AI Ethics in Financial Services: A Global Perspective

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Abstract: AI has quickly evolved financial services and brought significant changes in trade, fraud detection, customer service, and personal financial planning. However, its adoption raises various moral concerns, especially on issues concerning bias of the related algorithms, data privacy, responsibility and openness. This paper looks at some of the possible ethical issues and regulatory issues in the area of AI and financial services. The review brings attention to changes in AI application in the domain of financial services and calls for proper security measures in data, fair AI, and clearly defined responsibility area. Some literature is reviewed to illustrate that AI, on the one hand, facilitates data processing and the refinement of business processes but, on the other hand, creates multifaceted ethical challenges. Moreover, the paper describes the ways of legal responsibility for AI systems, as well as the potential solutions to such issues. The review also provides the limitations of existing ethical frameworks and future research directions for further developing integrated and well-balanced AI ethical, legal and systematic opportunities and threats. Future research in the sociotechnical perspective of AI should then center on refining further and inclusive of current ethics that have been identified to explain different effects of AI in the financial services sector.

Keywords: Artificial Intelligence (AI), Financial Services, AI Ethics, Ethical Frameworks, Financial Regulation, Perspective, AI Regulation, Financial Technology, AI in Investment Banking, AI in Consumer Banking.

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I. INTRODUCTION

The financial services industry is only one of several that is being profoundly influenced by AI. The delivery of financial services throughout the world is being transformed by AI technologies, which automate mundane operations and improve decision-making. The use of AI has certain inappreciable benefits to financial services in credit scoring, fraud detection, personalized banking services and investment planning [1]. Yet, as AI increasingly became integrated into such systems, the problems of ethics became even more varied and required attention.

Introducing artificial intelligence in the financial service segment triggers issues related to privacy, transparency, accountability, and justice, thereby making the area of AI ethics an emerging field for the finance industry. For AI to be utilized properly, robust ethicalities are needed given that these systems deal with large volumes of personal and financial data and given that it is difficult to avoid preconceptions and consequences in the algorithms. This is not mere bias in financial profit-making but encompasses a broader ethical hub where social and financial matters, including inequality and systematic hazards, are involved. The Financial Conduct Authority (FCA), which oversees the operations of around 50,000 companies in the United Kingdom, is one of many industry groups that has emphasized the significance of ethical AI use [2]. The FCA stressed at the AI Public-Private Forum launch that it wants consumers to reap the benefits of digital innovation and competition, particularly data-based and algorithmic innovations. It also insisted on the fact that consumers should be assured that there are companies out there who are interested in the consumer's benefits with regards to pricing, quality and fair access.

The ethical question that should be raised in the continued use of AI is because it has greatly impacted the banking industry with its influence. This entails how various geopolitics like the United States, Europe, China, and India allowances for the regulation and governance of AI in financial services. Every region has its specific theories of AI ethics, which pay different levels of attention to consumer protection, data privacy, etc., and algorithm explanation[3]. By comparing the legislative measures taken by various nations to guarantee the responsible and fair use of AI in this crucial industry and by analyzing the ethical difficulties presented by AI adoption, this paper seeks to provide a worldwide perspective on AI ethics in financial services[4].

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A. Organization of the paper

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The paper is organized as follows: Section II discusses AI ethics in a global context, and Section III highlights the ethical challenges in AI for financial services. Section IV provides a literature review of key studies on AI ethics in the financial sector. Section V presents a discussion on the ethical implications, regulatory gaps, and the role of corporate digital responsibility. Section VI outlines future research directions for improving AI ethics, followed by Section VII, which concludes the paper and suggests avenues for future work.

II. OVERVIEW OF AI APPLICATIONS IN FINANCIAL SERVICE

The financial services business is home to AI, which has a long and storied history of invention and improvement. This section offers an overview of the background of AI in the financial sector, delves into important ideas and technology, and analyses the factors that have led to AI's broad use in the industry[5]. A wide range of ideas and technologies that give computers the ability to think and act like humans are collectively known as AI. Key concepts and technologies include:

- Machine learning: Consequently, due to the occurrence of ML algorithms computers are in a position to learn from data and also make judgements or predictions that may be otherwise unique and programmed. Some basic approaches used in financial applications are supervised, unsupervised, and reinforcement learning.
- **Natural Language Processing (NLP):** NLP derives interest from the possibility of making computers read, understand, and respond to text in a mimical way [6].
- **Neural networks:** Some computing apparatus with similar architecture and function to the human brain are called neural networks.



