ChatGPT in Finance: Addressing Ethical Challenges

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Abstract

ChatGPT, an artificial intelligence tool, has revolutionized the finance industry by enabling individuals to interact with technology in natural language. However, the use of ChatGPT in finance raises significant ethical considerations that must be addressed to ensure that the technology is used responsibly and ethically. This article discusses the ethical challenges of using ChatGPT in finance, including outcomes contaminated with biases, incorporation of fake information in financial decisions, privacy and security concerns, lack of transparency in the decision-making process and accountability of financial services, human replacement, and legal issues. The article asserts that financial companies that use ChatGPT must implement ways to address these and other emerging challenges to avoid any negative impact on individuals or society. Relevant policies to tackle and mitigate some of these ethical challenges are also suggested.

Keywords: ChatGPT, finance, ethical challenges, artificial intelligence

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1. Introduction

ChatGPT, a large language model developed by OpenAI based on the GPT (Generative Pre-training Transformer) architecture, has 150 billion parameters and can generate human-like responses to text-based prompts (Dowling and Lucey, 2023). Its potential applications range from natural language processing to chatbots and virtual assistants, with the ability to learn and generate text in multiple languages and on various topics.

As a powerful AI tool, ChatGPT has the potential to transform the way businesses and industries operate, particularly in the finance sector. Its vast language processing capabilities allow it to perform a range of functions. Specifically, ChatGPT is being applied in the business and finance domain to perform numerous functions, including understanding the dynamics of the financial market (Zaremba and Demir, 2023), customer service and product suggestions (Haleem et al., 2022), named entity recognition (Zhang and Zhang, 2023), generating financial summaries, financial reports and forecasting financial outcomes (Lopez-Lira and Tang, 2023), and personalized investment recommendations (Ray, 2023). Finally, ChatGPT can potentially be trained for fraud detection and prevention. More details about these functions of ChatGPT are summarized in Table 1 below.

Table 1: Functions of ChatGPT

Function	Description	Example
A) Understanding the dynamics of the financial market	ChatGPT is used to classify financial news and perform text-based and social media-based analyses to gain insights into the financial market	Identifying trends and predicting future market movements based on news articles and social media posts
B) Customer service	ChatGPT can be trained to interact with customers and answer their	Providing information on banking hours, loan terms

Function	Description	Example
	questions about various financial products and services	and suggesting financial products
C) **Named entity recognition**	ChatGPT can extract and understand large amounts of financial information from unstructured texts	Identifying names of companies, people, and financial products mentioned in a news article
D) **Generating financial summaries, reports, and forecasting outcomes**	ChatGPT can generate financial summaries, reports, and predict financial outcomes	Generating a financial report summarizing a company's performance in the previous quarter
E) **Personalized investment recommendations**	ChatGPT can make personalized investment recommendations based on the financial objective and risk-preferences of individuals	Recommending a diversified portfolio for a customer with a low-risk tolerance
F) **Fraud detection and prevention**	ChatGPT can be trained for fraud detection and prevention	Analyzing customer data and financial transactions to detect fraudulent activity

Overall, ChatGPT has various applications in the finance industry and is expected to become even more prevalent soon. However, like any new technology, ethical considerations and challenges must be addressed to ensure its responsible use for individual and societal wellbeing. Currently, the most pressing ethical challenges include the possibility of biases (such as gender and racial biases) in the financial output generated by ChatGPT, undetectability of sophisticated fake information and its inclusion in the suggested financial output, privacy and security concerns, transparency and accountability of the tool and its decision-making processes, human replacement, and legal challenges that can arise due to heterogenous laws across countries. It is crucial for researchers and practitioners to identify and address these challenges to ensure the financial wellbeing of both organizations and individuals dependent on ChatGPT's financial services.

Therefore, we aim to briefly discuss these challenges first and subsequently propose relevant solutions.

Preliminary studies focusing on ChatGPT have expanded rapidly, the literature on the ethical concerns of using ChatGPT in the financial domain is relatively scarce. Therefore, our paper tries to address this important gap in literature. Furthermore, on a practical front, by identifying and discussing ethical challenges, we intend to raise awareness of the potential risks associated with using ChatGPT in finance and highlights the need for policies and regulations to address these challenges.

