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Integration of Artificial Intelligence in Market Analysis to Address Socioeconomic Disparities in Investment Decisions

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Abstract: This study presents an investigation into the impact that artificial intelligence (AI) has had on market analysis and its role in reducing socioeconomic gaps. To address this research purpose, we examined how often Ukrainian listed banks disclosed artificial intelligence in their annual reports and whether these disclosures were associated with an investment decision-making element in 130 annual reports from fifteen Ukrainian listed banks from 2014 to 2022.

Method: AI disclosures were coded thematically (qualitative) and analyzed to classify relevant categories of AI terms. Regression models were used (quantitative) to examine associations between AI vocabulary and outcomes regarding opportunities, issues, and financial performance indicators. The number of AI disclosures soared from 3% in 2014 to 27% by 2022. Additionally, a strong correlation was found between AI references and opportunities (0.24).

This research underscores the importance of cooperation among regulators, financial institutions, and AI practitioners to ensure ethical AI practices are integrated into finance. It also highlights the necessity of well-defined laws and the apt use of AI to ensure that benefits are fully realized and threats are mitigated.

Keywords: artificial intelligence, financial market, investments, watchwords, financial business.

Introduction

One of the most critical tasks in investing with the assistance of AI, traditionally carried out by human analysts, is market analysis - a field that could be revolutionized thanks to artificial intelligence (AI) (Ivashchenko et al., 2020). The key benefits will come from automating the assessment of vast amounts of data, leading to reduced time and improved accuracy in estimation. However, while these advancements are being made, there are concerns about bias and opacity in AI-driven algorithms. Specifically, these issues revolve around the algorithms' ability to conceal existing biases present in the training data (Dwivedi et al., 2021).

Income inequality seeps through in numerous venues; even within the financial markets, there are different socio-economic classes. Widespread issues such as a lack of access to financial literacy tools, biases in loan application processes, and denial from investment opportunities based on levels of income are evident. The integration of AI in market analysis presents a twin opportunity: first, to reveal these unfairnesses, and secondly, to anticipate at an early stage that they may occur and mitigate them (Ledro et al., 2023).

One of the goals is clearly to reduce bias. The transparency and intelligibility promoted within AI models enable human analysts to spot and potentially remove biases that could be harmful to specific groups. Fundamental efforts are needed to mitigate the impact of these biases, including diversifying training datasets and instituting fairness checks in algorithms. Market analysis may approach in an effort to inclusivity and fairness if it ensures that the judgments of AI resources are made ethically (Kumar et al., 2023). An example of this could be in personalized investment strategies. With such vast individual datasets - including an individual's financial history and how much risk they can ideologically stomach - AI is able to produce personalized investment suggestions. The kind of investing that used to be the purview of high-net-worth individuals is today accessible to ordinary people with a few hundred or thousand dollars (Al-Gamrh et al., 2020). One point to reflect on is that the accessibility of where to invest can be more fairly disseminated. In comparison with the plethora of investing avenues, it also becomes a solution towards chumping urban wits and could be one of the processes on how AI helps democratize giving personalized advice (Jaiwant, 2022). One such area that can be achieved through AI is financial inclusion. AI systems can take this approach to broader levels by extending beyond standard measures of creditworthiness. It could make loans and other financial services and products more available to a greater number of historically disadvantaged residents. Not only do these types of innovations help expand economic opportunities but they also build financial health and resilience among populations who have had limited access to traditional systems.

Existing studies by Damioli et al. (2021) and Guo & Polak (2021) have demonstrated a beneficial effect of artificial intelligence deployment on financial performance, providing evidence for cost-cutting and profit-generating outcomes. However, these studies are often limited in that they do not fully capture many of the challenges surrounding the use of AI.

Al-Ababneh et al. (2023) have warned about bias in algorithms, a concern with broad implications due to the risk such bias poses. This risk could result in the perpetuation of discrimination in lending practices or in the obfuscation of transparency surrounding the factors influencing investment decisions made by AI (Coccia, 2020). This issue is arguably the most critical of them all. Banks are becoming more transparent, accountable, and less biased, thanks to artificial intelligence, which has a significant impact on their financial outcomes. Through the use of AI, data analysis and decision-making processes can be automated, leading to a more transparent financial operation and improved risk control processes. It is evident that without mutual trust among

stakeholders and authorities, no reputation can be strong, and compliance with governance laws would be compromised. Transparency plays a crucial role in this context.

Moreover, the lightning-fast AI and automation-driven decision-tracking capability of financial organizations allows them to track results all the way down to the exact algorithms and data sources from which the initial decisions were derived, thereby enhancing transparency and accountability. This model of accountability reduces the potential for biased or corrupt judgments by incentivizing ethical conduct and strategies to mitigate risk (Śmietanka et al., 2021).

AI reduces the risk of human bias by standardizing the criteria for decision standards and analyzing data objectively rather than subjectively. To avoid perpetuating any historical biases in data, it is essential to ensure that AI systems are trained with diverse and representative datasets (Ntoutsis et al., 2020).

