

Generative AI in Finance: Balancing Innovation with Risk and Ethical Accountability

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Abstract-- The Generative AI has become an integral part of various fields of our economy, particularly those in Accounting and Finance. The financial sector witnessed a transformative shift in the financial services such as automated reporting, predictive analysis and personalised advisory services. The adoption of GenAI in the financial sector questions about the ethics and risks associated with it. Therefore, there is a need for a proper balance between innovation, risk and ethics. The objective of the present study is to identify the innovative opportunities offered by GenAI along with the risks and ethics associated with its adoption in the financial sector. A three-layered conceptual framework model backed by the secondary data is utilised to discuss the innovation, risks and ethics associated with the adoption of GenAI in Finance. The data is collected from existing literature, reports from industries, published studies and regulatory documents. This paper aims to provide a structured method of responsible and sustainable implementation of Generative AI integrating innovation drivers with risk factors and ethical safeguards.

Keywords-- Generative AI, Finance, Innovation, Risk, Ethics.

I. INTRODUCTION

The evolution of Artificial Intelligence has brought a big transformation across different sectors of our economy, influencing the financial sector at large. Generative AI has been reshaping the landscape of the financial industry with its innovation processes and organisational strategies. (Samuel FossoWamba et.al., 2025). It has changed the capability of the accounting industry to streamline processes, reducing errors and providing invaluable insights. It has enhanced the services of accountants to their clients by adding more value to their services with real-time insights and predictive analytics, bolstering decision-making processes. GenAI has made numerous tasks simplified with its automated data entry, allowing quick analysis of extensive datasets, which is helpful for large organisations. Invoice processing and expense management is simplified by interpreting invoices, matching them with purchase orders and automating payment procedures. As we move forward, AI looks very promising and challenging in the fields of accounting and finance. It could be used for auditing, identifying anomalies and risks that could be missed by human auditors.

It anticipates even more sophisticated uses in the accounting industry. While there may be challenges along the way with potential drawbacks. Since GenAI has transformed the financial system, the concerns of ethics and regulatory compliance have emerged. There is a demand for continuous surveillance, periodic reviews and audits and a proper synergy among AI programmers, financial organisations and regulatory bodies (Prakriti Dixit Porwal, 2025). While maintaining a thorough and balanced approach, the GenAI in finance can achieve a potential transformation that adheres to ethical standards and regulatory compliance. Therefore, the present study presents a conceptual framework integrating innovation, risk and ethics backed by secondary data. It provides a structured model that facilitates responsible adoption of GenAI in finance. The study may contribute to sustainable and accountable AI integration in financial services by synthesising existing literature and proposed balanced approach.

II. LITERATURE REVIEW

The Evolution of Generative AI, with its drastic changes in innovation, has transformed various sectors, especially in finance, reshaping the processes of decision-making and risk management. Boyang Chen et al. 2023 explored the application of ChatGPT in financial sentiment analysis, predicting risk management and stock returns. It highlighted the limitations of GenAI and opportunities for future research. Laxman Doddipatla et.al.(2024) focused on regulatory and ethical barriers in banking and observed that regulatory non-compliance and privacy risks are top concerns. The adoption of GenAI slowed down due to regulation, privacy and trust

Soraya Sedkaoui (2024) focused on Gen AI, which augments creativity and innovation and explored innovation across industries and identified that ethical frameworks are needed to address bias and privacy. David Kuo Chuen Lee et al..(2025) made a landscape review and observed that Finance-specific LLMs and GANs have transformative and synthetic data generation, and suggested that there is an urgent need for new regulatory frameworks.

Ronghua Xu(2025) explored smart finance applications such as risk, control, credit approval, investment advice, product innovation, customer service and points out that there are many challenges in the applications of finance in Gen AI regarding data quality, interpretability and security and privacy and suggests that development of trend in GenAI in the field of finance will continue to promote the innovation and development of financial industry.