Fig. 1. Application of AI in Financial Services

This section delves into the many fields of the financial business and the important uses of AI technology [7]:

• AI executes trading models and fuels high-frequency trading or HFT, which allows for real-time trades and exploiting coherent market loopholes.

- The use of machine learning to alert on abnormality in transaction messaging; NLP on text data to alert on specific activities such as identity theft and money laundering.
- Self-service is being managed by artificial intelligence with the use of relevance queries, conversational commerce, and natural language understanding.
- AI analyses borrowers' data, optimizes loan origination and enhances efficiency of credit risk appraisal and loan granting.
- Robo-advisory employs artificial intelligence that suggests investment portfolios and oversees and rebalances accounts actively following market trends.

A. Impact of artificial intelligence on financial industry

Technological advancement, particularly AI, in the last few years has revolutionized the banking sector, eradicating several long-standing processes and creating new prospects for growth and growth [8]. For the financial industry, AI is becoming a new opportunity with new knowledge, timesaving, and competitive advantages in algorithmic trading, credit risk, customer services, etc. The following section provides a focus on what benefits and large impact AI can have in banking.



Fig. 2.Impact of AI on financial industry

> Algorithm Trading

There is evidence that use of AI has impacted the employment of algorithmic trading in the financial stream. Trading algorithms resulting from AI know markets' huge volumes of supply and demand in the blink of an eye, helping traders take minute opportunities and set out tome strategies.

➢ Risk Management

Risk management has been transformed significantly owing to AI in identifying, assessing, and mitigating hazards, thus enhancing the commercial risk management facility. In situations where an early warning sign is required, the ML independently analyses different data, fluctuations in the market and its past trends, and macroeconomic factors.

Customer Service

Through AI, customer care services in the finance industry have increased through chatbots and virtual assistants. Consumers interact with these AI systems verbally, and these systems offer personalized recommendations/responses to queries and transactional capabilities.

➤ Fraud Detection

AI has also made a big splash in the financial sector via its use in fraud detection [9]. The real-time analysis of transaction data by ML algorithms may spot unusual or suspicious trends that might point to fraud.

III. AI ETHICS IN FINANCIAL SERVICES

Ethical standards can be met by AI-based financial breakthroughs with the help of certain suggested solutions [10]. The lack of AI-specific legislation and current standards "imposed" by regulatory bodies like the European Banking Authority and the Polish Financial Supervision Authority means that any additional research or recommendations can only serve as a springboard for conversations about the potential future form of regulations[11]. It is also crucial to note that digital solutions utilized in the financial industry provide ethical issues.

A. Insure Tech

The Insure Tech industry is undergoing a change because of AI, which allows insurers to improve customer service, simplify operations, and create cutting-edge products [12]. Some key applications include:

- Automating claims processing: AI can automate tasks such as document verification and damage assessment, leading to faster and more efficient claims processing.
- Improving customer service: AI-powered chatbots may provide 24-hour customer care, answering queries and resolving problems in real time4.
- Developing personalized insurance products: AI can analyze customer data to create customized insurance policies that meet individual needs.
- Detecting fraud: Through data analysis of trends and abnormalities, AI can assist insurers in spotting and stopping fraudulent claims.
- Ethical Considerations in InsureTech
- Privacy and security: Sensitive client information must be protected against abuse and illegal access by insurers.
- Transparency and explainability: People should be able to see how the AI is being deployed to make some determinations that involve them, such as premium rates or compensation amounts.
- Human oversight: In spite of AI's usefulness, human review is still necessary to guarantee AI makes ethical and fair judgments, particularly when dealing with delicate or complicated issues.