The most basic elements necessary to ensure an ethical approach when financial organizations implement AI are data privacy and network security. To maintain consumer trust and meet regulatory obligations, protecting sensitive financial data from unauthorized access or breaches is a key component. It is important to ensure that all data is stored safely and used in accordance with applicable laws and ethical principles, such as the GDPR (General Data Protection Regulation) (Wylde et al., 2022).

Three key ingredients in optimizing financial success - operational efficiency, cost management, and revenue generation - have been proven using AI. It simplifies processes such as customer service, risk assessment, and fraud detection, thus aiding in enhancing operational efficiency and cost-effectiveness. A revenue growth of 6% is achievable with the use of artificial intelligence (AI) through predictive analytics to offer a more customized consumer experience, improve cross-selling opportunities, and encourage client retention (Dash et al., 2019).

It has been found that the beneficial effects of financial leverage (i.e., low operating income volatility) on AI adoption can be reinforced through accountability and transparency. This lack occurs due to non-transparency in decision-making, which is easily eliminated when AI platforms are made more user-friendly and understandable for business stakeholders. By adopting accountability measures to ensure that AI-influenced decisions must be countersigned, organizations can elevate ethical benchmarks and ensure regulatory compliance (Wamba-Taguimdje et al., 2020).

Research Problem

Solving these problems demands an aligned strategy. To keep artificial intelligence serving broader normative norms and justice, the necessity for work to ensure a compliance framework would be essential. Given the role AI will likely play in financial markets, it is critically important that engineers, economists, and policymakers cooperate to develop solutions that maintain the integrity and equity of financial markets. Moreover, ongoing research on the impact of AI on economic disparity should help shape more responsible and equitable algorithm design and policy going forward.

The financial sector is rapidly embracing Artificial Intelligence (AI) technologies, transforming how banks operate and interact with customers. While AI promises significant benefits such as increased efficiency, improved customer service, and better risk management, challenges remain regarding its impact on financial performance and ethical considerations.

Research Focus

There exists a critical gap in our understanding of how AI adoption influences a bank's financial health, particularly when considering factors such as transparency, accountability, and potential biases within AI algorithms. Existing research often concentrates solely on the positive aspects of AI's impact on financial performance, overlooking potential drawbacks like discriminatory lending practices or a lack of explainability in AI-driven decisions. These issues can exacerbate existing socioeconomic disparities, potentially restricting access to financial services and investment opportunities for certain demographics.

Research Aim and Research Question

This study aims to investigate how artificial intelligence could assist in decreasing socioeconomic disparities in the financial sector, thereby influencing asset investment decisions among banks, in particular.

The adoption of AI in banking has multifaceted effects on financial efficiency, including cost savings, enhanced revenue generation, and improved risk management. AI's capacity to combat social bias in investment decisions is significant. By detecting and correcting biases in AI-based investment-recommendation algorithms, banks can promote fairer investment strategies. These strategies, tailored to individual financial profiles and risk tolerance, may increase access to financial services in underserved communities.

Furthermore, the use of explainable AI can make AI-powered investment decisions more transparent and accountable, helping stakeholders understand the rationale behind AI-generated investment choices. Adherence to auditing protocols is essential to identify potential biases and ensure equitable treatment of all investments.

This research topic is highly relevant as it explores the deployment of AI in market analysis with the goal of reducing socio-economic biases in investment decisions. It also examines the potential impact of artificial intelligence on the financial performance and socio-economic equity within the banking industry.

Literature review

The concept of developing advanced machines capable of performing tasks typically associated with humans has spurred growing interest in this field (Jaiwant, 2022). This study underscored the increasing emphasis on 'smart machines'—an innovation that has further intensified this focus, signaling a deeper engagement with AI among banks to enhance operational productivity. The research laid a groundwork for understanding how banks utilize AI to cut costs and bolster operational efficiency. Artificial Intelligence (AI) is centered on creating systems based on computer programs and algorithms, which assist in gathering information and deducing logical conclusions from the data. The advancement of AI reflects an evolution towards human-like cognitive capabilities, thus enabling it to support data analysis, automation, and assistance across various industries (Choudhury & Mishra, 2022). This study showcased AI's potential to automate tasks and perform data analysis in a multitude of applications, indicating that AI has a vast scope to aid in banking operations and customer service. Concurrently, it acknowledges the challenges associated with integrating and managing the transition from manual to automated processes.

Artificial intelligence is a fascinating field because it endeavors to create entities that can understand and emulate human behavior. The exponential growth in data volume and the advancement of processing technologies in the 21st century have propelled research and

applications in artificial intelligence (Pizoń & Gola, 2023). Focusing on the phenomenon, the swift advancements in AI technologies, primarily driven by large-scale data and computational power, have been crucial for grasping the prospective evolution of AI in the banking sector. This study highlights the current state of technical readiness and raises concerns regarding how banks can effectively harness these advancements while maintaining openness and transparency.