The rest of the article is structured into three main sections. Section 2 briefly discusses the possible ethical challenges of ChatGPT, section 3 proposes relevant solutions to tackle these issues, while the last section concludes the paper.

2. Ethical Challenges of Using ChatGPT in Finance

While ChatGPT offers numerous benefits, including improved efficiency, accuracy, and personalization of financial services, it also raises important questions about privacy, security, and fairness. In this section, we will briefly outline some of the most pressing ethical challenges associated with ChatGPT in finance.

2.1. Biased Outcomes

ChatGPT relies on large data from the internet to provide output. In case the existing data on the internet about a financial aspect has biased outcomes (such as gender, religion, racial, regional or other such biases), ChatGPT may inadvertently incorporate and amplify these biases in its output (Paul et al., 2023). This could lead to undesirable outcomes and further perpetuate the existing biases on a larger scale due to the tool's widespread availability and accessibility.

2.2. Fake Information and Misinformation

Fake financial news, misinformation, and sham businesses are widespread with severe global consequences. While ChatGPT has been designed to identify and filter out fake information (Ali and Aysan, 2023), there are still concerns about its ability to ensure the credibility of the

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information it processes. Despite extensive data training, ChatGPT may unintentionally incorporate fake news in market sentiment analysis or financial projections, leading to inaccurate outcomes. Moreover, the nature of fake information is constantly evolving, and hence, ChatGPT must be constantly trained as well to identify and eliminate evolving fake information sources. ChatGPT's ability to generate consumer recommendations also pose a risk, as it may sometimes provide false, fake, or hallucinatory information. As a result, the use of ChatCPT for collecting product information, arranging marketing campaigns and constructing personalized investment choices can be misleading (Dwivedi et al., 2023; Paul et al., 2023) and increase monetary risks for consumers and investors. Subsequently, such misinformation can ultimately reduce confidence in the application of the tool in finance.

2.3. Privacy Concerns

ChatGPT relies on an enormous amount of financial data, including both individual and organizational transactional data. Therefore, the privacy of both individuals and organizations can be at stake if these data can be accessed by harmful third parties (Paul et al., 2023). Furthermore, private financial information can be misused to cause financial harm to individuals. Although ChatGPT follows certain protocols to ensure privacy and security (Ali and Aysan, 2023), these protocols should be clearly shared with both financial institutions and individuals involved in financial transactions to create a transparent and well-understood environment. Moreover, in case of a data breach, the preventive and mitigation measures need to be well established and widely disseminated to maintain societal trust in the use of AI-driven tools, such as ChatGPT in finance.

2.4. Transparency and Accountability

Another major ethical consideration of using ChatGPT in finance is the need for transparency and accountability, which is particularly important considering regulations such as the European General Data Protection Regulation (GDPR) and the White House's Office of Science and Technology Policy (OSTP) Blueprint for AI Bill of Rights. ChatGPT relies on complex AI algorithms (Natural Language Processing) to make decisions, and these algorithms can often be opaque (Khan and Olds, 2023), making it difficult to understand how the technology arrives at its conclusions (Dwivedi et al., 2023). If financial companies using ChatGPT are not transparent in their use of ChatGPT and cannot provide clear explanations for their decisions, they will struggle

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to build trust with their clients. Therefore, it is essential to establish clear guidelines and protocols for transparency and accountability in the use of ChatGPT in finance.

2.5. Security

The use of ChatGPT in finance also raises significant security concerns due to the vast amount of personal and financial information data involved. This makes ChatGPT technology a prime target for cybercriminals. If financial companies using ChatGPT in their activities are unable to implement robust security measures, it will lead to severe data security breaches, including unauthorized access or theft by malicious actors (Paul et al., 2023).