B. Investment Banking

AI is transforming the investment banking industry by enabling faster trades, concrete risk assessment, client-centric

approaches to portfolio management. Key applications include[13]:

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- Algorithmic trading: Automation by artificial intelligence can cause more sales within less time with comparatively less error than manual handling, which means more profit at less cost.
- Risk management: Banks can leverage AI in its capacity of risk monitoring involving large amounts of data and predicting tendencies in the market.
- Portfolio management: Using AI it would be possible to manage the portfolios the investors can invest in depending on their risk tolerance and other factors..
- Fraud detection: AI can also use trade data to notice trends and anomalies that indicate that there is fraud that institutions can use to prevent.
- > Ethical Considerations in Investment Banking
- Transparency and explainability: The public should be in a position to know how AI is being utilized to make the decisions that control their investment portfolios.
- Conflicts of interest: It should however not be oriented to perform some functions in a manner that it shall favor the bank at the expense of the clients.
- Market manipulation: AI should not be used to perform what any given person would know is wrong, such as manipulating markets or insider trading.

C. Wealth Management

AI is transforming Wealth Management through offering tailored economic advice, facilitating clients' identification, and improving risk evaluation. Key applications include:

- Personalized financial advice: AI has the capability of sorting customer information and offering customized investment advice and monetary assistance.
- Portfolio management: AI can be used for financial planning, including the development of client portfolios depending on his/her needs and level of tolerance to risks.
- Client onboarding: AI is capable of pre-screening the clients and performing identification and characterization of credit risks, among others.
- Fraud detection: AI has the capability of preventing fraud in wealth managers by analyzing the clients' transactions with a view of isolating vices.

> Ethical Considerations in Wealth Management

- Data privacy and security: Wealth managers must ensure that sensitive client data is protected from unauthorized access and misuse3. This is particularly important as AI technologies increase the surface area for potential cyberattacks.
- Suitability and fiduciary duty: AI systems should be developed to meet suitability standards and duties that the firms and brokers have to their clients so the investment advice is appropriate for the client.

D. Consumer Banking

AI is transforming Consumer Banking by increasing the level of services given to clients, the experience given to clients, and the fight against fraud. Key applications include[14]:

- Customer service: Automated customer care services tied to AI can provide twenty-four hours of customer care by responding to the customer's inquiries and solving problems as they occur.
- Personalized banking experiences: AI is able to review customer data and produce offers/suggestions on what may be of interest or need to individual consumers; this may include advice or financial products.
- Fraud detection: AI can help banks detect and prevent fraud by analyzing customer transactions and identifying suspicious activity.
- Credit scoring: AI has the potential to increase loan availability for marginalized groups by evaluating creditworthiness and making lending choices.

> Ethical Considerations in Consumer Banking

- Data privacy and security: Banks are required to make sure that private customer information is shielded from abuse and illegal access.
- Financial inclusion: AI should be used to promote financial inclusion and avoid exacerbating existing inequalities.

IV. AI ETHICS IN GLOBAL PERSPECTIVE (CHINA AND INDIA)

The importance of addressing biases caused by biassed training data sets of AI systems is growing, especially for countries outside the Anglosphere, as AI research becomes more intertwined with the economic and geopolitical goals of several nations [15][10]. Without adequate control, AI apps that are currently being utilized by millions of people worldwide might worsen global cultural imbalances [16].

A. China

China has adopted a proactive approach to AI regulation, aiming to manage potential risks while fostering innovation in the AI sector. Key regulations and ethical frameworks include:

- Interim Measures for the Management of Generative AI Services: This regulation, effective August 15, 2023, aims to manage generative AI services while encouraging development and investment in the technology [17].
- Administrative Provisions on Deep Synthesis of Internetbased Information Services: The use of AI to create "fake news" is outlawed under this rule, which also mandates the labeling of such information.
- Trial Measures for Ethical Review of Science and Technology Activities: AI is one of the main areas of concentration in this rule, which aims to manage and regulate the internal ethics of scientists and tech developers.
- Administrative Provisions on Algorithm Recommendation for Internet Information Services: This regulation focuses on the use of algorithms in providing Internet information services, including generative and synthetic algorithms.
- Guiding Opinions on Regulating the Asset Management Business of Financial Institutions: This provides guidance on AI use in asset management.