The objectives an entity aims to achieve by implementing AI, the resources available, and the industry in which it will be implemented are critical considerations. An illustration of this is how companies have actively engaged in leveraging AI to surpass their competitors. To this end, they have formed partnerships with artificial intelligence solution providers, developed their own AI capabilities, and employed cloud-based AI platforms. The integration of artificial intelligence in the banking sector has enhanced accuracy, efficiency, and personalized customer experiences (Wu et al., 2023). The study indicated that the use of AI for competitive advantage has impacted financial success by potentially improving accuracy and customer experience. Nonetheless, it also highlighted the challenges of ensuring Fair, Transparent, and Accountable (FTA) AI systems within banking, which are essential for maintaining client trust and adhering to regulatory standards.

Banks have adopted various strategies to incorporate artificial intelligence, enhancing operations and fostering new product innovations. These strategies encompass data analysis, adaptive learning platforms, targeted marketing, chatbots, natural language processing, speech recognition, and the amalgamation of fraud detection with predictive risk maintenance (Ashta & Herrmann, 2021). The study suggests that a variety of use-cases have cultivated a heterogeneous array of processes that could be mediated by AI, primarily to boost efficiency and reduce costs. This also necessitates addressing technological opportunities on a larger scale throughout a wider range of financial processes.

Dong et al. (2020) investigated the role of artificial intelligence in the encoding of human knowledge. The study revealed that AI enhanced the reliability and productivity of resources by transforming their usage. It also identified areas requiring additional information to support decision-making and more accurate projections. A key conclusion from this study is the critical importance of leveraging high-quality data inputs to ensure reliable AI outputs, which underscores potential shortcomings in in-hospital data management practices. Veerla (2021) examined the efficiency of bank agents using AI algorithms. According to prior research on banks, there was a recognized need to improve operational processes, including loanmaking, security, compliance, fraud detection, and the introduction of new services. These improvements led to cost reductions and an increase in profits. Additionally, the technologies and services available to clients include customizable project plans, asset management solutions, and robo-advisors. AI may enhance financial performance by promoting increased productivity and reducing costs. However, researchers have highlighted the issue of potential AI decision biases and the need for transparency in AI operations. Key areas of AI in this context include autonomous decision-making and continuous monitoring of resources and procedures for improved value generation. The benefits of AI in the dynamic financial sector are expected to grow, with the potential to improve economic outcomes and operational efficiency (Guo & Polak, 2021). They provided a context for the strategic importance of AI in driving financial and operational measures in the banking sector. The observations were significant but also emphasized the ongoing challenge of open and transparent AI usage. With the significant capabilities of AI come conflicts, such as biases, unexplainable behavior, privacy issues, and inconsistent predictions. The implementation of AI in organizations faces numerous challenges, including job loss, lack of training, high implementation costs, compatibility issues, and ethical

considerations (Veerla, 2021). These issues highlight the inadequacy of current practices and the need for robust frameworks to address these challenges.

Chhillar and Aguilera (2022) conducted research in response to stakeholder concerns from the AI sector regarding the lack of accountability and transparency. They posited that clear and comprehensible data can attract more professional investors, potentially altering the value and share of ownership in a business. Furthermore, Chhillar and Aguilera (2022) highlighted the significance of transparency in attracting new investors, linking it to the overall value of a company. This perspective is crucial for understanding the future impact of AI adoption by banks on their financial health and stakeholder relationships. The study argued that ethical considerations should be central to the strategies employed to integrate artificial intelligence in finance, as these are fundamental aspects that have been necessarily developed around.

Artificial intelligence (AI) is utilized by a diverse array of actors. AI enables computers to analyze their environments, understanding various contexts conveyed through text and audio recordings (Hanif, 2021). Moreover, the innovation within AI has facilitated efficient human-robot interaction by employing advanced AI techniques (Madasamy & Aquilanz, 2023) and natural language processing (NLP), which allows for the comprehension and evaluation of language. Similarly, AI programming in computers possesses the capability to function autonomously, without human intervention (Xu, 2022). Among robots, AI is distinct in its ability to self-improve by learning from historical data. As technology continually advances, organizations must adapt their operations and innovate to generate revenue (Huang & Rust, 2021). It is emphasized that due to the difficulty in ensuring unbiased operations of autonomous systems, rigorous oversight and ethical discussions are necessary.

The proliferation of chatbots and robotic advising services has accelerated the capacity to manage operations with decreased operational risks and enhanced know-your-client regulations (Al-Hashedi & Magalingam, 2021). The study was conducted to demonstrate the integration of various technologies to improve security and boost marketing effectiveness. It suggested that the widespread adoption of AI could lead to significant enhancements in both operational and financial performance. However, the complexity of these interdependencies highlights the necessity for standardized procedures to ensure the uniform and equitable application of AI programs.

Lutz (2019) provided a comprehensive summary of significant academic work on digital inequalities, outlining key concepts and findings. The report advocated for deeper research into labor and big data-related issues, such as inequalities in online labor markets and the impact of algorithmic decision-making on vulnerable populations. The article reviewed existing sociological literature on digital inequalities and offered a general understanding by discussing the well-known levels of the digital divide: first, second, and third. It highlighted the necessity to address access inequalities in digital and emerging technologies, including the Internet of Things and AI-based systems like smart speakers. Additionally, the report examined the benefits of digital skills and usage within the context of new work paradigms and the gig economy. The third area of focus was the discourse on outcomes, analyzing how the use of digital technology can result in benefits or harms. The report also suggested enhancing the connection between digital inequalities research and critical algorithm studies, as well as recent discussions on datafication, digital footprints, and privacy.