2.6. Human Replacement

ChatGPT has the potential to automate dozens of routine tasks in finance, such as accounting, tax filing, record-keeping, marketing, data analysis and forecasting, among others, which could lead to the replacement of millions of human workers in the industry (Dwivedi et al., 2023; Rivas and Zhao, 2023). This raises a significant ethical concern like that of emerging technologies such as robotics: the issue of human replacement. While technology can automate many tasks, it cannot substitute for human judgment and intuitive decision-making, which is necessary for ethical decision-making in many aspects of finance. Therefore, it is necessary to carefully consider the implications of ChatGPT's automation of tasks and the impact it could have on the workforce.

2.7. Legal Issues

The training and learning of ChatGPT is global, and therefore, the financial outcomes, including investment decisions for both individuals and organizations, might infringe domestic rules and laws. Moreover, the content generated for business purposes, such as marketing and financial reports, can have significant overlap for different firms belonging to the same industry (Dwivedi et al., 2023). If published, these materials can lead to issues of piracy and copyright infringement. As the output is produced by a machine, it gets more difficult to solve these cases in courts because the relevant rules and laws largely do not exist due to the nascent nature of ChatGPT. This, in turn, creates acute legal challenges not only for the financial organizations but also for legal systems.

3. Possible Solutions to the Challenges

There can be multiple paths to achieve the same end goals of mitigating the ethical challenges of ChatGPT in finance. We here discuss three broad mechanisms that can be helpful in mitigating the ethical challenges discussed above.

3.1. Embracing Co-creation and Negotiation in ChatGPT Algorithm Design

To mitigate ethical considerations in ChatGPT's use in finance, it's important to shift from having only experts design its algorithm to adopting a co-creation approach involving the public and interested parties. This approach entails discussing and negotiating the key choices on which the algorithm is based. Stakeholders can collaborate to reach a consensus on the variables considered by ChatGPT's algorithm, the scope of its use, how to identify and mitigate biases, how to tackle fake and misinformation, and how humans can maintain certain level of control over the tool. By following this process, ChatGPT can implement an algorithm that considers diverse financial perspectives and incorporates ethical challenges.

3.2. Transition towards an Institutional Approach for ChatGPT

As we discuss the future of ChatGPT, we must not only focus on creating transparent tools, but also adopt an institutional approach to ensure ethical usage in finance. To accomplish this, we need to establish clear rules for handling ChatGPT, including the creation and training of financial and technical policy regulators with the power to scrutinize and audit the algorithm, develop regulations, lay out clear rules and protocols for preserving the privacy of users and to consistently upgrade the protective mechanisms to avoid security breaches by cybercriminals. Technical firms working on large language models like ChatGPT should also establish internal review committees to serve as a check on developers. By taking this institutional approach, we can ensure responsible and ethical use of ChatGPT.

3.3. Using the Strengths of AI and Professionals to Make Better Financial Decisions

To ensure accurate and reliable financial decisions, it's important to recognize both the strengths of AI-based decision-making by ChatGPT and the intuitive decision-making of finance professionals based on their experiential knowledge. An exclusive reliance on ChatGPT algorithms can result in the loss of valuable insights from finance professionals. Therefore, a combination of both types of decision-making is suggested. Professionals can provide their own perspectives while ChatGPT algorithms analyze the data. This will enable a comparison of decisions made by both ChatGPT and humans, leading to mutual learning and improvement. Human application can also address legal barriers in the financial domain that can be overlooked by ChatGPT while suggesting financial solutions to the users. Similarly, human application can also to some extent delay or even mitigate the acute threat of job loss due to ChatGPT.

4. Conclusion

While ChatGPT has caused a positive disruption in financial decision making, it has also raised concerns about several ethical challenges that accompany its use. The article discussed the ethical challenges in the form of outcomes containing socio-religious and other biases, the incorporation of fake information in financial planning, security and privacy concerns, lack of transparency and accountability in decision-making processes, human replacement due to automation, and legal issues in case the outcomes suggested by ChatGPT do not fit into the financial laws of a country. Companies that use ChatGPT must implement ways, such as an active involvement of public, to address these challenges. Furthermore, at the institutional level, we need clear and pertinent rules to streamline the implications of financial decisions suggested by ChatGPT. We believe that taking these basic but essential policy measures can enhance the benefits of the tool to society, and cultivate higher public trust in using the tool for financial decisions.

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