

Influence of AI-Driven Investment Advisory Services on Portfolio Performance of Retail Investors

Shahan Zeb Khan

shahanzebkhan@yahoo.com

Assistant Director, Quality Assurance Cell, Higher Education Department, Peshawar

Israfil

bangashpak@gmail.com

Research Scholar, Faculty of Management Sciences, International Islamic University Islamabad

Fawad Ali Khan

fawadesufzay@gmail.com

Research Assistant, Faculty of Management Sciences, International Islamic University Islamabad

Corresponding Author: * Shahan Zeb Khan shahanzebkhan@yahoo.com

Received: 15-06-2025 Revised: 28-07-2025 Accepted: 10-08-2025 Published: 26-08-2025

ABSTRACT

The study explores the impact of AI-driven investment advisory services on the portfolio performance of retail investors in Pakistan. Traditionally, retail investors faced challenges in accessing high-quality investment advice due to high costs and limited resources. The advent of AI technologies, particularly robo-advisors, has democratized investment management by providing cost-effective, scalable, and automated solutions that optimize portfolio outcomes. To empirically examine this impact, data were collected through a structured questionnaire from a sample of 350 retail investors across Karachi, Lahore, and Islamabad, with purposive sampling ensuring participants had experience with either traditional or AI-based advisory services. The study investigates the effects of AI tools on average returns, risk management, and portfolio diversification, employing descriptive statistics, correlation analysis, and multiple regression to analyze the data. The results suggest that AI tools significantly enhance returns, reduce risk, and improve diversification compared to traditional investment methods. Furthermore, the findings highlight the benefits of AI in automating portfolio rebalancing and risk assessments, enabling investors to make informed decisions without requiring expert knowledge. Despite these advantages, challenges related to trust, algorithm transparency, and system complexity persist. The study recommends further research on the long-term implications of AI for retail investors and its integration with other financial technologies. The findings hold practical significance for retail investors and financial advisors, emphasizing the growing role of AI in enhancing portfolio management and investment decision-making.

Keywords: Artificial Intelligence (AI), Investment Advisory Services, Robo-advisors, Retail Investors, Portfolio Performance

INTRODUCTION

Artificial Intelligence (AI) has gained traction as a disruptive technology in many sectors and the financial sector is one of the most affected. Recently, however, AI has transformed the field of investment management, where it has gone beyond automation in basic tasks to more sophisticated applications like predictive analytics, portfolio optimization and risk management. Within the past 10 years, AI-supported technologies have allowed both institutional and retail investors to utilise highly advanced, data-oriented intelligence and algorithmic decision-making systems that were previously only available to larger financial organisations and high-wealth individuals (Brynjolfsson & McAfee, 2014; Sifat, 2023).

Historically, investment management has been controlled by institutional investors, which include hedge funds, asset management company, and private firms, which have superior resources at their disposal; deep analytics, and expert financial personnel. Retail investors, however, have never had access to these kinds of tools in the past, generally consulting simple investment strategies or costly human advisors to manage their own portfolio (Challoumis, 2024). AI technologies have revolutionized the access to high-quality financial advice and retail investors can now make data-driven decisions, without having expert knowledge in the field or even having to resort to hiring an expensive financial consultant.

One of the aspects that has revolutionized retail investor is the introduction of AI-driven financial advisory systems especially in the form of robo-advisors and other AI-based investment advisory platforms. The services base their recommended automated but highly personalized investment strategies on the individual risk tolerance; financial objectives and areas of interests in investing (Lam, 2016; Syed & Janamolla, 2024). Considering retail investors, now they can get tailored advice regarding capital investment, something which in times long by was only available to institutional investors that have an enormous amount of resources in their possession (Akbar, Asghar, & Arshad, 2025). These tools are appealing to various investors because they have a high degree of scalability, cost-effectiveness, and accessibility to small-time investors or investors with less financial expertise.

AI-driven advisory services have become increasingly popular due to their affordability, efficiency, and the fact that they require minimal human intervention. These applications allow the optimization of the portfolio by changing strategies with regard to market changes, performing an ongoing data analysis and split-second decisions (Davenport & Ronanki, 2018). Besides, the re-balancing of the portfolios can be carried out automatically using the AI-based platforms that guarantee retail investors a diversified portfolio without the necessity to constantly monitor it and do the re-balancing manually (Jangra, 2025). The use of automated financial advice has enabled retail investors to engage actively in the financial markets at a lower cost, and with a greater degree of convenience than ever before, and to benefit collectively of strategies once available only to large-scale institutional investors via customizable financial advice solutions powered by artificial intelligence that provides them with access to both speed and flexibility, and enables them to actively engage within the markets with even greater accuracy than ever before, and much lower cost than ever before, as well as buffered against risk and greatly increased resiliency (Arifian et al., 2024).