This research aims to fix the gaps in prior work by quantifying the use of AI by banks, and linking that diffusion to bank performance and also to financial transparency/accountability/bias. After examining the research encapsulated above, I can say with conviction that any utilization of AI will need to be under a standardized framework and quality control system, whilst expressed concern

about ethics and guiding principles for interventional design may present some barriers to everything being available today. This holistic approach will provide a significant building block in the existing body of research and will add value to the Socioeconomic Disparities in banking industry.

Table 1

Summary of Literature Review

Author(s)	Year	AI Application	Observed Impact	Noted Challenges
Jaiwant	2022	General AI use in banks	Improved operational productivity	Integration and transition from manual to automated processes
Choudhury & Mishra	2022	Data analysis and automation in various industries	Potential to automate tasks and carry out data analysis	Integration and managing transition
Pizoń & Gola	2023	General AI advancements	Enhanced technical readiness in banking sector	Leveraging enhancements with transparency
Wu et al.	2023	AI for competitive advantage	Increased accuracy, efficiency, and customized consumer experiences	Ensuring fair, transparent, and accountable AI systems
Ashta & Herrmann	2021	Various banking processes including fraud detection	Increased efficiency, lower costs, and new product innovations	Addressing technological opportunities at scale
Dong et al.	2020	Encoding of human knowledge	Improved reliability and productivity	High-quality data inputs required for reliable outputs
Veerla	2021	AI in loan making, security, compliance, fraud detection	Improved efficiency, cost reduction, and increased profits	Potential AI decision biases and transparency issues
Guo & Polak	2021	AI for operational and financial measures	Improved economic outcomes and operational efficiency	Biases, privacy issues, and inconsistent predictions

Chhillar & Aguilera	2022	AI for attracting investors through transparency	Enhanced company value and stakeholder relationships	Ethical concerns and need for transparency
Hanif	2021	AI for text and audio analysis	Efficient interfacing with robots	Ensuring unbiased operation of autonomous systems
Madasamy & Aquilanz	2023	AI and NLP for language comprehension	Autonomous operation without human intervention	Supervision and ethical discussions warranted
Al-Hashedi & Magalingam	2021	Chatbots and robotic advising services	Improved security and marketing effectiveness	Standardized procedures for uniform application
Lutz	2019	Digital inequalities in AI and digital technologies	Highlighted digital divide and impact on vulnerable populations	Addressing access inequalities and algorithmic decision-making

Source: author's development

Research Methodology

The study investigated 15 Ukrainian banks that met the relevant criteria and included significant conditions for their interaction with AI technology. It was based on the size of the banks, their market capacity, and their investment response to embedding AI into their day-to-day operations. These attributes were considered important in order to measure the impact of AI disclosure on financial performance measures such as return on assets (ROA) and return on equity (ROE). The diversity of the Ukrainian banking sector ensures a comprehensive understanding of artificial intelligence use across various organizational settings.

The researcher used the content analysis approach to determine the level of artificial intelligence disclosure and to construct an initial collection of AI keywords. According to this approach, the researchers performed content analysis to determine (i) how much a document reveals about its machine learning algorithm, and (ii) create an initial collection of AI keywords. This was done to achieve the purpose of conducting this study project. Past research included methods that are also identical to these (Kemp and Oliver, 2018). A distinct method to identify activities, the identification of tasks is actually composed of three unique methods used to identify activity associated with an AI revelation. According to Vijai et al. (2020), meaningful advancements in AI by researching exhaustively largely dealt with AI building blocks in the financial sector with the expert help of professional entities such as the Financial Stability Board (FSB). A good example of the terms most frequently applied in the banking industry is presented in File Clinic 2019 on AI: artificial intelligence, Big data, Cloud, and AI (Shang & Zhang, 2022). The furnished materials are based on a thorough investigation of the appropriate literature and practices for disclosure mediators. In investigating artificial intelligence (Soni, 2019), this paper conducts a comprehensive examination of the annual financial reports of publicly listed companies in Malaysia. Wheeler (2020) conducted in-

depth research on European organizations that were registered normally, through searches including phrases "artificial intelligence," "AI," "automat," and "algorithm".

This research was conducted based on 130 annual reports of 15 listed banks in Ukraine during the period 2014-2022. The keywords cited recently in the contextual analysis were derived from these reports. Almost all websites of Ukrainian banks offer downloadable PDF versions of their annual reports. By analyzing these reports over time, the dataset provides crucial information on the advancements in artificial intelligence that have been made.

Results

The results of the study are discussed below.

