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Has the World of Finance Changed? A Review of the Influence of Artificial Intelligence on Financial Management Studies

Shahsuzan Zakaria[1*] Suhaily Maizan Abdul Manaf[2] Mohd Talmizie Amron[3] Mohd Taufik Mohd Suffian[4]
[1]Faculty of Business and Management, Universiti Teknologi MARA, Selangor Branch, Malaysia
[2]Faculty of Business and Management, Universiti Teknologi MARA, Terengganu Branch, Malaysia
[3]College of Computing, Informatics and Mathematics, Universiti Teknologi MARA, Terengganu Branch, Malaysia
[4]Faculty of Accountancy, Universiti Teknologi MARA, Perak Branch, Malaysia
*shah81@uitm.edu.my, suhailymaizan@uitm.edu.my, talmizie@uitm.edu.my, taufik815@uitm.edu.my

Abstract: Artificial intelligence (AI) has had a tremendous impact on financial management research, revolutionizing how financial data is analyzed and decisions are made. It has the ability to improve accuracy and efficiency while also lowering costs and providing fresh insights into financial markets and investments. This review will look at some of the important areas of financial management research that AI has influenced. One of the most notable effects of AI on financial management research has been in risk management. AI algorithms, with their ability to analyze vast amounts of data, can detect patterns and anomalies that humans may not notice right away and have had a significant impact on financial forecasting and prediction, generating predictions about future market movements and investment opportunities by analyzing historical data, market trends, and other relevant factors. In conclusion, artificial intelligence (AI) has had a tremendous impact on financial management research, revolutionizing how financial data is analyzed and decisions are made, with significant potential to disrupt traditional financial management techniques. AI has the ability to increase accuracy and efficiency, cut costs, and provide fresh insights into financial markets and investments. As AI technology advances, its impact on financial management studies is likely to rise.

Keywords: *Artificial Intelligence (AI); Financial Management Studies, Financial Data.*

1. Introduction and Background

With roots in the early 20th century, artificial intelligence (AI) has a lengthy and fascinating history. The term "artificial intelligence" and the Dartmouth Conference, which is regarded as the birthplace of AI research, were first used by computer scientist John McCarthy in the 1950s, introducing the idea of AI for the first time. From rule-based systems to machine learning and deep learning, artificial intelligence has significantly advanced over the years. The term artificial AI describes the simulation of human intelligence in machines that are programmed to carry out tasks that would typically require human intelligence (De Bruyn, Viswanathan, Beh, Brock & Von Wangenheim, 2020). By using data and algorithms, AI empowers machines to reason, learn and make decisions.

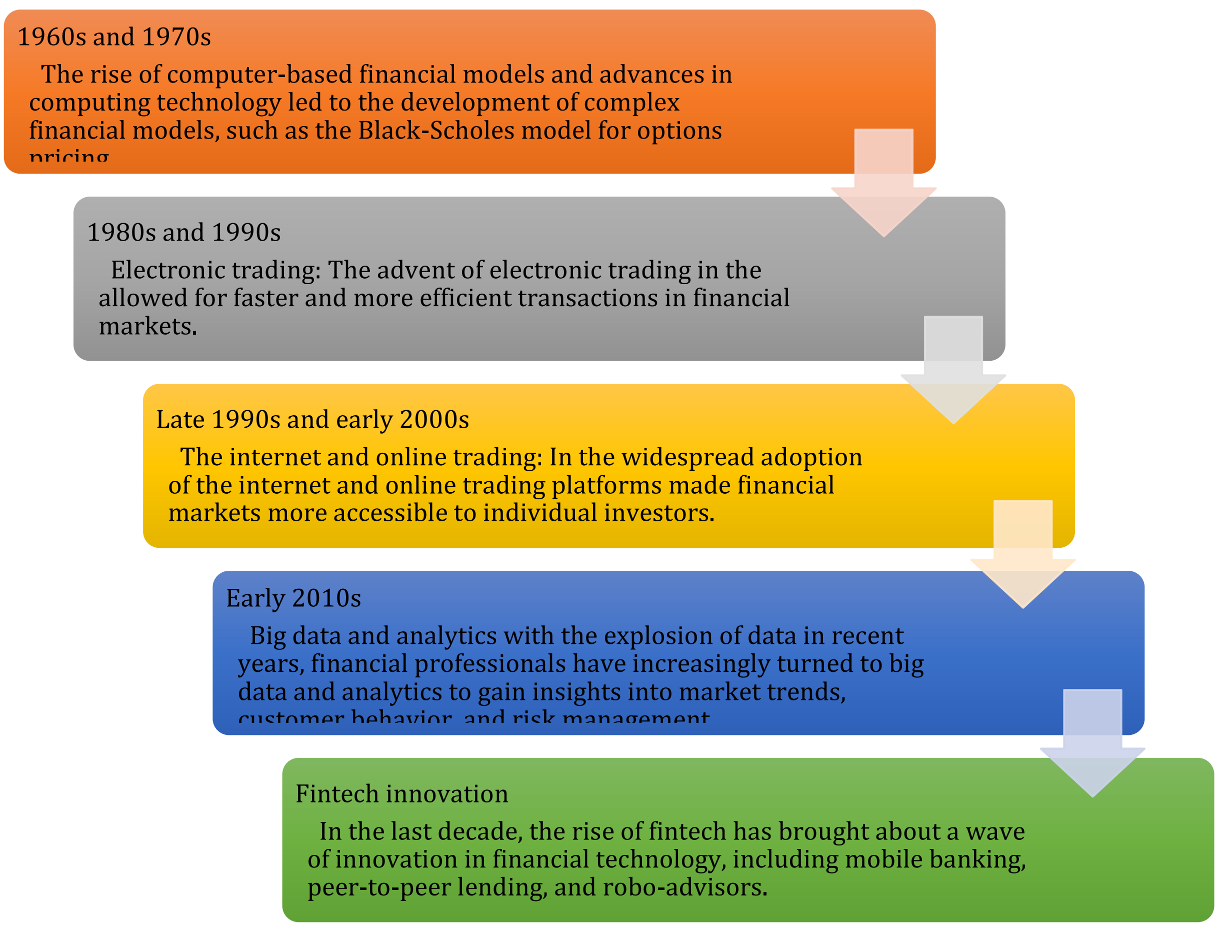
Since the first AI-based trading systems were created in the 1980s, AI has been used in finance for a considerable amount of time. In the 1990s, machine learning applications such as fraud detection and credit scoring began to use neural networks and other machine learning techniques. With applications like algorithmic trading and risk management, AI did not, however, start to be more widely used in the finance industry until the early 2000s. In areas like robo-advisory services and sentiment analysis using natural language processing, the use of AI in finance increased significantly in the 2010s. For instance, to achieve the highest levels of efficiency in customer analysis and asset management, robo-advisors use cutting-edge technologies such as AI, robot process automation, and machine learning (Belanche et al., 2019; Shanmuganathan, 2020). With applications in areas like fraud detection, credit scoring, investment management, and customer service, AI is becoming more and more pervasive in the world of finance today. Considering the increasing volatility of capital markets, fluctuations in virtual currencies, and inflation stated that there is a growing demand for long-term investments founded on the rise of stable asset management.