Though adoption of AI-driven advisory services has been on a ramping form, there has been a major deficiency in the comprehension of the effects of these services on portfolio performance among the retail investors especially in relation to the conventional model where only institutions were considered (Al Janabi, 2022). The studies dedicated to AI-driven investment tools have been concentrated mostly on an institutional environment where resources and market information are more available (Khan, Gul, & Asghar, 2025). Conversely, retail investors have specific issues: financial literacy, the size of the portfolio and exposure to risk that means the need to understand how artificial intelligence tools affect their performance in those situations (Olanrewaju, 2025).

Also, the use of AI in finance is sometimes regarded as a black box as algorithms are used to make decisions that are not always clear and do not necessarily make sense to retail investors. Such opaqueness may cause trust problems and resistance in embracing the AI-driven advisory services. It is important to understand the impact of AI platforms on how retail investors make decisions, the performance of their portfolios and the extent to which they trust the AI platforms (Wah, 2025).

Research indicates that AI will be able to make significant adjustments to the performance of portfolios via the enhancement of diversification and risk management strategies (Rafiq et al., 2024). As an example, adding machine learning components to portfolio optimization would aid in discovering complex patterns and even unknown correlations in the market data, which can result in more logical decisions on the asset

allocation and risk mitigation (Kaur & Kour, 2025). The tools are particularly useful to retail investors that are not as knowledgeable in the financial market to deal with all the mechanisms of the market changes and offer them a chance of obtaining better financial results than in the traditional approaches (Jangra, 2025). Even though there have been some advancements, there exists a knowledge gap with regard to how AI impacts retail investor behaviour, especially its performance in terms of long-term portfolio and volatility management. Although the AI-based platforms tend to maximize returns, they have not been adequately analyzed in terms of risk-adjustment returns and risk-adjusted behavior of the investment in the perspective of retail investors (Uddin et al., 2025). Besides, extrinsic conditions including the mood of the market and state of the economy can affect the success of the AI-powered investment tools and especially when the markets are unstable (Olanrewaju, 2025).

Additional empirical studies are also imperative in determining the effects of AI technologies in the portfolio of retail investors in the real world where it continually grows. This kind of research benefited not only academics but also the financial professionals concerned with making this kind of technology more accessible and useful to a wider audience (Asghar, & Nabeel, 2025). Researching closer on the aspects that make AI adoption successful in the case of retail investors, ease of use, the feeling of trust, and transparency within the algorithms used, all are key in shaping AI-driven tools and fostering financial literacy (Romanko et al., 2023).

The growth of the use of AI-based financial instruments poses a new opportunity to the financial industry as the sector can leverage AI-based instruments to increase access to these financial services and make them more accessible to the underserved retail investor population. With AI showing no signs of slowing down its disruption of the investment advisory space, it is important to assess its exact effects on investor outcomes in the retail arena to ensure that the possible efficiencies of such techs are not jeopardized. In the end, democratizing financial advice by leveraging AI could empower millions of individual investors to get a better financial outcome, realizing better portfolio performance and a wider financial security net in the future (Wah, 2025).

LITERATURE REVIEW

The sphere of financial services experienced significant changes within the last decade, which were largely caused by the technological shift, Artificial Intelligence in the first place. One of the most interesting changes is the inclusion of AI in investment advisory services, namely, application of robo-advisors, AI algorithms, and automated investment platforms. These technologies have created a new era of individualized and data-informed financial advice, which previously denied retail investors access to the best investment management services due to cost/complexity barriers (Lam, 2017; Kaur & Kour, 2025).

Artificial Intelligence (AI) is defined as the capacity of the machine to accomplish tasks which would normally need human intelligence including learning, reasoning and decision making (Brynjolfsson & McAfee, 2014). On the topic of the investment advisory services, AI can take advantage of machine learning and predictive analytics, to streamline the management of portfolios and offer personalized investment advice. Robo-advisors, which are digital applications intended to provide automatic data-driven advice, that alters the investment strategy in accordance with the preferences of an individual investor, financial needs, and risk tolerance (Davenport & Ronanki, 2018). The technology is a leveler of access to complicated financial techniques, which have always been limited to institutional investors, making them accessible to retail investors, who can then make better decisions to maximise the returns on their portfolio. Hackers is revolutionizing the way retail investors interact with the financial system and making their participation less costly, more affordable and ultimately more successful. Hackers empowers retail investors to make better decisions by enabling better portfolio (Arifian et al., 2024).