Table 2

Artificial intelligence disclosure is year-wise

Year	AI frequency	Percentage
2014	81	3%
2015	84	3%
2016	130	4%
2017	231	5%
2018	275	8%
2019	304	12%
2020	508	14%
2021	561	24%
2022	760	27%
Total	2934	100%

Source: author's development

Based on the data in Table 2, the percentage of AI disclosures in 2014 and 2015 was only 3% each year, indicating a relatively low level. In 2016, there was a notable rise in disclosures, accounting for 4% of the total. In 2017, there was an additional rise, accounting for 5% of all disclosures. During the period from 2017 to 2018, there was a significant increase in AI disclosures, with the total increasing from 231 to 275. This increase represented more than double the previous amount, with AI disclosures now accounting for 13% of the total. The trend persisted with 12% of the total disclosures in 2019 and 14% in 2020, respectively. In the years 2021 and 2022, there was a significant increase in disclosures, accounting for 24% and 27% of the total, respectively. Over the entire time period, there have been a total of 2,844 AI disclosures made, with different levels of contribution

from each year. The table presents a notable increase in AI disclosures during 2021 and 2022, suggesting a rising interest and investment in artificial intelligence endeavors over time.

Table 3

Descriptive statistics

Variable	Obs No.	M	Med	SD	Min	Max
AI	124	22.87	14	20.11	3.00	130.00
Opportunities	128	7.74	5.99	5.31	1.45	116.00
Challenges	125	5.33	7.01	5.29	1.38	113.71

Source: author's development

Table 3 shows an analysis of the "AI" variable. The data indicates a relatively high mean of 22.87 and a standard deviation of 20.11, suggesting a wide range of values that may include significant outliers. The fact that the median value is 14, which is smaller than the mean, indicates a right-skewed distribution in the data. The "Opportunities" variable shows a fairly balanced distribution, with a mean of 7.74 and a median of 5.99. The data displays a considerable amount of variability, as evidenced by the standard deviation of 5.31. Similarly, the "Challenges" variable has a mean of 5.33 and a median of 7.01, indicating a distribution similar to that of the "Opportunities" metric. The standard deviation of 5.29 implies a moderate level of unpredictability in the data.

Table 4

Correlations of variables

	1	2	3
AI	0.24***	0.00**	0.03**
Opportunities	-	-	0.09**
Challenges			-

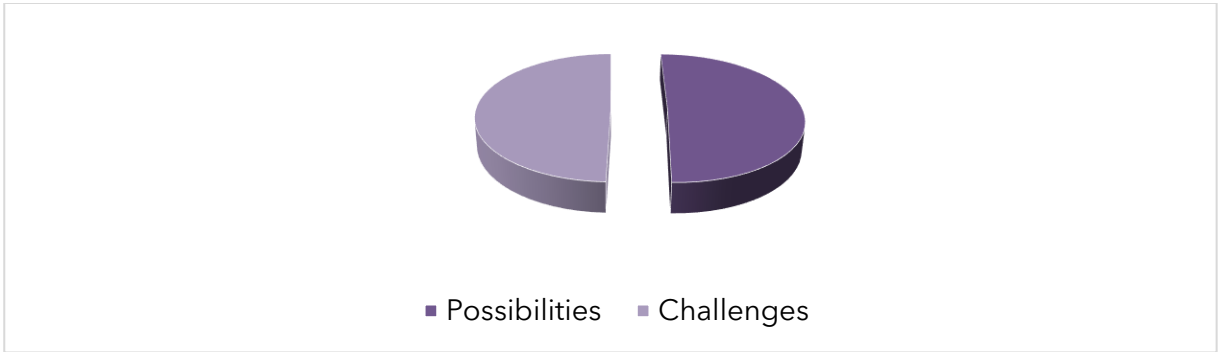
Source: author's development

According to Table 4, the variable "Opportunities" has a positive correlation of 0.24 (***) with the variable "AI". In other words, the capacity of AI projects and their strong and favorable correlation. The statistical analysis reveals a substantial link between "AI" and "Challenges", albeit with a rather tiny effect size (0.00 **). There appears to be a weak or nonexistent correlation between challenges and AI projects. Although the correlation is statistically significant, it is not practically meaningful. The correlation coefficient of 0.09 (**) indicates a statistically significant but weak relationship between Opportunities and Challenges. The data suggests a modest correlation between the variables "Opportunities" and "Challenges," indicating that an increase in opportunities is typically accompanied by an increase in obstacles. In summary, this table offers valuable data on

the connections between the variables "AI," "Opportunities," and "Challenges," including details on the strength and statistical significance of these interactions.

