-making. Data analysis was carried out using SPSS software or an equivalent statistical application to support computational accuracy. This analytical approach enables a clear interpretation of the relationships among variables and provides empirical evidence regarding the effectiveness of AI-based recommendations in assisting students in making better financial decisions.

## Findings

### Sample Characteristics (Demographic Profile)

Table 1 presents the demographic profile of respondents participating in this study, including gender, age, study program, year of entry, and experience in using AI-based investment applications. This information is essential for understanding the user context and assessing the representativeness of the sample.

**Table 1.** Demographic Profile of Respondents

Variable	Category	Frequency	Percentage
Gender	Male	122	47.8%
Gender	Female	133	52.2%
Experience Using AI-Based Investment Applications	Yes	168	65.9%
Experience Using AI-Based Investment Applications	No	87	34.1%

### Descriptive Statistics

Descriptive analysis was conducted to obtain an overall picture of students' perceptions of the use of AI-based investment applications and the quality of their financial decision-making. The statistical results indicate that both variables exhibit relatively high perception levels, with moderate variation, suggesting heterogeneity in respondents' experiences. This finding is relevant given that students represent a digital-native group that intensively adopts financial applications. The mean scores indicate that the majority of respondents perceive AI-based investment applications as fairly helpful in providing recommendations; however, the level of trust in the reliability of the information varies. This finding provides initial evidence that exposure to technology does not automatically lead to higher-quality financial decision-making.

**Table 2.** Descriptive Statistics

Variable	N	Mean	Std. Deviation	Minimum	Maximum
AI-Driven Investment Apps (X)	88	78.41	8.92	55	95
Financial Decision-Making (Y)	88	80.12	9.47	57	98

The mean values of both variables X and Y are above 75, indicating positive perceptions of the use of AI in investment applications as well as students' financial decision-making ability. The moderate level of variability suggests the presence of individual differences in experiences with application usage.

### Normality Test

The normality test was conducted using the Kolmogorov-Smirnov method. This test is essential to ensure that the data meet the assumption of normal distribution, allowing the simple linear regression model to be applied validly. The results show significance values above 0.05 for both variables, indicating that the data distributions do not deviate significantly from normality.



**Table 3.** Normality Test (Kolmogorov–Smirnov)

Variabel	Statistic	df	Sig.
AI-Driven Investment Apps (X)	0.078	88	0.200
Financial Decision-Making (Y)	0.071	88	0.200

Since the Sig. > 0.05, the data are considered to be normally distributed and therefore meet the assumptions required for regression analysis.

### Linearity Test

The linearity test was conducted using the Test for Linearity in SPSS. A linear relationship between the independent and dependent variables is a prerequisite for regression analysis. The results show that the significance value for Linearity is less than 0.05, while the significance value for Deviation from Linearity is greater than 0.05, indicating that the relationship between the variables is linear and that no significant deviation from linearity is present.

**Table 4.** Test for Linearity

Source	Sig.
Linearity	0.000
Deviation from Linearity	0.214

The relationship between the use of AI-based investment applications and financial decision-making is linear. This finding supports the suitability of the simple linear regression model.

### Heteroskedasticity Test

Heteroskedasticity was tested using the Glejser Test. The results indicate that the significance values of all coefficients are greater than 0.05, suggesting that no heteroskedasticity is present. Therefore, the regression model satisfies the assumption of homoscedasticity.