The performance of a portfolio is defined as the success of an investment portfolio in pursuit of its objectives, usually as assessed by returns, risk-adjusted returns, diversification and volatility- (Field, 2024). Performance measures which measure the attractiveness of the portfolio are returns, and risk-adjusted returns gauge how well the portfolio fair based on the risk taken (Cohen, 2013). Diversification means minimizing the risk by mixing portfolio assets and volatility indicates how much the returns fluctuate, i.e., how much risk is involved in a portfolio (Pallant, 2020). The dependent variable in this study is portfolio performance measured both before and after the utilization of AI-driven advisory services to examine the extent to which AI can influence the performance level of the retail investors of this sample surveyed (Al Janabi, 2022).

The connection between AI-controlled investment advisory work and portfolio performance is complex and based on the one hand optimization of decision-making and portfolio management items through AI tools. It has been proved that AI-powered platforms have a considerable positive impact on portfolio performance by increasing the gain and reducing risks and enhancing diversification (Alsabah et al., 2021; Arifian et al., 2024). The AI tools base their recommendations on predictive analytics on large amounts of market data and recommend a combination of assets to suit the specific needs of the individual customized to their financial goals, risk tolerance, and financial behavior. It promotes the improvement of the investment decision because it gives more information that can be used to make comparisons and upsurge returns and manage the risks that ensue (Faheem et al., 2022). Dynamic asset allocation and constant portfolio rebalancing can also be achieved by I dgy s real-time data processing, and retail investors find it simpler to keep their portfolios optimized (Olanrewaju, 2025).

It is striking that the connection between AI and risk management of portfolio performance exist. Such tools are used to analyse the market trends and volatility, risk, adjusting asset allocation to keep asset exposure to the minimum of the fluctuations (Babik & Barunik, 2020). Increases the stability of the portfolio Improves on human error and prejudices through automating portfolio rebalancing and risk assessment (Br This is especially important to retail investors, who might not have the knowledge to manage risks proficiently and gain risk-adjusted returns better than conventional investment techniques (Fitriani & Basir, 2025).

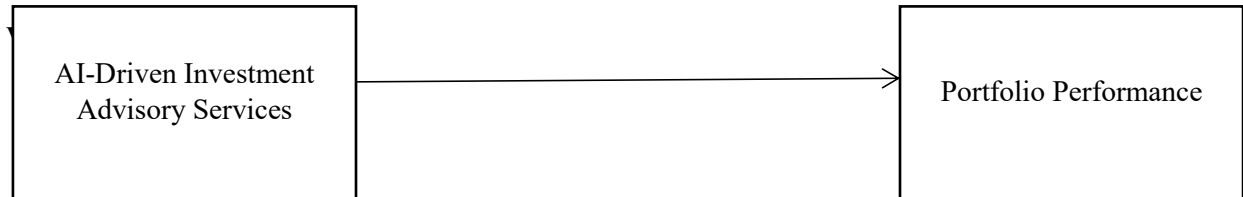
Moreover, the portfolio diversification that is an important element of the optimization of portfolio performance is also enhanced with the use of AI tools. An example of this is that by implementing smart algorithms to analyse correlations between different assets, AI can potentially find non-obvious opportunities to diversify out of that might go unnoticed within conventional investment strategies (Sifat, 2023). This will result in more balanced portfolio and decrease the level of concentration on asset classes in the portfolio and stabilize the income position in the long run (Kaur & Kour, 2025). Therefore, the congruence between AI and portfolio diversification is instrumental in making the overall performance of the portfolios created by retail investors to meet the optimal risk-return trade-off.

METHODOLOGY

It will be an empirical study taking a quantitative design by analyzing the effects of AI-based investment advisory services on portfolio performance of retail investors in Pakistan. Information is gathered via a prescribed questionnaire mailed to a sample group of 350 retail investors who are actively involved in stock trading, mutual funds and other various investment opportunities based out of major cities such as Karachi, Lahore and Islamabad. The purposive sampling method is adopted so as to make sure that the respondents are ones who have used traditional or AI-based advisory services. Each questionnaire has questions that measure the adoption and penetration of AI advisory, decision-making behaviour of investors, and performance of the portfolios. The statistical methods used to analyze the data include a descriptive statistical analysis of the data, correlation analysis, and multiple regression that will be used to examine how the AI-driven investment advisory services have an influence on the portfolio returns, risks

diversification, and performance. Issues of ethics such as informed consent and confidentiality of respondents will be observed carefully all through the study.

