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ARTIFICIAL INTELLIGENCE AS A GAME-CHANGER IN INVESTMENT DECISIONS: A FINANCIAL LITERACY PERSPECTIVE

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Abstract. *Artificial Intelligence (AI) has a significant impact on human life today. The application of AI in the financial sector indirectly influences investors in their decision-making processes. Based on this phenomenon, this study aims to analyze whether AI can assist individuals in making investment decisions based on their level of financial literacy. Additionally, this research explores how investors can effectively adopt technology particularly AI as applied within the financial field. The study targets members of Indonesia's Generation Z who are already engaged in investing. Out of 300 respondents initially surveyed, 241 valid responses were obtained. The research method employs descriptive analysis, and the hypotheses are tested using the Structural Equation Model (SEM) approach with Partial Least Squares (PLS), facilitated by SmartPLS software. The results indicate that financial literacy significantly influences investment decisions. However, AI does not moderate the relationship within the proposed research model.*

Abstrak. Kecerdasan Buatan (AI) memiliki dampak yang signifikan terhadap kehidupan manusia saat ini. Penerapan AI di sektor keuangan secara tidak langsung memengaruhi investor dalam proses pengambilan keputusan mereka. Berdasarkan fenomena ini, penelitian ini bertujuan untuk menganalisis apakah AI dapat membantu individu dalam membuat keputusan investasi berdasarkan tingkat literasi keuangan mereka. Selain itu, penelitian ini mengeksplorasi bagaimana investor dapat secara efektif mengadopsi teknologi khususnya AI sebagaimana diterapkan dalam bidang keuangan. Studi ini menargetkan anggota Generasi Z Indonesia yang sudah terlibat dalam investasi. Dari 300 responden yang disurvei pada awalnya, diperoleh 241 tanggapan yang valid. Metode penelitian menggunakan analisis deskriptif, dan hipotesis diuji menggunakan pendekatan Structural Equation Model (SEM) dengan Partial Least Squares (PLS), yang difasilitasi oleh perangkat lunak SmartPLS. Hasilnya menunjukkan bahwa literasi keuangan secara signifikan memengaruhi keputusan investasi. Namun, AI tidak memoderasi hubungan dalam model penelitian yang diusulkan.

INTRODUCTION

Technological advancements have transformed various aspects of human life in recent years. As cited from research conducted by (Qatawneh et al., 2024), the continuously evolving financial sector has shifted many previously traditional practices into modern ones. The emergence of *Artificial Intelligence* (AI), especially in the financial sector, has raised awareness about investment opportunities and assisted investors in making more informed investment decisions (Gokoglan & Sevim, 2024). AI can be defined as a computer system capable of learning and adapting based on data or information to enhance perception, knowledge, decision-making, or actions (De La Rosa & Bechler, 2024). Among the most significant innovations, AI has emerged as a tool for investment decision-making. This technology not only processes large volumes of data but also predicts real-time market movements and provides investment recommendations tailored to individual risk profiles.

Artificial Intelligence (AI) technology has been widely implemented across various financial aspects. AI possesses the ability to generate predictions through complex algorithms and to customize services for each user, setting it apart from other digital technologies (Zhu et al., 2024). AI-based financial platforms that offer robo-advisors can simplify the process of making investment decisions, reducing reliance on human advisors. According to a report by (Celestin, 2024), more than 78% of major asset management firms have integrated AI into their investment strategies. Furthermore, AI is also used to provide personalized financial recommendations based on individual risk profiles, improve access to information, and optimize portfolio management. (Fatima & Chakraborty, 2024)

However, the adoption of this advanced technology has not been accompanied evenly by the public's ability to understand it. Global financial literacy levels remain low, particularly in developing countries. (Kulkarni et al., 2025) This indicates that individuals with low financial literacy tend to misinterpret investment advice provided by AI systems, which can lead to unfavorable decisions. This issue underscores the urgency of discussing the integration of AI with financial education. Investment decisions are closely tied to an individual's level of financial literacy. Financial literacy refers to the ability to understand and apply financial concepts in order to make skilled investment decisions. (Ullah et al., 2024) In making sound investment decisions, investors fundamentally need to plan their investments carefully. This indirectly shows that an individual's level of financial literacy can facilitate more mature and thoughtful decision-making.