Regarding ethical and regulatory challenges, **Krzyszof Wach et al.(2024)** provided a comprehensive identification and understanding of the challenges and opportunities associated with the use of GenAI in business. Seven threats such as lack of regulation, disinformation, job losses, privacy violation, manipulation, inequality, technostress, urges regulation and ethical guidelines are identified and urged for regulation and ethical guidelines. **Prakriti Dixit Porwal(2025)** discussed the ethics-law interface in finance and highlighted the risks of false dissemination, trading strategies, and opacity and proposed an integrated ethical regulatory framework with audits and surveillance. **Nurhadhinah Nadiah Ridzuan et al. (2025)** examined the applications, governance, ASEAN context in the banking and finance sector, highlighting the challenges of privacy, fairness, accountability, skill gap and suggested the need for mixed-method for future research. **Samuel Fosso Wamba et.al.(2025)** examined Gen AI-driven shifts in entrepreneurship, decision-making and digital ecosystems and pointed out the opportunities and tensions of Gen-AI adoption and suggested for responsible governance and human-AI collaboration.

In response to these challenges and risks, various studies, such as risk mitigation and governance frameworks, are proposed. **Sebastian Gehrman et.al.(2025)** developed a content safety taxonomy with finance-specific risks often missed by open-source guardrails and suggested the need for domain-specific governance and risk detection. **Kannan S. Thiraisamy et al. (2025)** assessed sector-wide opportunities and cyber risks and proposed a twofold solution, including actionable institutional safeguards and baseline safety net emphasizing national security implications. **Kamal Kumar & Poonam (2025)** discussed ethical risks and governance, bias, misinformation, consent, attribution, and advocated accountability frameworks and participatory policy. **Xukang Wang & Ying Cheng Wu (2024)** examined the legal risks and governance and proposed a harmonised legal framework, international collaboration, proactive legislation, dedicated regulator.

In view of sector-specific reviews and practical insights, the International Journal of Science & Research Archive (2024) illustrated that GenAI transformed the financial industry as it develops and automates high-quality risk analysis models from both data-based selection and detailed automated operations. **Boyang Chen et.al. (2023)** explored the applications and predictive utility of ChatGPT sentiment analysis, which predicts risk management and stock returns, highlighting limitations and future research.

With all the above literature, it is observed that GenAI provides a consistent platform of innovation and efficiency in the finance sector, but the adoption of GenAI has many constraints with respect to ethical risks, complexities in the regulatory framework and gaps in governance. Besides many empirical studies demonstrating the operational utility and predictability of GenAI, conceptual and review-based works stress the urgency of regulatory frameworks integrating innovation, risks, and ethics. There exists a gap in validating governance models within financial institutions with finance-specific guardrails and harmonising international regulatory approaches. Therefore, addressing these gaps is essential to have balance in innovation, risk and ethical accountability, ensuring that GenAI strengthens the financial system rather than destabilising it.

Objectives

1. To analyse the innovative opportunities offered by GenAI in the financial sector.
2. To identify the risks and ethics associated with the adoption of GenAI in finance.
3. To propose a conceptual framework that balances innovation, risk and ethics associated with GenAI in finance.

Limitation of the study

The present study does not provide empirical data or case-based validation. Rather it provides a structured synthesis and conceptual guidance.

Opportunities of GenAI in financial sector

1. Customer Service & Support

GenAI provides intelligent chatbots and voice assistants that helps in financial advice, product recommendations and instant query resolution.

2. Fraud detection & Prevention

GenAI assists investigators by generating narratives around suspicious transactions.

3. Risk Management

GenAI is helpful in creating realistic datasets to stress-test models without exposing sensitive customer data. It also generates possible market or credit risk scenarios to strengthen predictive risk frameworks.

4. Personalised Financial Planning

Based on the individual profiles, GenAI can generate tailored investment strategies, retirement plans and insurance packages.

5. Compliance & Regulatory Reporting

GenAI drafts compliance documents and audit trails with reduced manual intervention. It summarises complex reports, highlighting anomalies and suggesting corrective actions.

6. Product & Service innovation

GenAI creates dynamic financial products and provides portfolio rebalancing suggestions by simulating long-term outcomes. It develops automated content creation for personalised emails, reports, and financial updates crafted in natural language for clients.

Despite data privacy, regulatory compliance remains critical. Generated scenarios may be influenced by bias and fairness. Therefore, Secured GenAI architectures and governance frameworks are essential for scaling. Here are a few risk categories associated with the adoption of GenAI in the financial sector.