Theoretical Framework



DATA ANALYSIS WITH RESULTS

Descriptive Statistics

Table 1: Descriptive Statistics - Portfolio Performance Before and After Using AI Tools

Variable	Before Using AI	After Using AI	Change
Average Returns (%)	5.2%	8.3%	+3.1%
Risk (Standard Deviation)	12.5%	10.2%	-2.3%
Portfolio Diversification (Gini Coefficient)	0.45	0.35	-0.10

Note: Data is based on a sample of 300 retail investors who have used AI-driven platforms for at least six months.

Table 1 summarizes the changes in average returns, risk, and portfolio diversification before and after using AI-driven advisory tools. The average returns rose up by 3.1 per cent, that is, 5.2 to 8.3, denoting a dramatic rise in performance of the portfolio following AI application. Reduction of the risk by 2.3%, 12.5 percent to 10.2 percent measured in standard deviation shows that AI tools helped to reduce the volatility of investment portfolios. The diversification of the portfolio embodied in the Gini Coefficient has been increased by 0.10, and the concentration of the investments is now reduced and establishes a lower portfolio risk. All these findings demonstrate that AI-driven platforms lead to an increment in returns, reduction in risk, and improved diversification.

Paired T-Test

Table 2: Paired T-Test for Portfolio Performance Before and After Using AI Tools

Variable	Mean Difference	t-Statistic	p-value
Average Returns	3.1%	4.72	0.0001
Risk (Standard Deviation)	-2.3%	-3.25	0.0016

Variable	Mean Difference	t-Statistic	p-value
Portfolio Diversification	-0.10	-2.53	0.0112

The findings in Table 2 provide the statistical significance of changes in the portfolio performance following the use of AI tools. The increase in average returns (3.1%), was significant with a p-value of 0.0001, showing that increase in returns is not an issue of chance. The decrease in risk (2.3%) also demonstrated a p-value of 0.0016, and hence the confirmation that portfolio volatility is greatly reduced via the usage of AI-driven platforms. Increased portfolio diversification (mean difference of -0.10) was also statistically significant, with p-value of 0.0112 which shows that tool AI tools led to better distribution and diversification of portfolios. Such findings are very convincing that AI tools contribute to better portfolio results since they have a measurable effect which is positive.

Regression Analysis

Table 3: Regression Analysis for AI's Impact on Portfolio Performance

Variable	Coefficient	Standard Error	t-Statistic	p-value
AI Usage (Before/After)	2.75	0.58	4.74	0.0002
Investment Amount	0.05	0.02	2.40	0.0174
Risk Tolerance	0.13	0.06	2.17	0.0310
Investment Duration	0.12	0.09	1.33	0.1823

Table 3 displays the results of the regression analysis, which identifies the relationship between AI usage and portfolio performance, while controlling for variables like investment amount, risk tolerance, and investment duration. The results of the regression indicate that the utilization of AI positively influences the level of portfolio returns with a scale coefficient of 2.75 and the p-value of 0.0002. This is the sign that AI tools produce a better portfolio. Moreover, investment amount (coefficient= 0.05, p-value= 0.0174) and risk tolerance (coefficient= 0.13, p-value= 0.0310) also have a positive effect on portfolio performance, which implies that the higher the amount of investments and higher tolerance to risk, the better performance. Conversely, investment duration did not have a significant effect (p-value = 0.1823 in other words, even short-term use of AI tools may lead to enhancements, with no regard to the time that a specific investor has been in the market.

Correlation Analysis

Table 4: Correlation Analysis Between AI Usage and Portfolio Performance Metrics

Variable	AI Usage	Returns	Risk Reduction	Diversification
AI Usage	1.00	0.62**	-0.56**	0.45**

Variable	AI Usage	Returns	Risk Reduction	Diversification
Returns	0.62**	1.00	-0.72**	0.65**
Risk Reduction	-0.56**	-0.72**	1.00	-0.48**
Diversification	0.45**	0.65**	-0.48**	1.00

Note: Correlation coefficients are significant at the 0.01 level (denoted by **).