AI has the potential to act as a moderator in the relationship between financial literacy and investment decisions. Individuals with low financial literacy can leverage AI to gain better insights into investment instruments, reduce the risk of errors, and improve their investment choices. On the other hand, for individuals with high financial literacy, AI can serve as a tool that enhances analytical capabilities and accelerates decision-making. AI has the potential to significantly improve investment decision-making for individual investors. Robo-advisors, which utilize AI algorithms, are increasingly replacing traditional financial services in wealth management, offering personalized portfolio management based on investor behavior and

preferences. (Shanmuganathan, 2020) However, AI technology acts as an intermediary that bridges information gaps.

Although financial literacy is recognized as one of the key factors in investment decision-making, data released by Indonesian financial institutions shows that the level of knowledge and understanding regarding investment instruments remains relatively low. (OJK & BPS, 2024) On the other hand, while AI technology is becoming increasingly prevalent in the financial sector, its adoption by the general public is still not optimal. This phenomenon creates a gap between the potential of the technology and its ability to enhance individual investment decisions. Therefore, it is highly relevant to further explore how AI can strengthen the relationship between financial literacy and investment decision-making.

The main objective of this research is to analyze the role of AI in the investment decision-making process from the perspective of financial literacy, as well as to provide a framework that supports the integration of financial education into AI systems for investing. This study will also assess the extent to which financial literacy influences the effectiveness of AI in facilitating rational decision-making.

There is a significant gap in the existing research: while many studies focus on the technical performance of AI in investment contexts, few explore its impact on investor behavior across varying levels of financial literacy. This paper aims to address this gap by highlighting the importance of a multidisciplinary approach that integrates technology with financial education. As found in the study conducted by (Zhang & Sidik, 2024) was carried out in China, where the adoption of Artificial Intelligence is significantly higher compared to Indonesia. According to the findings of their research, the level of financial literacy plays a crucial role in investment decision-making, particularly in relation to an individual's risk profile. With the assistance of AI, investors who possess high financial understanding can make more informed investment choices. It is important to note, however, that not everyone can utilize AI technology effectively. Therefore, proper training on how to use AI tools is necessary. (Gokoglan & Sevim, 2024) Based on these insights, the hypotheses of this research are as follows.

H1: Financial Literacy Influences Investment Decision

Financial literacy refers to an individual's ability to understand and apply financial concepts and skills to make sound investment decisions.(Giesler & Veresiu, 2014) In making investment decisions based on financial understanding, investors also need to be aware of their own risk profiles when selecting investment products (Junianto et al., 2020) Therefore, improving financial literacy not only enhances understanding of investment options but also helps reduce risks and increase potential long-term returns.

H2: Artificial Intelligence Moderates the Effect of Financial Literacy on Investment Decisions

Artificial Intelligence (AI) can assist investors in maximizing their investment decisions, especially when they possess a certain level of financial literacy. According to research by (Zhang & Sidik, 2024) AI systems are capable of processing data, identifying patterns, and

making predictions, thereby providing valuable insights to investors. AI also could improves the ability of finance professionals in making decisions, detecting fraud, and managing risks. It also helps people with low financial literacy to still make smart investment choices through prediction-based recommendation systems. (Hussain et al., 2025) This supports the idea that AI can act as a buffer for the limitations of financial literacy. It also means, AI technology acts as an intermediary that helps bridge information gaps.
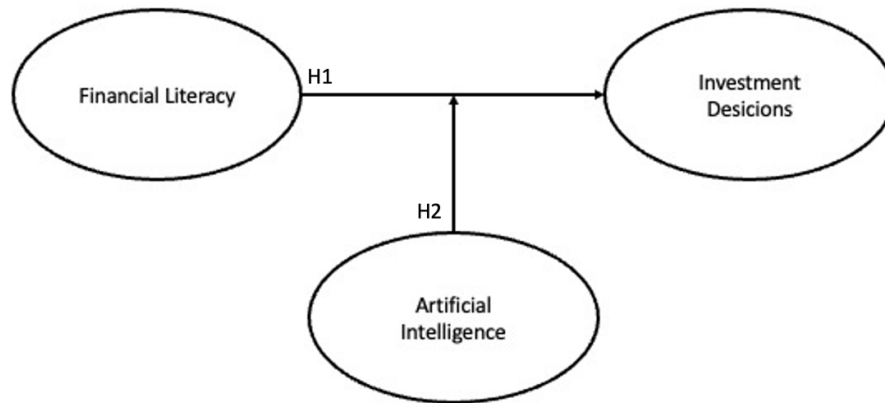