Figure 1

Frequency chart for possibilities and opportunities

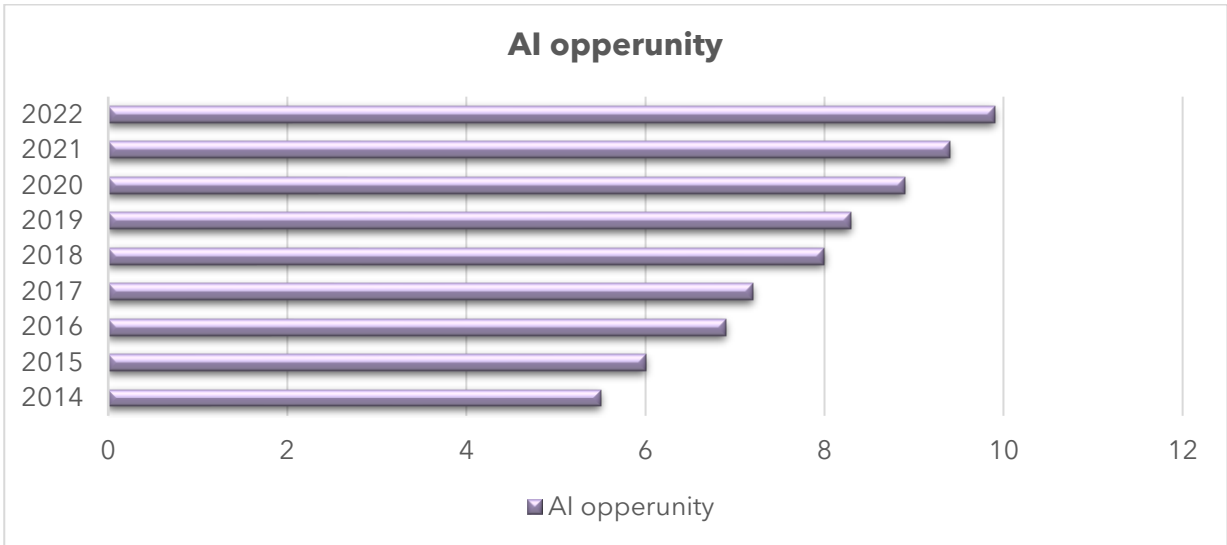


Source: Author's own compilation. Data extracted from NBU (2023)

The equal number of possible results and difficulties related to artificial intelligence are shown in Figure 1.

Figure 2

Data of AI Opportunities Year-wise

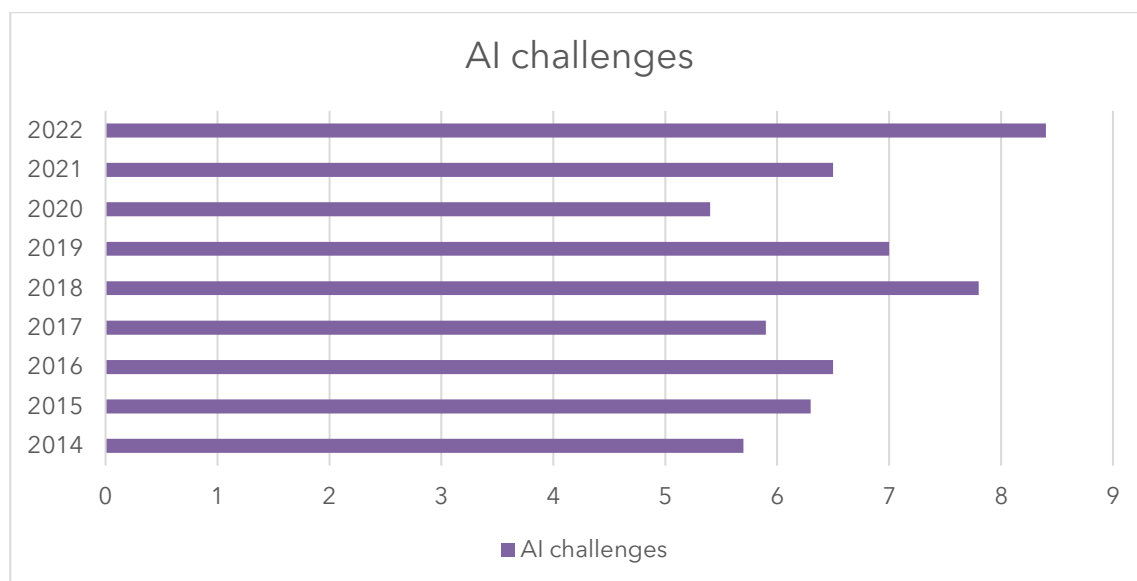


Source: Author's own compilation. Data extracted from NBU (2023)

As depicted in Figure 2, where values often demonstrate an upward trend from left to right, the proliferation of AI opportunities is clearly on the rise over time. AI prospects grew by about 5.5 percent in 2014. The prospects in the field of artificial intelligence gradually increased between 2015 and 2017, with a more noticeable rise in the latter year. The rate of increase continued to accelerate between 2018 and 2022, peaking at around 10 in that year. This suggests that in the last year, chances related to artificial intelligence have significantly expanded. The graph illustrates how AI opportunities have evolved over time and indicates a consistent increasing trend. The most substantial increase by far occurred in 2022.