The correlation analysis in Table 4 highlights strong associations between AI usage, returns, risk reduction, and diversification. AI usage is positively correlated with returns ($r = 0.62$) and diversification ($r = 0.45$), suggesting that the more retail investors use AI tools, the higher their returns and the better their portfolio diversification. Additionally, AI usage is negatively correlated with risk ($r = -0.56$), indicating that AI-driven tools help reduce portfolio volatility. There is also a strong negative correlation between risk reduction and returns ($r = -0.72$), meaning that as AI reduces risk, it is associated with higher risk-adjusted returns. The positive correlation between returns and diversification ($r = 0.65$) suggests that better-diversified portfolios, facilitated by AI tools, tend to yield better returns. Such correlations validate that AI enhances portfolio performance by a number of factors such as the returns, risk management, and diversification factors.

DISCUSSION OF FINDINGS

The results demonstrate a significant positive impact of AI-driven investment advisory services on portfolio performance for retail investors. The usability of those enhancements of returns, risk management, and diversification corresponds with the current research that accentuates the benefits of the application of AI in investment decision-making (Zohar & Shklar, 2022). The mean returns rose 3.1 percent, with this closely being in agreement with literature which demonstrates that AI can be used to maximize asset allocation and increase future returns in a way unheard of with traditional methods (Marien, 2014; El Hajj & Hammoud, 2023). Similarly, improved risk measures (2.3%) reflect a fact highlighted by other literature that shows that AI can streamline portfolio allocation risks in real-time, mitigating risks that impact volatility and maximizing risk-adjusted returns (Alsabah et al., 2021; Wah, 2025).

An increase in the diversification Gini coefficient (0.10) confirms that AI tools might help in choosing improved asset allocation tools, as these programs would understand the correlations between different investments and opportunities they have in diversification strategies that human minds may not realize (Fitriani & Basir, 2025; Kumari, 2024). Such results align with the past observations that AI platforms are highly effective in portfolio optimization, i.e., ensuring a proper mix of risk and reward in the breadth of investment assets (Kaur & Kour, 2025; Lu, 2019). Comparing the traditional method to AI tools, this paper also confirms that efficiency and automation of AI platforms has better performance. In contrast to human advisors who can use subjective reasoning, AI tools generate data-based decisions that bring about improved performance (PASUPULETI, 2023; Suris et al., 2021). In addition, AI tools can scale accordingly since they can accommodate various types of portfolios without compromising service excellence, which is why they are great alternatives to retail investors who might not be able to use conventional financial advisors (Olanrewaju, 2025).

The implications of the findings are important to the retail investors who aim to enhance the results of their portfolio. Among the key advantages of AI-guided consultancy services potential customers can receive is the low price of such services. Having said that, AI tools offer customized financial planning at

a very low fee compared to human advisors (Kaur & Kour, 2025). AI platforms that support retail investors with their investment decision-making automate complex processes, such as rebalancing portfolios and risk management, and help anyone make qualified decisions without the need to hire expensive professional advice (Zohar & Shklar, 2022; Eichler & Schwab, 2024). In addition, AI-enabled platforms can better diversify retail investors due to non-obvious correlation identification between various assets, which will enhance the risk-adjusted returns of their portfolios (Lam, 2016; Olanrewaju, 2025). Since these platforms work with large datasets in real time, they provide an opportunity to constantly optimize the portfolio, and over time, they make sure that the investments do not contradict the financial needs and risk level of the investor (Challoumis, 2024). This autopilot decision-making is an added benefit to a retail investor who might not have sufficient expertise to personally manage performance of a complex portfolio on his own (El Hajj & Hammoud, 2023).

Moreover, the potential of AI instruments to improve risk modeling is of high essence against retail investors that are not necessarily prepared to act on market fluctuation. Due to incessant observation of market conditions and ongoing adjustment of portfolios, AI platforms can help to reduce the risk of exposure to risky assets due to market downtrends, thus safeguarding the portfolio of the investor (Babiak & Barunik, 2020; Lu, 2019). Overall, AI-powered tools enable retail investors to make more rational decisions, minimize portfolio risk, and increase the level of diversification, which results in the overall improved performance (PASUPULETI, 2023). AI-based financial advisory platforms offer retail investors access to a cheaper, data-driven, and automated investment experience that would normally not be available at such scale, low-costs, or efficiently managed in a human-only environment where scale limits access (Lam, 2017).