Figure 1: Framework

Methods

This research employs a quantitative method with a descriptive approach to test the hypotheses. To collect primary data, the researcher uses a survey distributed via Google Forms, containing a structured questionnaire based on the variables under study, measured using a Likert scale. According to (Gozhali, 2011), when analyzing one or more variables, the Structural Equation Model (SEM) with the Partial Least Squares (PLS) approach is used for data analysis. The analysis is conducted with the help of SmartPLS software. The research instrument consists of a questionnaire distributed through the Google Forms platform. The population and sample were determined using the theory proposed by (Hair et al., 2014), which suggests that a sample size of 150 to 300 respondents is recommended for research of this nature. To select the sample, the purposive sampling method was employed, whereby participants are chosen based on specific criteria that align with the research objectives (Jailani et al., 2023). In this study, the target sample consists of individuals across Indonesia who belong to Generation Z, have invested at least once, and are familiar with or have experience using AI-based tools such as robo-advisors, chatbots, or AI analytics in a financial contex

Result And Discussion

This study successfully collected data from 241 respondents aged between 17 and 23 years old, in line with the criteria for respondents, namely, Indonesian members of Generation Z. The demographic details are presented in the following table.

Table 1: Demographics of Respondents

Deskripsi	Profile	n	%
Gender	Male	68	28%
	Female	172	68%
Profession	Pelajar (SMA)	33	14%
	Mahasiswa	161	67%
	Karyawan	24	14%
	Wirausaha	12	5%
Income	< Rp 4.500.000	225	94%
	Rp 4.500.000 – Rp 10.000.000	15	6%
	> Rp 10.000.000	0	0%
Expenses	< Rp 4.500.000	229	95%
	Rp 4.500.000 – Rp 10.000.000	11	5%
	> Rp 10.000.000	0	0%

As shown in Table 1 above, the majority of respondents were female, with 172 respondents (68%), while male respondents numbered 68 (28%). Most of the respondents were students, 161 individuals or 67%, while the rest were high school students, employees, and entrepreneurs. Since the majority were students, their income and expenses generally followed the regional minimum wage in Indonesia, with 225 respondents (94%) earning less than IDR 4,500,000. The remaining respondents had an income between IDR 4,500,000 and IDR 10,000,000. In terms of average monthly expenditure, 229 respondents (95%) spent less than IDR 4,500,000.

Table 2: Descriptive Statistics Results

Variable	Item	Mean	Std. Deviasi
Financial Literacy	FL1	4.629	0,541
	FL2	3.137	1,217
	FL3	4.641	0,597
	FL4	4,083	0,813
	FL5	2,920	1,141
	FL6	3,483	1,018
	FL7	4,258	0,781
	FL8	2,970	1,154
	FL9	3,904	0,952
	FL10	3,066	1,255
Investment Decision	ID1	4,125	0,808

	ID2	4,162	0,756
	ID3	2,562	1,008
	ID4	3,954	0,824
	ID5	3,995	0,805
	ID6	3,937	0,813
	ID7	2,504	1,062
	ID8	4,208	0,736
	ID9	2,408	1,043
	ID10	3,775	0,867
Artificial Intelligence	AI1	4,025	0,822
	AI2	4,075	0,874
	AI3	2,725	0,980
	AI4	3,604	0,880
	AI5	3,791	0,827
	AI6	3,045	1,036
	AI7	4,029	0,778
	AI8	3,941	0,740
	AI9	2,866	1,050
	AI10	3,920	0,774

Based on the table above, the indicator with the highest mean score for the Financial Literacy variable is FL3, with a value of 4.641. For the Investment Decision variable, the highest mean score is found in item ID8 (4.208), and for the Artificial Intelligence variable, it is item AI2 (4.075). This indicates that, on average, respondents agreed with the statements related to these indicators. The standard deviation (Std. Deviation) shows how far the data points are spread from the mean. A standard deviation value closer to zero indicates that the data is more homogeneous. As shown in Table 2, the lowest standard deviation for the Financial Literacy variable is 0.54, while for Investment Decision it is 0.736, and for Artificial Intelligence it is 0.740. These values suggest that the responses within each variable are relatively consistent and homogenous.