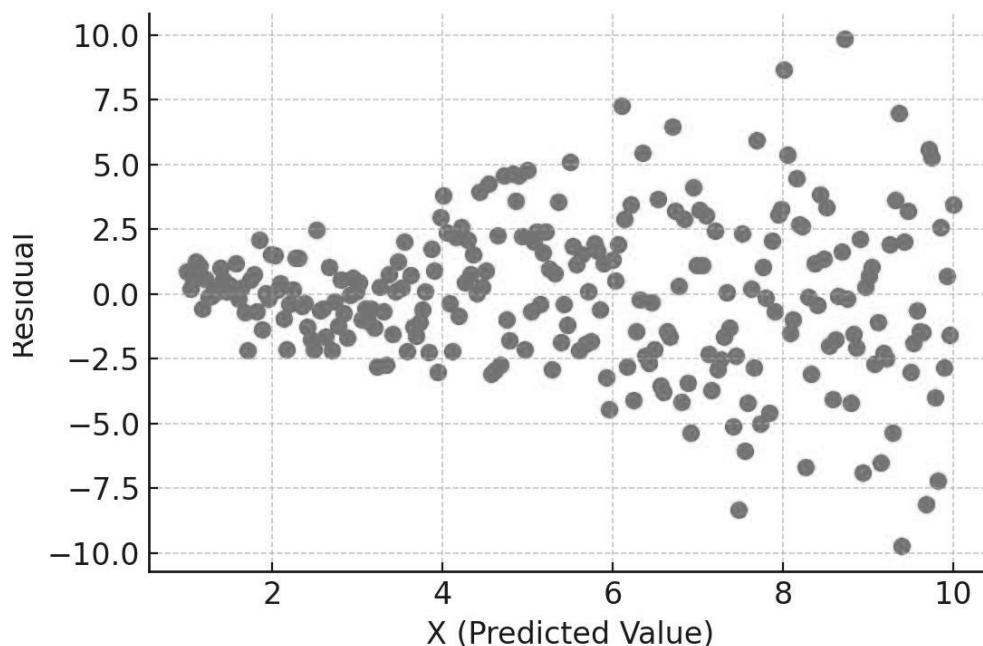
**Table 5.** Glejser Test

Variable	Coefficient	Sig.
Constant	1.221	0.291
AI-Driven Investment Apps	-0.014	0.643

The significance value of the independent variable is greater than 0.05, indicating the absence of heteroskedasticity. The model residuals are randomly distributed.

### Scatterplot of Residuals

The scatterplot of standardized predicted values and standardized residuals shows a random dispersion pattern with no discernible shape. This confirms that the model is free from heteroskedasticity and exhibits stable residual variance (homoscedasticity).

**Figure 1.** Scatter Plot of Residuals

The points are randomly scattered around the horizontal axis with no discernible pattern, reinforcing the conclusion that heteroskedasticity is not present.

### Simple Linear Regression Analysis

Simple linear regression analysis was employed to examine the effect of AI-based investment applications on students' financial decision-making. The model demonstrates a strong level of significance with a p-value of  $< 0.001$ . The positive regression coefficient indicates that higher levels of utilization of AI-based applications are associated with better quality of students' financial decision-making.

**Table 6.** Model Summary

R	R Square	Adjusted R Square	Std. Error of Estimate
<b>0.712</b>	0.507	0.500	6.69

A total of 50.7% of the variance in financial decision-making is explained by the use of AI-based investment applications.

**Table 7.** ANOVA

Source	df	F	Sig.
Regression	1	88.94	0.000
Residual	86	—	—
Total	87	—	—

The high and statistically significant F-value ( $p < 0.001$ ) indicates that the regression model is appropriate and has strong predictive capability.

**Table 8. Coefficients**

Model		Coefficients <sup>a</sup>				t	Sig.
		Unstandarized coefficients		Standardized coefficients			
		B	Std. Error	Beta			
1	(Constant)	32.114	5.422	—		5.92	0.000
	AI-Driven Investment Apps	0.613	0.065	0.712		9.43	0.000

a. Dependen Variable: Financial Decision-Making

The regression coefficient of 0.613 indicates that each one-unit increase in perceived use of AI-based applications is associated with a 0.613-point increase in the quality of financial decision-making. The large t-value (9.43) and high level of significance ( $p < 0.001$ ) confirm the presence of a strong positive effect.

### Summary of Findings

The results of the study indicate that the use of AI-based investment applications has a significant and positive effect on the quality of students' financial decision-making. All prerequisite tests were satisfied, ensuring the validity of the regression model. These findings provide strong empirical evidence that AI technology has the potential to enhance financial literacy and decision-making among younger generations, although its effectiveness remains contingent upon users' understanding and the context of adoption.

### Discussion

The research findings indicate that the use of AI-based investment applications has a positive and significant effect on the quality of students' financial decision-making. This finding reinforces the fundamental assumptions of the Technology Acceptance Model (TAM), particularly its two core constructs: Perceived Usefulness (PU) and Perceived Ease of Use (PEOU) (Fatmawati, 2015a). AI-based investment applications are perceived as assisting students in analyzing trends, predicting risks, and interpreting market data, thereby enhancing perceived usefulness (PU) (Cabero-Almenara et al., 2019). Moreover, user-friendly interfaces and automated features improve perceived ease of use (PEOU), which subsequently influences behavioral intention and actual use (Barhoumi, 2016; Elias et al., 2022; Fatmawati, 2015b). In this context, the ease with which AI-generated recommendations such as risk alerts, auto-profiling, and automated portfolio suggestions can be interpreted has the potential to strengthen the quality of students' financial decisions.