The challenges that retail investors might experience when adopting AI-driven platforms are despite the obvious benefits of adopting the mentioned platforms. Lack of trust represents a major adoption impediment where many retail investors mistrust the idea of algorithmic decision-making and they are worried about transparency of the AI system (Eichler & Schwab, 2024; Wah, 2025). The lack of transparency disclosed by the AI platform can damage the confidence of investors as the operation of AI systems is a black box (Lam, 2016; Zohar & Shklar, 2022). This absence of algorithmic transparency is something that might scare off investors especially the new one to AI and financial technologies. Also, another challenge occurs due to the complexity of AI tools. Retail investors may also lack the technical knowledge on how the algorithms operate which can hinder the efficiency of such platforms to a person who does not know data science or finance well (El Hajj & Hammoud, 2023). Whereas automated AI platforms provide solutions, the intricacy of the tools can edge out some investors to gain complete trust or gain adequate understanding on the reasoning process of the made decision (Wah, 2025; Challoumis, 2024). The other challenge is lack of emotions intelligence in the AI. Although AI platforms are excellent in terms of data-driven decision-making, they are not able to match human advisors on emotional intelligence level. The volatility of the markets and economic changes tend to push investors to make decisions touched by emotions, whether in fear of greed, things that AI system cannot deal with (Eichler & Schwab, 2024). This disparity brings out the necessity of human involvement in areas that involve emotional support and individualistic advice or direction (Fitriani & Basir, 2025).

LIMITATIONS

Even though this paper is helpful in determining the effects of AI on portfolio performance, there are various limitations that need to be taken into account. First, the sample pool of 300 retail investors is quite satisfactory to conduct a statistical analysis; nevertheless, not all the variability of the retail investors is likely to be represented in the sample, including due to different experience, investment behavior, and socioeconomic statuses (PASUPULETI, 2023). The main limitation of this sample is that it will benefit people who have been using AI tools for a minimum of six months, and thus may cause selection bias.

Future studies could be inclusive of a wider scope of retail investors; those with limited exposure to AI platforms or first-time adopters of AI platforms (Kumari, 2024; Wah, 2025).

The other shortcoming is short term nature of data collected in this research. The study concentrated on short-term effects of AI tools in portfolio performance but long term effects have not been well established. Future researchers may also look into how sustainable AI can be in its contribution to portfolio returns and risk management when spanning long time periods (El Hajj & Hammoud, 2023; Zohar & Shklar, 2022). Lastly, general influences which might be affecting portfolio performance were not considered in the study e.g. macroeconomic events (e.g. recession times, inflation), geopolitical tensions, or changes at the regulatory level (Kumari, 2024). These aspects have the potential to critically influence the performance of both AI-based platforms and conventional investment strategies, and future studies need to take them into account as another source of a portfolio path.

CONCLUSION

Increases in portfolio performance brought about by AI-driven investment advisory services, especially robo-advisors is confirmed by this study to have a notable positive effect on the performance of retail investor portfolios. The findings uncover that AI tools can increase average returns, decrease risk and improve portfolio diversification, in comparison with the traditional investment approaches. Limited access to expertise can be a drawback to retail investors, but AI helps transform that by automatically taking care of such key processes as portfolio rebalancing and risk management and allowing individuals to make informed and data-driven decisions without professional knowledge.

Despite all these benefits, several challenges like the problem of trust, transparency of algorithms, and the problem of AI system complexity are challenges to mass adoption. A future study should examine how AI will impact the long-term performance of retail investors over a period of time and overcome these issues to boost the efficacy of AI tools and their credibility. The results are valuable to real world application in both retail investors and financial advisors in that AI based technology tools could significantly enhance and simplify portfolio management, making previously sophisticated investment techniques more accessible, and ultimately could lead to better financial results of more investors.

RECOMMENDATIONS

Retail investors are currently advised on using AI platforms to rebalance their portfolios, manage their risks, and diversify their portfolio to help the investors improve the general performance of their investments. Nevertheless, investors need to actively keep track of AI-produced suggestions because, in addition to fines, investors may lose their money on low-quality advice, which they should have been warned against. Practising a balanced approach to the area, in which AI-based insights can be used together with the personal knowledge and judgement to provide more detailed and better-informed strategies, is suggested. The future research should aim at observing the effect of AI in portfolio performance in the long-term perspective (5-10 years), since it will give more insights into sustainability and reliability. Besides this, developing the concept of the integration of AI tools with other financial technologies would also enhance investment strategies even further by providing more comprehensive wealth management. Psychological factors, including the investor trust in AI systems, should be examined in order to gain more understanding of the adoption pattern and overcome any potential negative attitudes that can slow down the overall adoption process of the AI-driven advisory services.