Figure 3

Data of AI challenges Year wise



Source: Author's own compilation. Data extracted from NBU (2023)

The graph depicts the fluctuations in the annual value of AI challenges. The increase in AI issues in 2014 was rather moderate, with a value of approximately 5.7. Challenges saw a slight uptick in 2015–2016, followed by a decline in 2017. It seems that the challenges underwent a transformation during this period. In 2018, there was a noticeable increase in AI challenges, totaling eight. The challenges in the field of artificial intelligence fluctuated between 2019 and 2021, with some years hovering around 7.2. The graph shows a significant surge in AI challenges in 2022, reaching a value of 8.9, the highest recorded in the dataset. Clearly, over the past year, the scale of the issues has escalated significantly. The graph illustrates the evolution of AI challenges over time, with some years witnessing significant developments while others showing minimal changes. The peak reached in 2022 indicates a substantial increase in the emphasis placed on AI matters during that year. Individuals involved in identifying or managing risks associated with artificial intelligence (AI) may find this information intriguing.

Discussion

The banking industry has been completely transformed by technologies such as artificial intelligence (AI), machine learning, deep learning, and natural language processing. Especially, the private banking sector has adopted efficient AI technology to handle daily operations (Khai Nguyen & Cuong Dang, 2022). This study investigates the impact of artificial intelligence on financial market regulation while considering socioeconomic inequalities in the banking sector. Every technology has its positive and negative aspects, and AI is no exception. However, the banking sector has embraced AI and is experiencing significant advancements in trading due to the emergence of AI (Kute et al., 2021). Nowadays, algorithmic trading is trending and is being utilized for automated systems that provide fast and accurate results. AI-based algorithmic systems are being used to make trading processes more efficient, accurate, and faster. They help in solving complex trading plans by utilizing past data techniques and forecasting trade decisions. AI technology also reduces human error, making the trade process smoother (Patil & Kulkarni, 2019). Financial organizations can benefit greatly by utilizing AI-supported programs to improve their analytical research processes and make

them faster and more effective (Nizam, 2022). Machine-based algorithms have the capability to predict the future direction of various projects by evaluating past data, economic indicators, and other specific information (Vijai et al., 2020). These future predictions can assist investors in maximizing their profits, reducing risks, and optimizing resource allocation (Sharma & Shekhawat, 2022). AI is essential for effectively managing risks in the financial market. Having a keen ability to assess and handle risks is crucial for success in the trading and investing industry.

Artificial intelligence algorithms can consider a wide range of risk factors and market conditions when assessing portfolio risk (Lu, 2021). The AI system helps investors make the financial market safe and secure from hackers and highlighted fraud activities in the system. The system also predicts when the market might go down in the near future so that investors can adjust their financial plans and protect themselves from losses (Hassan et al., 2023). AI algorithms have the capability to gather the required data from different sources like online newspapers, social media posts, and other online forums to evaluate market behavior. Additionally, the system utilizes natural language processing techniques to analyze the data from these sources (Zardkoohi et al., 2018).

The processes that banks use to contact and assist customers have been completely transformed due to the integration of AI. AI processes can be more beneficial for the banking sector by predicting public opinion and behavior (Rane et al., 2023). It is crucial that the sensitive data used by banks remain safe and secure; thus, AI systems can function effectively for this purpose. Illegal activities by hackers or unauthorized access can be mitigated after the efficient utilization of AI systems by banks. Instances of disruption caused by cyberattacks, core exposures, and illegal access to data exacerbate the problem. Concerns about potential biases and inequities arise from the quality of the data used to train AI systems. If the training data is flawed, there is a risk that AI systems may misguide authorities and produce biased results that could lead to injustices in the financial market. AI programs are beneficial for managing debit and credit; however, access should be fair and limited to specific groups of members. Therefore, regulations and laws addressing these issues must be prioritized, and legal documentation should be approved by all relevant government organizations.

AI techniques are utilized on a global scale, and as such, there must be ethical and legal codes of conduct in place to address emergency situations in the financial market. It is crucial to regulate employees' rights to use appropriate AI technology to maintain market stability and ensure effective outcomes in trading. Investigating issues of accountability and transparency in AI decision-making is essential for creating a stable and smooth market environment in the long term (Burström et al., 2021). One of the primary functions of AI is to control risk; however, there are still unforeseen challenges that the financial market could encounter. Given that AI systems are interconnected, they have the potential to significantly impact the world's economic system. If a problem arises, it could trigger a chain of events that affects the entire system (Garcia-Bedoya et al., 2021). Effective risk management strategies need to be implemented to address this issue and minimize the risk of market disruptions (Elmarzouky et al., 2021). For the successful development, protection, and advancement of artificial intelligence in financial markets, it is crucial to have employees with the necessary skills. However, there is a shortage of skilled AI professionals in the banking industry and beyond. Identifying and retaining talented individuals to work on AI projects can pose a significant challenge for many financial firms (Benbya et al., 2020). Relying too heavily on AI systems presents several challenges. Some more skeptical investors may have traded extensively and placed so much trust in AI that they overlook the value of human intuition and judgment. Balancing the human experience with AI decision assistance is a complex problem to solve (Pérez y Madrid & Wright, 2023).