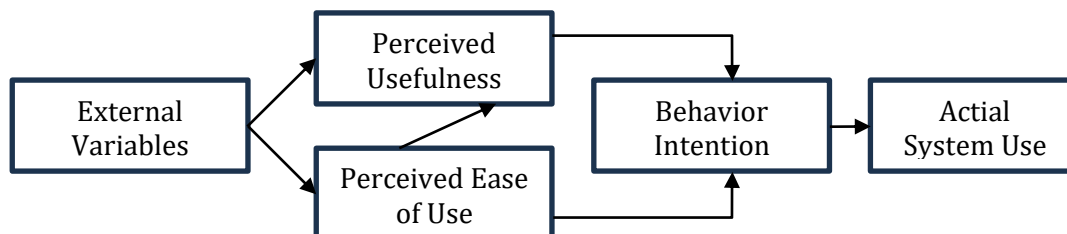
These findings also contribute to the literature on automation bias, which suggests that individuals tend to over-rely on automated systems when the information provided is perceived as accurate and easy to use (Wilhelmina Afua Addy et al., 2024). Nevertheless, the results indicate that improvements in financial decision quality are not solely driven by blind acceptance of automation, but are also associated with users' critical evaluation of information reliability (Oluwafunmilola Oriji et al., 2023). This suggests that students occupy an intermediate position between full trust and healthy skepticism, thereby allowing room for more rational decision-making (Sharp et al., 2022). Thus, AI does not replace human cognitive processes but rather enhances students' evaluative frameworks through the provision of more structured information.



From the perspective of information quality theory, the findings are also consistent with the dimensions of accuracy, timeliness, and relevance (De Ruvo, 2022). AI-based investment applications provide real-time updated data and recommendations derived from statistical analysis and machine learning models (Adler-Milstein et al., 2022). The availability of reliable information contributes significantly to the improvement of decision-making quality (Anil & Misra, 2022). Accordingly, these findings support the argument that information quality is a key determinant of financial decision-making, particularly in the digital era.

Despite these positive outcomes, the study also highlights potential risks that warrant attention. Dependence on AI may lead to excessive cognitive offloading, whereby users fail to sufficiently develop their own financial intuition and reasoning skills (Pandey & Sergeeva, 2022). In the context of higher education, this risk is particularly important, as it may affect students' capacities as future professionals in economics and management. Therefore, this study underscores the need to integrate AI-based digital literacy and financial literacy into higher education curricula to mitigate potential distortions arising from automation bias.

The findings are consistent with previous studies demonstrating that the adoption of financial technology contributes to improved financial capability and decision-making performance (Escobar et al., 2022). However, this study offers new empirical evidence from Southeast Asia, particularly among Indonesian university students a population that remains underexplored in existing research (Hughes et al., 2021). Consequently, this study not only expands the geographical scope of research on AI in finance but also provides insights into how socio-cultural contexts influence technology acceptance.



**Figure 2.** Final Model proposed by Fred Davis and Venkatesh (1996), as cited in (Fatmawati, 2015a).

Overall, this study provides strong evidence that AI-based investment applications are not only well accepted by students but also exert a significant practical impact on their financial decision-making abilities. The integration of the research findings with the Technology Acceptance Model (TAM) clarifies the psychological mechanisms underlying this relationship. Meanwhile, the emphasis on information quality and automation bias adds analytical depth and strengthens the study's relevance to contemporary dynamics in financial technology.

## Conclusion

This study provides clear empirical evidence that the use of artificial intelligence-based investment applications has a positive and significant effect on the quality of students' financial decision-making. The findings indicate that AI technology when used appropriately can enhance young users' evaluative and analytical capabilities in assessing investment options. Nevertheless, the results also emphasize that the effectiveness of AI

recommendations does not automatically replace the need for fundamental financial literacy. Accordingly, AI should be viewed not as a substitute, but as an augmentor of human cognitive processes in financial decision-making.

From a theoretical perspective, this study extends the understanding of the integration between technology and financial behavior by reinforcing perspectives on automation bias, information quality, and technology adoption. Methodologically, this research contributes empirical evidence from a developing-country context, which has been underrepresented in the global literature on financial AI adoption. The findings also reveal that students' responses as a digital-native group are not homogeneous, highlighting the importance of personalized AI recommendations as a key consideration for application developers.

From a practical standpoint, the findings underscore the need for collaboration between educational institutions and application developers to promote the responsible use of AI, including the enhancement of financial literacy, risk awareness, and mechanisms for algorithmic transparency. Governments and regulators should also consider more adaptive oversight frameworks for the use of AI in financial services, given the potential risks of misinformation, algorithmic bias, and excessive reliance on automated recommendations.

Overall, this study affirms that while AI-based investment applications offer significant opportunities to improve the quality of financial decision-making, these benefits can only be fully realized when users possess adequate understanding and when the technology is developed within an ethical, transparent, and accountable framework. Future research is recommended to explore moderating factors such as financial literacy, investment risk, and psychological variables that may strengthen or weaken the influence of AI on individual financial behavior.

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