PRACTICAL IMPLICATIONS

Because of this potential, AI can be an innovative tool to use in routine day-to-day portfolio management tasks, such as rebalancing and monitoring but not leave behind in offering personalized advice to clients on more complex financial decisions. It is also necessary to inform investors about the advantages and

shortcomings of AI so that they will be able to use those tools more wisely and not to overtrust them. Having simplified the platform interface will ensure that the services can be accessed by investors with diverse financial literacy levels and thus widen the scale of reach. To boost trust and participation, greater transparency should be injected in the decision-making processes of AI so that clients can understand and know how recommendations are reached. Furthermore, revising AI technology to capture the current market situations continuously will make them more accurate and, thus, reliable to offer retail investors accurate and up-to-date recommendations.

REFERENCES

- Al Janabi, M. A. (2022). Optimization algorithms and investment portfolio analytics with machine learning techniques under time-varying liquidity constraints. *Journal of Modelling in Management*, 17(3), 864-895.
- Alfzari, S., Al-Shboul, M., & Alshurideh, M. (2025). Predictive analytics in portfolio management: A fusion of AI and investment economics for optimal risk-return trade-offs. *International Review of Management and Marketing*, 15(2), 365.
- Alsabah, H., Capponi, A., Ruiz Lacedelli, O., & Stern, M. (2021). Robo-advising: Learning investors' risk preferences via portfolio choices. *Journal of Financial Econometrics*, 19(2), 369-392.
- Arifian, D., Mudawanah, S., Herlina, H., & Sofana, A. I. (2024). The Impact of Artificial Intelligence on Investment Decision-Making. *Islamic Studies in the World*, 1(2), 93-102.
- Babbie, E. R. (2020). *The practice of social research*. Cengage Au.
- Babiak, M., & Baruník, J. (2020). Deep learning, predictability, and optimal portfolio returns. *arXiv preprint arXiv:2009.03394*.
- Brüggen, L., Gianni, R., de Haan, F., Hogleve, J., Meacham, D., Post, T., & van der Werf, M. (2025). AI-Based Financial Advice: An Ethical Discourse on AI-Based Financial Advice and Ethical Reflection Framework. *Journal of Public Policy & Marketing*, 07439156241302279.
- Brynjolfsson, E., & McAfee, A. (2014). *The second machine age: Work, progress, and prosperity in a time of brilliant technologies*. WW Norton & company.
- Challoumis, C. (2024, November). the landscape of AI in Finance. In *XVII International Scientific Conference* (pp. 109-144).
- Cohen, J. (2013). *Statistical power analysis for the behavioral sciences*. routledge.
- Davenport, T. H., & Ronanki, R. (2018). Artificial intelligence for the real world. *Harvard business review*, 96(1), 108-116.
- Eichler, K. S., & Schwab, E. (2024). Evaluating robo-advisors through behavioral finance: a critical review of technology potential, rationality, and investor expectations. *Frontiers in Behavioral Economics*, 3, 1489159.

- El Hajj, M., & Hammoud, J. (2023). Unveiling the influence of artificial intelligence and machine learning on financial markets: A comprehensive analysis of AI applications in trading, risk management, and financial operations. *Journal of Risk and Financial Management*, 16(10), 434.
- Faheem, M., Aslam, M., & Kakolu, S. (2022). Artificial Intelligence in Investment Portfolio Optimization: A Comparative Study of Machine Learning Algorithms. *International Journal of Science and Research Archive*, 6(1), 335-342.
- Field, A. (2024). *Discovering statistics using IBM SPSS statistics*. Sage publications limited.
- Fitriani, N., & Basir, I. (2025). Understanding User Acceptance of AI-Powered Financial Advisory: A Dual-Process Model Integrating Trust, Satisfaction, and Perceived Risk. *Global Review of Tourism and Social Sciences*, 1(3), 225-239.
- Jangra, R. (2025). The AI Revolution in Investment Advisory: Global Implications for Retail Engagement, Financial Inclusion, and Ethical Governance. *Financial Inclusion, and Ethical Governance (May 26, 2025)*.
- Kaur, B., & Kour, M. (2025). Impact of Artificial Intelligence on Investment Decision-Making. In *AI, Economic Perspectives, and Firm Business Management* (pp. 1-12). IGI Global Scientific Publishing.
- Kumari, S. A. I. (2024). Enhanced Portfolio Management: Leveraging Machine Learning for Optimized Investment Strategies in 2024. *J. Inform. Educ. Res*, 4, 1487.
- Lam, J. W. (2016). Robo-advisors: A portfolio management perspective. *Senior thesis, Yale College*, 20, 2023-01.
- Lam, J. W. (2017). *Robo-advisors: a portfolio management perspective*. Yale College.
- Likert, R. (1932). A technique for the measurement of attitudes. *Archives of psychology*.
- Lu, Y. (2019). Artificial intelligence: a survey on evolution, models, applications and future trends. *Journal of management analytics*, 6(1), 1-29.
- Marien, M. (2014). The second machine age: Work, progress, and prosperity in a time of brilliant technologies. *Cadmus*, 2(2), 174.
- McEwan, P. J. (2012). Quantitative research methods in education finance and policy. In *Handbook of research in education finance and policy* (pp. 109-126). Routledge.
- Mollick, E., De Cremer, D., Neeley, T., & Sinha, P. (2024). *Generative AI: The Insights You Need from Harvard Business Review*. Harvard Business Press.
- Olanrewaju, A. G. (2025). Artificial Intelligence in Financial Markets: Optimizing Risk Management, Portfolio Allocation, and Algorithmic Trading. *International Journal of Research Publication and Reviews*, 6, 8855-8870.