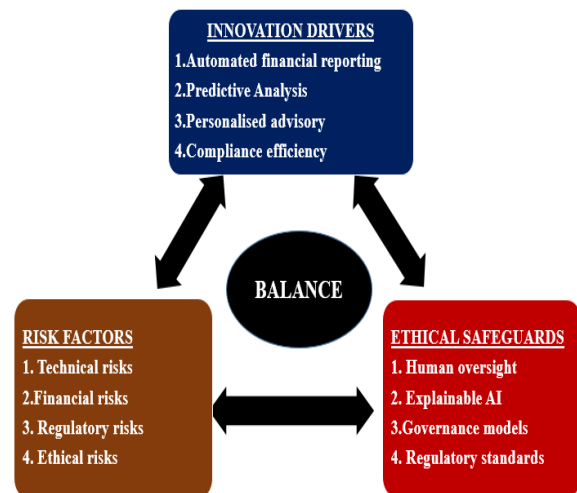
- *Hallucinated Outputs* – LLMs can generate outputs that sound confident but are factually incorrect or completely fabricated.
- *Regulatory Non-Compliance* - Outputs generated by GenAI may inadvertently violate MAS or global financial regulations(e.g., KYC/AML)
- *Data Privacy & PDPA violations*- Chatbots and report generators may expose PII(Personally identifiable information) or breach consent boundaries. Disclosure of sensitive information is possible with the democratisation of AI capabilities.
- *Bias in Risk & Lending Narratives*- GenAI amplifies historical bias in data, especially in credit assessments or wealth profiling.
- *AI explainability Gaps*- Use of “Black box” models is a serious issue for financial institutions under regulatory scrutiny as LLMs can’t always explain how they arrive at a conclusion.

- *Distribution of harmful content*, which is created automatically based on text prompts by humans, could inadvertently contain offensive language or issue harmful guidance to employees.
- *Copyright and legal exposure* when popular GenAI tools are trained on massive image and text databases.
- *Workforce roles and morale* will be influenced by GenAI negatively in terms of displacement and replacement of workers. The daily tasks performed by workers, like writing, coding, content creation, summarization and analysis, are done by GenAI in a better way.

III. CONCEPTUAL FRAMEWORK

The conceptual framework below provides a structured overview of Generative AI in the financial sector, synthesising secondary data and also offers guidance for academics, practitioners and regulators on responsible adoption. It depicts the balance between innovation drivers, risk factors and ethical safeguards in adapting GenAI in finance.

Conceptual Framework



Author's work

IV. INNOVATION DRIVERS

GenAI has introduced many transformative opportunities in the fields of finance with automation, prediction and personalisation.

- *Automated financial reporting:* Software companies realised that AI-integrated tools offer more direct application in financial operations. In the year 2023, Deloitte started the adoption of AI & GenAI in finance to understand the technology, identify potential application and launch pilot programs. The GenAI-enabled applications, such as MSCopilot, Google Duel AI and AmazonQuickSight, will help finance professionals become more familiar with GenAI and incorporate that technology into their daily tasks.
- *Predictive Analysis:* AI-driven forecasting improves risk management and investment decisions. McKinsey, in their latest survey on AI, reported that 65% of organisations are regularly using GenAI, and expectations remain as high as they were in previous years, with a prediction that GenAI will lead to significant change in the industries in the years ahead.
- *Personalised Advisory:* In 2025, Accenture explored how the future is being shaped by AI-powered autonomy. Most of the executives believe that the true benefits of AI will be possible only when built on a foundation of trust, which must evolve in parallel with technology strategy.
- *Compliance Efficiency:* In the year 2024, PwC helped companies leverage AI in a way that is explainable, secure & robust to transform their businesses at scale & gain a new competitive advantage. There is a possibility of mitigating risks, maintaining data security, and supporting the trustworthiness of AI outputs. To revolutionise the audit process, new technologies will be further standardised, simplified and centralised. AML/KYC documentation will be streamlined with the help of AI.

V. RISK FACTORS

➤ *Technical risks*

International Monetary Fund (IMF) identified key technical risks such as Banking Vulnerabilities, liquidity mismatches and interconnectedness in Nonbanking Financial Intermediaries (NBFIs), Data Gaps due to data limitations, data quality in some countries, skewed outputs and new biases, Debt Distress, particularly in low-income and emerging market economies.