• Evaluation Specification of AI Algorithm in Financial Applications: This sets standards for evaluating AI algorithms in finance.

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- Guidance on Information Disclosure for Financial Applications Based on AI Algorithms: This promotes transparency in AI applications in finance.
- Examples of Chinese companies using AI in finance services
- China Mobile: Accelerating AI integration in financial firms to reduce costs, increase efficiency, and boost competitiveness.
- Xiao-I Corporation: Partnering with a major Chinese bank to enhance customer service training using AI34. This involves using AI for scenario-based Q&A and personalized training, ensuring customer service representatives are equipped to handle various inquiries.

B. India

India is taking a "pro-innovation" approach to AI regulation, aiming to unlock the full potential of AI while mitigating potential risks35. Key initiatives and guidelines include:

- Principles for Responsible AI: Safety, equality, inclusion, privacy, openness, responsibility, and safeguarding human values are some of the overarching goals of these principles, which provide direction for the ethical administration of AI.
- NITI Aayog's role: The NITI Aayog, India's apex public policy think tank, is tasked with establishing guidelines and policies for AI development and use.
- Digital Personal Data Protection Act, 2023: This new privacy law can be leveraged to address privacy concerns related to AI platforms37 [18][19].
- Examples of Indian companies using AI in Financial Services
- Clari: Provides an AI-powered revenue operations platform for sales analytics and forecasting.
- Haptik: Develops conversational AI platforms for customer relations management.
- Digitap.AI: Harnesses AI and machine learning for credit scoring and fraud detection.
- Scienaptic: Offers an AI-powered platform to enhance operational efficiency in financial institutions.
- Mid-sized IT companies: These companies are actively investing in AI technologies and startups, contrasting with larger peers who are focusing on in-house AI development.

C. Comparing AI Ethics Approaches: China, India, US, and Europe

While China and India are still developing their AI regulatory frameworks [20], some key differences and similarities can be observed compared to the US and Europe:

➤ China

Currently, China adopts centralized decision-making and put national interests first especially on social stability and development [21]. Government regulations carry some

restrictions in regard to national principles and security measures, and the government plays a significant role in AI developments.

➤ India

The approach that India is promoting is a highly proinnovation one while still attempting to address these ethical issues. Initiatives for responsible use of AI and responses to risks and ethical challenges for AI are supported in the country, and AI for public goods is fostered, while AI innovation and use are mandated. Innovation and risk minimization are achieved by employing regulatory sandboxes and ethical frameworks.

\succ US

There is no single central approach to AI regulation in the US, different agencies and projects regulate AI in financial services. This has the potential to cause a situation where a particular activity is regulated by multiple laws and, therefore, poses challenges to organizations that seek to invest in AI. However, about the necessity of fair, transparent, and accountable AI systems there is growing recognition. That is why, in order to fight against concerns about biased algorithms and discriminative outcomes, there can be the Algorithmic Accountability Act.

➤ Europe

While putting in place a global secret for Artificial Intelligence regulation, the EU is serving the purpose through the EU AI Act comprehensively. Proposed in the EU AI Act, the risk-based approach to regulating AI systems lays its focus on basic rights, safety, transparency and responsibility. In order to avoid bias and insist on fairness, high-risk AI systems should follow the following regulations: Such systems are used in loan applications, as well as in credit appraisal. Furthermore, the GDPR of the EU sets out strict regulations for processing and privacy of personal data, thus making a strong impression on the development of Artificial Intelligent.

D. International Standards and Best Practices

There are measures being taken by international organizations in the formulation guidelines and standard or ethical use of artificial intelligence in the financial industry. These include:

➢ UNESCO's Recommendation on the Ethics of AI

This offer a general guide to the ethical usage and creation of artificial intelligence, focusing on human rights, explainablity and responsibility.

> OECD Principles on Artificial Intelligence

These set of principles ensure right use and creation of the AI in line with human oriented values, equity, and open ness, accountability.