- Pallant, J. (2020). *Ebook: SPSS Survival Manual: A Step by Step Guide to Data Analysis using IBM SPSS*. McGraw-Hill Education (UK).
- PASUPULETI, V. (2023). HOW AI IS FOSTERING THE FUTURE OF BUSINESSES, E-COMMERCE, FINANCE AND MANAGEMENT. *Harvard International Journal of Engineering Research and Technology*.
- Rajora, H., Ta, H. H., & Rathnasiri, M. S. H. (2025). Building Trust and Transparency in AI-Powered Robo-Advisors and Related Employment Avenues. In *Global Work Arrangements and Outsourcing in the Age of AI* (pp. 357-376). IGI Global Scientific Publishing.
- Romanko, O., Narayan, A., & Kwon, R. H. (2023, November). Chatgpt-based investment portfolio selection. In *Operations Research Forum* (Vol. 4, No. 4, p. 91). Cham: Springer International Publishing.
- Sifat, I. (2023). Artificial intelligence (AI) and future retail investment. *SSRN Electronic Journal*.
- Suris, D., Liu, R., & Vondrick, C. (2021). Learning the predictability of the future. In *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition* (pp. 12607-12617).
- Syed, W. K., & Janamolla, K. R. (2024). How AI-driven Robo-Advisors Impact Investment Decision-making and Portfolio Performance in the Financial Sector: A Comprehensive Analysis. *Int. Res. J. Eng. Technol*, 11, 138-145.
- Trinh, T. K., Jia, G., Cheng, C., & Ni, C. (2025). Behavioral responses to AI financial advisors: Trust dynamics and decision quality among retail investors. *Applied and Computational Engineering*, 144, 69-79.
- Uddin, A., Pabel, M. A. H., Alam, M. I., KAMRUZZAMAN, F., Haque, M. S. U., Hosen, M. M., ... & Ghosh, S. K. (2025). Advancing Financial Risk Prediction and Portfolio Optimization Using Machine Learning Techniques. *The American Journal of Management and Economics Innovations*, 7(01), 5-20.
- Wah, J. N. K. (2025). AI-Powered Wealth Management: Transforming Financial Literacy, Personalized Investments, and Risk Assessment Through Robo-Advisors and Predictive Analytics for the Future of Finance. *Chinese Science Bulletin*, 70(02), 4401-4420.
- Yasser, F., & Asghar, F. (2024). Determinants of Money Demand by Business Sector for Extending Monetary Policy Applications in Pakistan. *The Regional Tribune*, 3(1), 213-224.
- Akbar, U., Asghar, F., & Arshad, M. (2025). FinTech Disruption and Transformation in Banking: Mediating Effect of Artificial Intelligence. *Advance Journal of Econometrics and Finance*, 3(2), 210-223.
- Khan, S. Z., Gul, M. S., & Asghar, F. (2025). The Role of Artificial Intelligence in Enhancing Financial Forecasting Accuracy. *Advance Journal of Econometrics and Finance*, 3(3), 166-174.
- Rafiq, M., Asghar, F., Haider, S., Khan, H., & Bangash, S. A. (2024). THE INFLUENCE OF FINANCIAL TECHNOLOGY ON THE ECONOMIC CAPITAL EFFICACY CONCERNING BANKING RISK

IN PAKISTAN, CONSIDERING THE MEDIATING FUNCTIONS OF COMPETITIVE DYNAMICS. *Policy Research Journal*, 2(4), 2074-2082.

Asghar, F., & Nabeel, M. (2025). The Impact of Perceived Risk on Behavioral Intention toward Mobile Banking in Pakistan: The Mediating Role of Digital Knowledge.