Conclusions and Policy Implications

The primary objective of this study is the incorporation of Artificial Intelligence (AI) in market analysis to report socioeconomic discrepancies in investment decisions in the Ukrainian financial sector. To investigate this issue, 130 annual reports from 15 registered banks in Ukraine were examined spanning the years 2014 to 2022. Analysis of both economic and non-monetary data was utilized to create detailed profiles of these organizations. By leveraging a database of keywords, the AI system developed in this study offers an enhanced approach to transforming the financial market. Artificial intelligence has significantly reshaped the banking and finance sectors, impacting the corporate world and the economy at large. AI has revolutionized these sectors by improving productivity, accuracy, and customer service flexibility. Natural language processing, algorithmic trading, and machine learning are key components of this transformative technology. Artificial intelligence enables financial institutions to analyze vast amounts of data, accelerate processes, and make intelligent decisions, thereby enhancing operational efficiency and company profitability.

Since banks have adopted artificial intelligence, several challenges have arisen that must be addressed. These include privacy issues, ethical challenges, lack of transparency, biased algorithms, and the possible presence of harmful data. Financial firms are facing various challenges, such as job losses, inadequate education, high execution costs, and concerns related to system assimilation. To tackle these challenges effectively, financial institutions must implement robust risk management strategies, invest in talent development, and strike a balance between human judgment and AI-driven decision assistance. This will help them maximize the benefits of artificial intelligence (AI) while minimizing its drawbacks.

The implementation of AI in the financial sector requires close collaboration among regulators, financial institutions, and AI professionals. To maximize the benefits of artificial intelligence technology and reduce its risks and ethical issues, clear rules, as well as a culture of transparency and responsibility, must be prioritized. The potential of AI offers various forecasts for the banking sector. If used properly, AI has the ability to alter business operations, leading to enhanced creativity, efficiency, and long-term profitability for both companies and customers.

There are numerous issues and challenges in the financial market, although AI holds strong promise. It has the capacity to drive technological changes in any sector of the financial market, allowing for the handling of problems such as algorithmic trading, risk management, predictive analysis, and services. These challenges have alternative solutions that can be provided by AI systems. The issues at hand may arise from incorrect inputs, legal concerns, ethical disparities, biases, privacy breaches, and the overuse of AI systems. These issues and challenges can be properly addressed with the help of experts, policy makers, financial institutions, and government organizations. Efficient cybersecurity, transparency, and responsibility are key to safeguarding AI data. A legally protective framework for AI can facilitate smoother business operations and trade. Effective risk management is necessary to guard against disasters and implement early warning systems.

Knowledge sharing and financing of education are essential in closing the skills gap. Improving skills necessitates a collaborative effort between humans and machines, rather than relying solely on AI. Perhaps a more comprehensive understanding can be gained through this approach. Through careful analysis and strategic implementation, we can harness the power of AI to help individuals navigate and thrive in an ever-evolving world.

The financial industry must adapt to the exponential growth of artificial intelligence. These issues can be resolved quickly and efficiently with artificial intelligence (AI), which can enhance

inventiveness, efficiency, and ethics in the financial markets. Collaboration will be crucial to achieve this equilibrium, but the benefits will be tremendous.

Suggestions for Future Research

While this study has produced notable results, it is crucial to recognize the constraints that must be considered before applying financial AI. The paper largely examines the benefits and drawbacks of AI in banking, briefly touching on insurance, investment management, and financial regulation. To understand how AI affects the financial services business, more research may need to examine a broader range of financial institutions. Without evaluating specific cases or empirical evidence, the study focuses on the potential benefits and drawbacks of AI implementation. This overview is helpful, but empirical studies would better illustrate how AI affects operational effectiveness, customer satisfaction, and financial performance. The article also emphasizes the possibilities and challenges of AI application in the finance industry. However, it only provides a limited understanding of AI deployment methodologies and best practices. Further research can help determine which artificial intelligence technologies, methodologies, and tools work best in financial applications. Examining success factors and implementation obstacles would also be beneficial.

Furthermore, the article fails to examine the ethical and regulatory consequences of AI in finance. To ensure ethical and responsible AI implementation in the financial industry, regulatory frameworks and ethical principles should be investigated. It should also consider ethical and legal issues surrounding AI deployment. The study overlooks exogenous factors such as technical advances, market dynamics, and geopolitical events that may impact the adoption and use of AI in the banking industry. Further research could examine how these external factors influence the use and integration of AI in the financial industry, as well as its pros and cons.

Several scientific topics require more attention. Empirical studies are needed to determine how AI implementation affects operational efficiency, customer satisfaction, and financial performance. Case studies, surveys, and statistical research can reveal the merits and drawbacks of AI in banking. A deeper dive into artificial intelligence tools, methods, and technologies that are effective in financial applications is also necessary. Comparative studies and testing can help identify the best AI solutions for financial applications and tasks. A more thorough investigation of AI in banking could also address significant ethical and legal issues. Similar to a financial analyst, one could examine existing legal frameworks and ethical standards and help develop new ones to ensure ethical AI use in finance.

It would be fascinating to study how technical advances, market developments, and geopolitical events impact the adoption and usage of AI in the finance sector. Scenario analysis and forecasting can help predict how external influences will affect banking AI. This report sheds light on the use of financial AI, but future studies must acknowledge these limitations to fully understand this important and rapidly growing field.

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Conflict of Interest

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