➢ Financial Stability Board (FSB) Principles

The FSB is taking efforts to address financial stability consequences of AI, covering risk management governance and international cooperation. In addition to these initiatives, there is a growing trend toward developing safeguards for AI, such as:

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Watermarking AI Content

Microsoft, Amazon, Google, Meta, and OpenAI have agreed to employ what is known as watermarking in AIproduced audio and video to tackle misuse of the same.

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Red-teaming AI Models

It helps to detect flaws and future risks, enabling independent experts to "red-team" necessary AI models by making attempts to push the models into obvious misbehaviors before their launch.

V. ETHICAL CHALLENGES IN AI FOR FINANCIAL SERVICES

The effects of using AI for the banking and finance sectors are multiple, positive in some cases and negative in others and ethical implications exist. The use of AI necessitates processing vast volumes of private client information. Data security is, therefore, vital and privacy as well [22]. Pay attention that contemporary financial organizations have to embrace strict safety measures to preserve the consumer's private data and avoid such occurrences [23]. The last section of presenting earlier data should take some precautions to ensure fairness and the lack of discriminating conclusions. Some norms and standards should be created to ensure that people use artificial intelligence without causing harm and to increase recognition of decision procedures.

The use of AI in the banking and finance sectors is effectively a revolution in enhanced accuracy and convenience courtesy of greater customer focus [24]. Advantages comprise improved customer satisfaction, decreased expenses, and improved strategies for decisionmaking processes. In investment management, credit scoring, fraud detection and customer service, artificial intelligence technology has been of great impact. Financial institutions also need to consider a few questions about the fair usage of AI, bias, privacy issues, and any ethical consequences that might go downhill.



Fig. 3. Challenges of Ethical AI in Finance

A. Data Privacy and Security

The risk of unauthorized access to private financial information. Possible improper use of customer data for illegal purposes. Use of the right encryption methods to achieve security on the data. In day-to-day activities, minimize the access to data and also make periodic checks on Volume 10, Issue 2, February – 2025

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the people who are allowed to access it. Respect the data privacy rules put in place in a country.

B. Bias and Fairness

AI systems are capable of causing bias or discrimination in some population categories. Prejudiced statistics can cause unequal credit scores and loan determinations. Cultivate sample datasets in multiple train AI models. Then, schedule annual audits to investigate and remove prejudices about Artificial Intelligence. Develop and implement algorithms that advance equity.

C. Accountability and Transparency

AI decision-making may be complex and difficult to understand. Who is responsible for AI-driven results remains unclear. Make their decision-making processes more transparent by using AI models. Give clear instructions defining who is in charge of AI outcomes. Make sure that the selection criteria for AI systems are well documented.

D. Skill Gap

Absence of AI and data science specialists. It is possible that the present workforce lacks the necessary AI knowledge. Present employees with upskilling training classes. Work together with academic institutions to develop AI-focused courses. Make efforts to attract and keep AI.

VI. LITERATURE REVIEW

This section provides a literature review on AI Ethics in Financial Services provided below.

In this study, Al-Fatlawi, Al-Khazaali and Hasan (2024) show a technique that enhances fraud detection in cyber defense and information security systems has been created. The genetic algorithm, a stochastic optimization technique, is used in this context. Ultimately, the outcomes of the evolutionary algorithm have been contrasted with those of the regression tree and decision tree categorization. The outcomes of the simulation demonstrate the superiority and efficacy of the suggested approach [25].

This article, Tóth and Blut (2024) examines the ethical implications and responsibility for the banking sector's

deployment of AI service robots. In response to this problem, they rely on normative ethical theory to explain how businesses might fulfill their CDR obligations and provide examples of how to use a conceptual framework about the moral consequences of using AI service robots. Within context-specific AI service robot applications, the framework delves into the ways in which the locus of morality (from humans to AI) and moral intensity interact and how this might impact relevant responsibility [2].