Table 3: Outer Model Results

Variable	Item	Outer Loading	AVE
Financial Literacy	FL4	0.733	0,523
	FL6	0.748	
	FL7	0.673	
	FL9	0.736	
Investment Decision	ID2	0.670	0.545
	ID4	0.815	
	ID5	0.821	
	ID7	0.733	
	ID8	0.705	
	ID10	0.667	
Artificial Intelligence	AI1	0.661	0.524
	AI5	0.683	
	AI7	0.733	
	AI0	0.750	

The outer model test is used to assess whether the indicators are valid and reliable in measuring the underlying constructs. An indicator is considered valid based on the results of the outer loading test, which shows that the indicator has a strong correlation with its construct. Validity is confirmed if the indicator meets the criteria of an Average Variance Extracted (AVE) value ≥ 0.5 and a loading factor ≥ 0.7. It should be noted that some indicators had values within the range of ≥ 0.6 to ≤ 0.69. These indicators may still be retained if the AVE remains at or above 0.5. During the testing process, some data items were removed due to insufficient validity. As a result, the final measurement model included 3 items for the Financial Literacy (FL) variable, 6 items for the Investment Decision (ID) variable, and 4 items for the Artificial Intelligence (AI) variable.

Next, a reliability test was conducted to ensure that the indicators consistently and accurately measure their respective constructs. For the results to be considered reliable, Cronbach's Alpha should reach a value of ≥ 0.6, and Composite Reliability should be ≥ 0.7.

Table 4: Cronbach's Alpha and Composite Reliability

Variable	Cronbach's Alpha	Composite Reliability
Financial Literacy	0.695	0.846
Investment Decision	0.773	0.814
Artificial Intelligence	0.773	0.877

Cronbach's Alpha is a reliability test used to measure the internal consistency of a construct, indicating whether the statements within it produce consistent results. On the other hand, Composite Reliability (CR) is used to evaluate how well the indicators represent their respective construct. Based on the results shown in the table above, it can be seen that the Cronbach's Alpha values for all indicators are above ≥ 0.6, and the Composite Reliability values are above ≥ 0.7. This indicates that all indicators are valid and capable of measuring their constructs accurately and consistently.

Table 5: Hypothesis Test

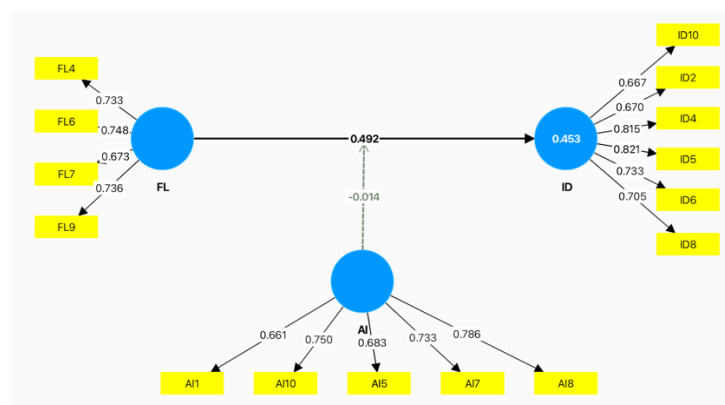| Hipotesis	Statement	T Value	P value	Decision
H1	Financial Literacy has a significant effect on Investment Decision	9.855	0.000	Accepted
H2	Artificial Intelligence can significantly moderate the relationship between Financial Literacy and Investment Decision	0.343	0.731	Not Accepted

Figure 2: Path Coefficients

Table 6: R-Squared Results

Variable	R sq
Finansial Literacy	
Investment Decision	0.453
Artificial Intelligence	

Based on Table 6, the Investment Decision variable has an R-square value of 0.453 , which means that 45.3% of its variability can be explained by the independent variables included in the model. The remaining 54.7% is influenced by other external factors not accounted for in the model.

Table 7: F-Squared Results

Variable	F sq		
	FL	ID	AI
Finansial Literacy		0.370	
Investment Decision			
Artificial Intelligence		0.139	

The F-Square test is conducted to assess the effect size of the independent variables on the dependent variable. Based on the results shown in Table 7, the F-Square value for the Financial Literacy variable is 0.370, indicating that it has a large effect on Investment Decision, as the value is $\geq$ 0.35. In contrast, the AI variable has an F-Square value of 0.139, which suggests a small effect, as it does not meet the threshold of $\geq$ 0.15.