AI has provided various tools and techniques to analyze and manage financial data more efficiently and effectively than ever before. With the ability to learn from data, AI can help predict market trends, detect fraudulent activity, and provide personalized financial advice to clients. One of the main benefits of AI in the financial area is its ability to process large volumes of data in real-time, providing instant insights to financial professionals. This allows them to make better-informed decisions, reducing the risk of errors and increasing the speed of transactions. Furthermore, AI can adapt and learn from new data, providing valuable insights that can be used to improve future decision-making. AI has also developed new financial products and services, such as robo-advisors and algorithmic trading. These products use AI algorithms to analyze financial data and provide clients with personalized investment advice without human intervention.

In summary, AI has made investment advice more accessible to a wider range of clients, reducing costs and improving accessibility. Consequently, Cao (2020) concluded that AI has brought significant advancements to financial management studies by enhancing data analysis, automating trading, improving risk management, detecting fraud, personalizing financial services, optimizing portfolios, streamlining customer service, and transforming credit scoring and underwriting processes. These advancements can potentially improve decision-making, increase efficiency, and drive innovation in the financial industry. To ascertain whether the financial landscape has altered, this study will undertake a thorough literature analysis on the influences of AI on financial management studies.

The Evolution of Financial Studies from the Perspective of Technological Advancement: As a result of technical advancement, financial studies have developed tremendously. Figure 1 displays some significant turning moments in the intersection of technological and financial research.

Figure 1: The Evolution in Financial Management



2. The History of AI in the Area of Finance

Financial technologies (Fintech) refer to a variety of innovative business models that have the potential to completely revolutionize the financial services industry (Mamoshina et al., 2018). The fintech business model provides a variety of financial products or services in an automated manner via the widespread usage of the internet (Paul, 2019). These technologies have a variety of uses, including the use of blockchain to build safe and transparent digital identities and the use of AI to analyze data to identify creditworthy borrowers and avoid fraud. The combination of blockchain and artificial intelligence has the potential to greatly improve financial inclusion in India, resulting in increased economic growth and development.

AI, machine learning, cognitive computing, and distributed ledger technologies, which are driving Industry 4.0, can be leveraged to support fintech new entrants and established incumbents (Lopes and Pereira 2019). While blockchain technology has the potential to revolutionize many industries, including finance, the authors argue that many technical and legal challenges, such as scalability and interoperability, and legal challenges, such as regulatory compliance and data protection, must still be addressed. On the other hand, we believe AI and machine learning algorithms can be utilized to monitor financial activities and maintain regulatory compliance (Lee & Shin, 2020; Aziz & Dowling, 2019). Audio processing, knowledge representation, speech-to-text, deep learning, expert systems, natural language processing, machine learning (ML), robotics, and symbolic logic are some additional AI technologies that can be used in the fintech industry to promote financial inclusion (Paul, 2019). It is believed that in 2011, a large number of businesses, including Google, Microsoft, IBM, and Facebook, invested significantly in AI and machine learning to be used in the commercial sector. This is thought to have contributed to the exponential growth of AI technologies.

