

The Role of Artificial Intelligence in Financial Forecasting

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The objective of this research is to unravel the potential of Artificial Technology in promoting new capabilities relevant to financial market predictions. As such, the focus of this research is to examine the application of AI in financial forecasting so as to determine its current value as well as predict its progressive impact on financial forecasting. Given that most markets and companies depend on predictions about future market behavior as a pretext for operational decision making, the quality of financial forecasting outcomes play a key role in helping organizations become financially stable, exploit strategic financial advantages, or sustain a given financial culture.

Problem Statement

Today, a time when AI has taken a leading role as a key technology through which organizations and processes are being digitized and automated, financial markets are not left behind. Organizations in the vast financial market depend on effective financial forecasting to be able to make correct projections of future market behavior. As a result of increased access to key technologies, companies respond quicker to market opportunities. This means that firms that perform poorly in forecasting their financial dynamics or the conditions in the market will make poor decisions and are as a result disadvantaged when it comes to exploiting market opportunities. Such is the research problem that sets the context for this research, modern organizations need to understand the dynamics of AI as used in financial forecasting so that they can leverage the value AI-based algorithms add to the predictive capabilities that give firms financial advantage. This study will strive to examine the effect of AI application in financial forecasting and the strategic advantages it creates for organizations as reflected in recent studies about the subject. As an active research area with significant research interest for many

stakeholders, a large pool of studies has been developed to inform progressive integration of AI in financial marketing and management.

Research Objectives

The aim of this research is to map AI use in financial forecasting. As such, its objectives are multifaceted and reflect the exploratory approach that will be used to synthesize research evidence and consolidate themes to inform future studies on the subject. The specific objectives that will be used in this research include;

1. To conduct an empirical assessment of the effects of AI use in financial forecasting

In light of the qualitative approach selected for this study, the key aim is to map what other studies have captured by analyzing the evidence, trends, and developments so as to determine the current effect and make projections about how AI will change financial forecasting. The research review design selected will enable this study to consolidate evidence from several studies to determine the current conditions of application and the outcomes being realized in the financial markets. For instance, Bi et al. (2024) explore how ChatGPT is transforming how managers and employees confront financial forecasting and underlying processes.

2. To highlight trends and developments in recent research regarding the application of AI technology to financial forecasting.

The financial markets landscape is changing, in the interest of enabling real-time processing of financial data, companies are experimenting with different solutions that offer better predictive performance than traditional methods. In this pursuit, AI is emerging as the most valuable technology because of evidence presented by researchers regarding the

comparative performance of AI-enabled financial forecasting as determined using measures like accuracy and number of data sources (Yonan, 2023).

3. To juxtapose the extent of ethical and privacy issues associated with use of AI in financial forecasting.

According to Asif et al. (2025), AI has had a profound impact on financial forecasting, this is not only reflected in the speed with which large amounts of data are processed, but also as reflected by the capacity of AI algorithms to map patterns. Additionally, Asif (2025) also covers the ethical and privacy concerns that characterize AI use in financial markets. This objective sets the context for profiling these concerns and assessing efforts to address them.

4. To assess empirical projections about the future of AI use in financial forecasting.

Given that AI algorithms and models as used to improve forecasting processes are evolving, progressive efforts will involve more research studies, developmental modelling, as well as usage patterns. This is because as financial markets continue to apply AI models, they reveal new insights that will be used to improve its utilization in future. Such is the context of the synthesis by Rane et al. (2023) which maps current and future implications of AI use in transforming investment strategies.

5. To present practical recommendations for exploiting AI technology in improving financial forecasting.

From an analysis of various applications of AI in the financial markets field, or in a subfield such as accounting, Kureljusic and Karger (2024) show that it is possible to improve current use cases and efficiencies. This objective purposes to juxtapose recommendations for progressive modelling of AI technology within financial contexts like forecasting.

Literature Review

Evidence from studies show that specific AI-based tools are gaining traction and as a result attracting more interest on the distributed potential of AI. For instance, Bi et al. (2024) explore the emerging effects of ChatGPT in the AI market and the specific ways that it is enabling revolutionary capabilities in financial forecasting. As Bi et al. (2024) establish, ChatGPT is an example of how large language models are being exploit to leverage AI algorithms to the financial forecasting market.

One of the primary metrics researchers have used to compare the effectiveness of AI-enabled financial forecasting with classical methods is forecasting accuracy. As Yonan (2023) identifies, AI models improve forecasting accuracy not only because algorithms can be configured to synthesize patterns and make decisions, but also because new developments make AI-based models more dynamic in processing data and predicting market events. For instance, Kureljusic and Karger (2024) examine the role of AI in computing financial information and processing data to reveal patterns. Algorithms developed to synthesize these patterns create functionalities that are valuable in financial forecasting, personalization, and process automation.

Despite the significant impact that AI has on financial forecasting, there are ethical and data protection issues that arise from how data is handled within and between its layers and algorithms, these issues have been explored by Asif et al. (2025). Given that AI is a technology that is developing, continuous use and research will create contexts for its progression. Many studies have assessed the trajectory of AI evolution within financial markets and reveal that new models and algorithms will be developed to improve specific capacities in financial forecasting, such as data processing and predictive analysis. For instance, Rane et al. (2023) investigates how AI models will continue to evolve in correspondence to how they influence investment decisions.

References

- Asif, T., Fuzail, M., Meraj, J., Wajid, S., & Lodhi, K. (2025). The Impact of Artificial Intelligence on Financial Forecasting. *Bulletin of Management Review*, 2(2), 646-667.
<https://www.bulletinofmanagementreview.com/index.php/Journal/article/view/178>
- Bi, S., Xiao, J., & Deng, T. (2024, December). The Role of AI in Financial Forecasting: ChatGPT's Potential and Challenges. In *Proceedings of the 4th Asia-Pacific Artificial Intelligence and Big Data Forum* (pp. 1064-1070).
<https://doi.org/10.1145/3718491.3718663>
- Kureljusic, M., & Karger, E. (2024). Forecasting in financial accounting with artificial intelligence—A systematic literature review and future research agenda. *Journal of Applied Accounting Research*, 25(1), 81-104. <https://doi.org/10.1108/JAAR-06-2022-0146>
- Potwora, M., Vdovichena, O., Semchuk, D., Lipych, L., & Saienko, V. (2024). The use of artificial intelligence in marketing strategies: Automation, personalization and forecasting. *Journal of Management World*, 2, 41-49.
<https://doi.org/10.53935/jomw.v2024i2.275>
- Rane, N., Choudhary, S., & Rane, J. (2023). Leading-edge artificial intelligence (AI)-powered financial forecasting for shaping the future of investment strategies. *Available at SSRN* 4640828. <http://dx.doi.org/10.2139/ssrn.4640828>
- Yonan, J. F. (2023). Improving Financial Forecasting Accuracy with Artificial Intelligence (AI) Models. *Babylonian Journal of Artificial Intelligence*, 2023, 74-82.
<https://doi.org/10.58496/BJAI/2023/011>