➤ *Financial risks*

In the year 2025 Bain & Company identified key financial risks associated with GenAI such as liquidity Crunch, Fundraising challenges, valuation mismatches & Competition, AI execution Gap and continued uncertainty.

2025 year is a critical year for demonstrating differentiated strategies, operational excellence and fundamental value creation to navigate persistent financial risks. Misreporting and over-reliance on AI forecasts is identified as systemic threats.

➤ *Regulatory risks*

GenAI has the potential to influence government in tailoring regulatory strategies for better economic, societal and environmental outcomes, while effectively addressing relevant challenges and concerns such as accountability, transparency and regulatory burdens. In this regard, OECD (Organisation for Economic Co-operation and Development) stresses the challenge in aligning AI outputs with IFRS/GAAP standards.

➤ *Ethical risks*

CFA (Chartered Financial Analyst) institute has recognised various ethical issues. It is identified that firms may falsely attract clients with their false AI capabilities claims leading to misrepresentation. Algorithmic Biased datasets can lead to discriminatory outcomes in lending/hiring. Sensitive or personal information may be revealed unintentionally. Risk of using non-real impact carbon metrics that do not accurately reflect environmental footprints. The growth of crypto markets and tokenization introduces risks regarding investor protection and the security of digital market structures.

VI. ETHICAL SAFEGUARDS

➤ *Human Oversight*

In 2025, Infosys BPM emphasizes Human-AI Harmony particularly in strengthening decision-making for organizational reporting. The introduction of Agentic AI allows for autonomous end-to-end workflow management in invoice processing, handling complex, dynamic business logic.

➤ *Explainable AI (XAI)*

While taking decisions, financial institutions cannot completely rely on AI models. Explainability prohibits AI-driven financial models from bias, fail compliance checks, or erode consumer trust. When selecting AI models, financial institutions should consider performance trade-offs. Institutions may prioritize accuracy over transparency. Striking the right balance depends on risk exposure, regulatory demands and decision-making stakes. CFI (2025) suggests for transparency in AI decision making.

➤ *Governance Models*

Governance models are designed to maintain accountability frameworks for the adoption of AI in financial systems. European Union AI Act, (EU AI) is a global regulator on the usage and development of AI systems. The main of the Act is to safeguard people from the hazardous use of AI while sustaining innovation.

➤ *Regulatory Standards*

The regulatory standards issued by world bank in the year 2024 focussed on AI facilitating responsible, ethical and inclusive AI adoption. It emphasised on context-specific regulatory frameworks that balance innovation with risk mitigation. It also focussed on data privacy and security against cyber threats.

VII. DISCUSSION & CONCLUSION

Adoption of AI is inevitable but the careful usage of it is mandatory especially in the financial sector. It is efficiency alone matters, but it's about reimagining financial ecosystem which is adaptive, creative and customer-oriented.

It's not about efficiency but about reimagining financial services as adaptive, creative and customer-centric ecosystems. The institutions, combined with deep financial expertise and secured GenAI, can move quickly towards production-ready solutions. GenAI should be used to augment but not replace humans or processes. The companies should ensure that the content meets their ethical expectations and supports its brand values. Reputational and financial risks could also be massive if one company's product is based on another company's intellectual property. The Companies must establish clear guidelines, governance and effective communication from the top down, emphasising shared responsibility for safeguarding sensitive information. Key reports like Global Financial Stability Report (GFSR) and World Economic Outlook (WEO) emphasised for potential asset price corrections in case of dematerialise of AI urging for better frameworks. The insurers can rebuild trust by improving value propositions, solving access/advice gaps, and balancing growth with risk. The private equity can embed generative AI and operational expertise into deal strategies and develop strong value creation models with clear executions strategies. Navigating macro risks and leveraging AI technology for real value creation is crucial for financial firms to build confidence and achieve sustainable growth.

Ethical responses have included investments in preparing certain parts of the workforce for the new roles created by GenAI applications. New techniques like retrieval augmented generation and agentic AI frameworks can help reduce the issues to a large extent.

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