Table 8: Q-Squared Results

Variable	Q sq
Finansial Literacy	
Investment Decision	0.238
Artificial Intelligence	

According to the results of the Q-Square test, which yielded a value of 0.238, it can be concluded that the model has predictive relevance for the endogenous variable, as the value is greater than zero ($\geq$ 0).

Based on the hypothesis testing results presented in Table 5, it can be seen that Financial Literacy has a significant influence on Investment Decision. This suggests that individuals with a higher level of financial literacy, including strong financial understanding and awareness of investment risks, are more capable of managing risk and therefore tend to make wiser investment decisions. This finding is supported by previous research, in which the author emphasized that financial knowledge plays a crucial role in determining an individual's level of financial literacy and their ability to make sound financial decisions. (Rahardjo, 2023). This study also yields similar findings, showing that Financial Literacy has a positive influence on investment decisions, which aligns with the research conducted by (Baihaqqy et al., 2020). In this context, financial literacy serves as a benchmark for how investors understand and assess credible information when making decisions based on their financial risk profiles.

In this study, Artificial Intelligence (AI) plays the role of a moderator by assisting investors in their decision-making processes. According to research conducted by (Rehman et al., 2024), AI can serve as a tool that helps investors make decisions free from cognitive biases and emotional influences. Another finding highlights that big data and AI can contribute to improved investment behavior. By leveraging these technologies, investors can reduce the risks associated with their investment decisions (Zhang & Sidik, 2024). The application of AI technologies such as ChatGPT can also assist investors in analyzing financial data and market trends. As stated in the research by (Ullah et al., 2024) overall, ChatGPT is a useful tool in supporting investment decisions; however, it should be accompanied by a solid understanding of financial concepts to achieve optimal results.

CONCLUSION

This study aims to analyze whether an individual's level of financial literacy in making investment decisions can be supported by AI. The results show that H1 is accepted, Financial Literacy significantly influences Investment Decision, reinforcing previous studies that emphasize the importance of financial understanding in shaping rational and responsible investment behavior. Investors with higher levels of financial literacy tend to be more capable of managing risks, evaluating investment alternatives, and making decisions aligned with their long-term financial goals. In contrast, the results of H2 are not statistically significant, indicating that AI does not effectively moderate the relationship between Financial Literacy and Investment Decisions. This suggests that AI's ability to support investment decision-making is not strong enough to overcome users' limitations in financial understanding, particularly for those with low financial literacy. In other words, the effectiveness of AI still largely depends on the user's foundational financial knowledge.

It should be noted that there are still limitations in this study that warrant attention for future development. For instance, the sample distribution remains limited to investors with relatively new investment experience. Therefore, further research should involve a more in-depth distribution targeting samples with longer investment experience. The AI variable in this study is still measured based on users' understanding. Hence, future studies may employ objective measurements of AI system performance, such as prediction accuracy, recommendation quality, and the impact on investment outcomes.

REFERENCES

Celestin, M. (2024). *Predictive Accounting And Real-Time Financial Reporting: A Case Study Of Ai Implementation In Ghana Smes*. www.dvpublication.com

De La Rosa, W., & Bechler, C. J. (2024). Unveiling the adverse effects of artificial intelligence on financial decisions via the AI-IMPACT model. In *Current Opinion in Psychology* (Vol. 58). Elsevier B.V. https://doi.org/10.1016/j.copsyc.2024.101843

Fatima, S., & Chakraborty, M. (2024). Adoption of artificial intelligence in financial services: The case of robo-advisors in India. *IIMB Management Review*, *36*(2), 113–125. https://doi.org/10.1016/j.iimb.2024.04.002

Giesler, M., & Veresiu, E. (2014). Creating the responsible consumer: Moralistic governance regimes and consumer subjectivity. *Journal of Consumer Research*, *41*(3), 840–857. https://doi.org/10.1086/677842

Gokoglan, K., & Sevim, H. (2024). The Impact Of Artificial Intelligence Recommendations On Individual Investor Decisions. *Pressacademia*. https://doi.org/10.17261/pressacademia.2024.1897

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2014). *Multivariate Data Analysis* (Seventh).

