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The Role of Generative AI in Financial Decision-Making: Opportunities, Risks, and Regulatory Challenges

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Abstract

The rise of artificial intelligence (AI) and specifically generative AI (GenAI) has revolutionised financial systems through decision-making, risk assessment, and operations management. Financial institutions are increasingly incorporating AI technologies in operations, such as lending, fraud detection, portfolio management, and client advice. A recent survey indicates that GenAI enhance operational efficiency through improved ability to analyse large amounts of structured and unstructured data for more accurate and rapid financial decisions (OECD, 2023; Kawadkar, 2026). This extended abstract discusses the role of generative AI in financial decision-making. Focus is paid to the opportunities associated with GenAI in the financial sector, its risks, and challenges for regulation.

The uniqueness of GenAI from other types of machine learning lies in the capability to produce new content, new insights and new predictions rather than just the discovery of patterns (Bahoo et al., 2024; Haidar and Abbass, 2025). In financial sectors, these have included the generation of reports, sentiment analysis of financial news, trading algorithms, and automated decision-support tools. These capabilities not only reduce information asymmetry but also boost the institutional performance and improve responsiveness to changes. In this regard, empirical studies find evidence of excellent prediction accuracy of AI-based models in forecasting market trends, thereby increasing the accuracy of financial decisions (Anang et al., 2024).

Similarly, enhanced risk management and fraud detection are two of the key areas benefiting from GenAI. AI models can process transactional data on a real-time basis to identify outliers and anomalies that suggest fraudulent activity (Shabsigh and Boukherouaa, 2023), increasing the resilience of financial systems. Furthermore, the financial services sector can also use AI to enhance financial inclusion and personalised service delivery. These systems can identify the financial behaviour and preferences of the users for developing customer-specific products (OECD, 2023) and the reduction in operational cost and efficiency through automation of the compliance and reporting functions (Kawadkar, 2026).

Despite the various benefits of integrating GenAI in financial decision-making, the technology faces a range of challenges. The principal issue is the lack of transparency and

explainability of AI systems. In essence, many GenAI models function as "black boxes", meaning it is very difficult to trace or verify how and why an AI system produced a particular outcome (Anang et al., 2024). To this end, this opacity undermines the trustworthiness of AI-driven decisions and complicates supervision by regulatory bodies. Similarly, AI algorithms can reflect and propagate biases present in their training data, resulting in discrimination and perpetuating financial exclusion (Barocas, Hardt and Narayanan, 2019).

Correspondingly, the second issue concerns the problem of 'hallucination', where a generated AI can seem completely factually accurate and coherent but produce entirely false or irrelevant outputs (Roychowdhury, 2024). In a financial context, this problem can be particularly acute as the AI can provide what are interpreted to be trustworthy recommendations in areas such as investment decisions, risk analyses or policy evaluations. Adding to this risk is the persuasive manner in which AI systems tend to make recommendations, an aspect which increases the potential that less experienced humans will believe outputs, even those based on faulty premises (Agrawal et al., 2019).

Empirical evidence is emerging to suggest that AI recommendation systems do not always conform to a framework of rational decision-making and that some outputs may be context-specific and inconsistent with traditional normative models of decision-making (Huang and You, 2023). This lack of consistency could arise due to the quality of the training data and the nature of the generative algorithms, leading to increased use of behavioural biases by AI decision-making frameworks. It can lead to both overconfidence on the part of the human operator of the AI and a decrease in critical evaluation by humans (McAfee and Brynjolfsson, 2017). An interesting and developing new thought process is on AI literacy for financial professionals (Huang and You, 2023). Since the use of generative AI within finance is continuing to grow, workers will need the ability to scrutinise the outputs of the AI systems, acknowledge its shortcomings and spot flaws.

Secondly, regulatory challenges are central to the deployment of generative AI in the financial sector. Current regulatory frameworks do not fully address the intricate implications arising from AI systems, with particular mention given to responsibility, data management, and algorithmic transparency (OECD, 2023; Financial Stability Board, 2023). The increased use of AI also poses potential systemic risks, including herding behaviour and market concentration and the risk that financial systems become over-reliant on the few technology

providers who support these AI technologies (Shabsigh and Boukherouaa, 2023). New frameworks have to be developed.

Thus, mitigating these challenges, scholars and policymakers focus on strong governance frameworks, including the deployment of explainable AI (XAI) approaches, clear guidelines on data governance, and accountability frameworks for AI-powered decisions (Anang et al., 2024; Haidar and Abbass, 2025). Financial institutions should also ensure strong risk management processes, such as validation and auditing of models, and continuous monitoring of the AI system, with cooperation between researchers, industry players, and regulators for the development of policies promoting ethical and secure use of generative AI in the financial system (Varian, 2018).

Thirdly, beyond single institutions, generative AI's impact extends to the entire financial ecosystem. AI's growing integration into financial markets will likely influence market structure and dynamics, price discovery processes, and the competitive landscape (Bahoo et al., 2024). In this manner, while opportunities abound for improved efficiency and innovation, significant challenges are present from a systemic perspective, related to systemic risk and market concentration, and a nuanced understanding of the interaction between AI and the financial system is required by policymakers and practitioners.

Overall, generative AI presents a revolutionary advance for financial decision-making and offers profound advantages in efficiency, innovation, and analytical capacity. It is not without its complex issues, including transparency, bias, reliability, and regulation. Thus, this research paper provides a useful exploration into the potential gains and risks of using generative AI in finance (McAfee and Brynjolfsson, 2017). The next step for future work should involve developing frameworks for safe AI usage, to improve the overall AI decision-making.

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