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This study, Adeyelu, Ugochukwu and Shonibare (2024) explores the revolutionary effects of AI technology on the financial services industry while delving into the ethical considerations of AI in financial decision-making. By surveying the relevant literature, this study draws attention to the double-edged sword of AI in the financial sector, illuminating the opportunities for improved operational efficiency and decision accuracy as well as the new ethical dilemmas that this technology poses [26].

This study, Ngozi Samuel Uzougbo, Chinonso Gladys Ikegwu and Adefolake Olachi Adewusi (2024) delves into the ethical and legal questions raised by AI in the financial sector, with the hope of shedding light on potential solutions. Responsibility for AI-related choices and acts must be assigned in order for AI to be held legally accountable in financial services. Who should be responsible for AI mistakes, wrongdoing, or regulatory infractions is a growing concern as AI systems gain more independence [27].

This study, Svetlova (2022) proposes that the study of AI ethics should focus on the systemic impacts of AI that are ethically significant. It highlights systemic hazards that have been overlooked in professional AI-related codes of conduct, industrial standards, and ethical conversations in general, drawing the attention of both practitioners and ethicists [28]. The research shows that there is a lack of attention to the systemic, ethical, and legal problems with AI in the cybersecurity and banking industries. Future research should focus on developing frameworks that balance AI's operational benefits with ethical concerns, particularly in fraud detection, legal accountability, and corporate digital responsibility, as summarised in Table I.

Author	Focus	Methods	Opportunity	Challenges/Future Work
Al-Fatlawi, Al-	Fraud detection and	Genetic algorithm,	Optimizing fraud	Further exploration of hybrid
Khazaali, and	improvement of	decision tree	detection methods	models integrating genetic
Hasan (2024)	intrusion detection	classification,	using stochastic	algorithms with other
	systems in cyber	regression tree.	optimization	classification methods.
	defense.		techniques like genetic	
			algorithms.	
Adeyelu,	Ethical implications of	Literature review of	Investigating the	Addressing the balance
Ugochukwu, and	AI in financial	AI's integration into	transformative	between AI's operational
Shonibare (2024)	decision-making.	finance.	potential of AI in	benefits and its ethical
			finance and its ethical	concerns in real-world
			considerations.	applications.
Uzougbo, Ikegwu,	Legal accountability	Legal analysis and	Developing	Exploring regulatory
and Adewusi (2024)	and ethical	ethical framework for	frameworks to allocate	frameworks for AI
	considerations of AI	AI in financial	responsibility for AI-	accountability, especially as

Table 1 Summary of Studies on AI, Ethics, and Accountability in Financial Domains

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	in financial services.	services.	driven decisions in	AI systems become more
			financial sectors.	autonomous.
Svetlova (2022)	AI ethics focuses on	Ethical review of	Identifying systemic	Further research into
	systemic risks and	systemic effects of	risks in AI ethics and	integrating systemic risks into
	neglected issues in	AI use in various	integrating these risks	AI-related ethical codes and
	professional AI codes.	sectors.	into professional AI	professional practices.
			standards.	
Tóth and Blut	Morality and	Development of a	Exploring the role of	Expanding the framework for
(2024)	accountability in the	conceptual	Corporate Digital	different AI applications and
	use of AI service	framework based on	Responsibility (CDR)	evaluating its effectiveness in
	robots in financial	normative ethical	in managing AI service	diverse contexts.
	services.	theory.	robot applications in	
			finance.	

VII. CONCLUSION

The integration of AI in financial services is fast evolving into a new frontier by allowing new uses across the trading floors, risk management, customer care, fraud, and even wealth management. Subsequently, this paper establishes that the incorporation of AI in financial services has vast implications for service delivery but with repercussions for ethics such as privacy, bias, fairness, accountability and transparency in utilizing data effectively. These problems require clear types of responsibility, publicly traceable Artificial Intelligence systems, and robust ethical standards. Further work should be devoted to the improvement of these frameworks in order to remove biases, protect privacy and provide fairness in AI decision-making. Furthermore, the creation of broad regulatory standards and discussion of CDR's involvement in AI application regulation will also be critical for pursuing the proper use of AI. It is also important to focus on the creation of interventions considering the best of AI as well as the corresponding ethical, legal, and systemic challenges within financial services.

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