Hussain, H., Ramzan, F., Khan, A. H., & Khan, S. (2025). Examining the Role of AI in Detecting Fraudulent Activities, Managing Financial Risks, and Enhancing Decision-making in Investment Strategies. *Review of Applied Management and Social Sciences*, *8*(1), 207–221. https://doi.org/10.47067/ramss.v8i1.450

Junianto, Y., Kohardinata, C., Silaswara, D., & Id, D. S. A. (2020). *Financial Literacy Effect and Fintech in Investment Decision Making* (Vol. 18, Issue 3). www.kontan.co.id

Kulkarni, A. S., Gaikwad, R., Zad, P., Lahane, S., & Shelke, S. (2025). AI for Personalized Financial Assistance: Review of Recent Trends, Algorithms and Datasets. In *International Conference in Emerging Trends in Computer Science* (pp. 15–23). Scientific Explore Publications. https://doi.org/10.34293/ICETCS2024.ch002

Mojambo, G. A., Tulung, J. E., & Saerang, R. T. (2020). The Influence of Top Management Team (TMT) Characteristics Toward Indonesian Banks Financial Performance During the Digital Era (2014-2018). *JMBI UNSRAT (Jurnal Ilmiah Manajemen Bisnis dan Inovasi Universitas Sam Ratulangi).*, *7*(1).

OJK, & BPS. (2024). *Survei Nasional Literasi dan Inklusi Keuangan (SNLIK) 2024*. https://ojk.go.id/id/berita-dan-kegiatan/publikasi/Documents/Pages/Survei-Nasional-Literasi-dan-Inklusi-Keuangan-(SNLIK)-2024/Survei%20Nasional%20Literasi%20dan%20Inklusi%20Keuangan%20(SNLIK)%202024.pdf#page=5.08

Pandiangan, P., & Martini, I. A. O. (2021). Digital Marketing Strategy of Property Agents in The

New Normal Era. *JMBI UNSRAT (Jurnal Ilmiah Manajemen Bisnis dan Inovasi Universitas Sam Ratulangi).*, *7*(3).

Qatawneh, A. M., Lutfi, A., & Al Barrak, T. (2024). Effect of Artificial Intelligence (AI) on Financial Decision-Making: Mediating Role of Financial Technologies (Fin-Tech). *HighTech and Innovation Journal*, *5*(3), 759–773. https://doi.org/10.28991/HIJ-2024-05-03-015

Rahardjo, J. C. (2023). *The Effect Of Financial Literacy On The Financial Decisions Of Investment Applications Users*.

Rehman, M., Dhiman, B., & Cheema, G. S. (2024). Minds and Machines: Impact of Emotional Intelligence on Investment Decisions with Mediating the Role of Artificial Intelligence. *International Journal of Engineering, Business and Management (IJEBM)*, *8*(1), 2456–7817. https://doi.org/10.22161/ijebm.8.1

Rizaldy Insan Baihaqqy, M., Sari, M., & Ikhsan, S. (2020). The Effect of Financial Literacy on the Investment Decision. *Budapest International Research and Critics Institute-Journal (BIRCI-Journal)*. https://doi.org/10.33258/birci.v3i4.1333

Sila, I. K., & Martini, I. A. (2020). Transformation and revitalization of service quality in the digital era of revolutionary disruption 4.0. *JMBI UNSRAT (Jurnal Ilmiah Manajemen Bisnis dan Inovasi Universitas Sam Ratulangi).*, *7*(1).

Shanmuganathan, M. (2020). Behavioural finance in an era of artificial intelligence: Longitudinal case study of robo-advisors in investment decisions. *Journal of Behavioral and Experimental Finance*, *27*, 100297. https://doi.org/10.1016/J.JBEF.2020.100297

Ullah, R., Ismail, H. Bin, Islam Khan, M. T., & Zeb, A. (2024). Nexus between Chat GPT usage dimensions and investment decisions making in Pakistan: Moderating role of financial literacy. *Technology in Society*, *76*. https://doi.org/10.1016/j.techsoc.2024.102454

Zhang, R., & Sidik, M. H. J. (2024). Big Data, Artificial Intelligence, and Financial Literacy: Exploring their Combined Influence on Investment Behavior among Chinese Household. *Journal of Information Systems Engineering and Management*, *9*(1). https://doi.org/10.55267/iadt.07.14651

Zhu, H., Vigren, O., & Söderberg, I. L. (2024). Implementing artificial intelligence empowered financial advisory services: A literature review and critical research agenda. *Journal of Business Research*, *174*, 114494. https://doi.org/10.1016/J.JBUSRES.2023.114494