In the area of finance, AI has been applied for many years. The first uses of AI in finance date back to the 1980s, when machine learning algorithms were employed for fraud detection and credit risk assessment. More advanced AI methods, like neural networks and decision trees, were created in the 1990s and used to solve complex financial issues like stock price prediction and portfolio optimization. The widespread adoption of these techniques at the time was constrained, though, by the high cost of computing power. Advances in computing technology and the accessibility of large amounts of data in the early 2000s paved the way for the development of more sophisticated AI techniques like deep learning and natural language processing (Sharifani & Amini, 2023). These methods have been used in a variety of financial applications, such as algorithmic trading, sentiment analysis of news articles, and fraud detection. With applications in risk management, fraud detection, customer service, and investment management, AI is now a crucial tool in the finance sector. As financial institutions generate more data and technology advances, it is anticipated that the use of AI in finance will increase in the coming years.

3. AI Methodology in Finance Results

AI methodologies used in finance can be broadly categorized into three main areas: (i) Machine Learning; (ii) Natural Language Processing; and (iii) Expert Systems.

Machine Learning (ML): In the field of finance, machine learning is one of the most well-liked and widely applied AI techniques. It is a branch of AI that focuses on developing mathematical formulae and statistical models that let computers learn from data without being explicitly programmed. Based on past data, ML models can be trained to find trends and forecast future occurrences. Applications in finance include fraud detection, credit scoring, portfolio management, and the creation of investment strategies. Finance frequently employs supervised learning, where models are trained on labelled data to forecast new, unforeseen data. For instance, in credit scoring, a model can be trained using historical data on clients who missed payments on their loans and those who didn't to identify trends and causes of defaults. The likelihood of default for new loan applications can then be forecasted using this model. Unsupervised learning, in contrast, is another strategy that can be used in the financial industry. In this method, models are trained on unlabeled data to find patterns or clusters within the data. Unsupervised learning can be applied to this in portfolio management to find groups of stocks that display comparable traits or behaviors.

A third method that can be applied in finance is reinforcement learning, in which models are developed through trial and error to maximize a specific reward or objective. In trading strategies, this can be helpful because a model can eventually learn to make decisions based on market conditions and maximize profits. In summary, machine learning has grown in importance as a tool in finance, allowing for more precise and effective decision-making, allowing financial institutions to better manage risk, and enhancing performance. Processing of natural language (NLP): To extract pertinent information from human language, algorithms are used to analyze it. NLP can be used for voice recognition, language translation, and sentiment analysis of news and social media posts.

Natural Language Processing (NLP): NLP is a branch of AI that focuses on the interaction between humans and computers through natural language. NLP has several financial applications, including sentiment analysis, news analysis, and financial reporting. Sentiment analysis is the process of examining text data to ascertain the writer's general attitude toward a specific entity, such as a business or stock (Kalyani, Bharathi, & Jyothi, 2016). Given that sentiment can affect a company's stock price, this information can be used to guide investment choices. Another use of NLP in finance is news analysis, where algorithms are used to examine news articles and other information sources to find significant events or trends that could have an impact on financial markets. To create trading strategies or choose investments, this information can be used. Additionally, NLP can be helpful in the financial reporting industry because it can be used to extract crucial data from financial statements, such as earnings reports. The financial health of a company can be evaluated using this data, and investment choices can be made.

The NLP model may use supervised learning, unsupervised learning, or a combination of the two. Seemakhurti et al. (2015) classified a group of texts based on their topic-document frequency matrix using this method for the detection of fraud in financial documents. Their analysis has attained the levels of precision that text classifiers typically demand. They think that by using this strategy, it will be possible to spot anomalies or outliers in the financial data that might point to fraud.

Expert Systems: Expert systems are a subset of artificial intelligence (AI) technology that imitates human decision-making in a given field. Expert systems have been applied to financial tasks such as investment recommendation, fraud detection, and credit scoring. To define the problem domain and direct the decision-making process, expert systems rely on knowledge bases that contain rules and algorithms. These guidelines can be updated and improved as new information becomes available because they are based on industry-specific expertise and experience. Expert systems have the benefit of being transparent because the decision-making process can be tracked, audited, and trained to accurately carry out specific tasks. However, they may be constrained in dealing with dynamic and complex situations, necessitating frequent updates. Neural networks, deep learning, and reinforcement learning are additional AI methods used in finance. Large amounts of data are analyzed using these methods to find patterns, predict future events, and spot anomalies. All things considered, AI methodologies have revolutionized the financial sector by enabling quicker, more accurate, and more effective decision-making.

4. A Survey of AI in Finance

Cao and Zhai (2022) provide a comprehensive overview of the application of artificial intelligence (AI) in finance. The authors first introduce the basic concepts of AI and its subfields, including machine learning, natural language processing, and computer vision. They then review the use of AI in various finance-related tasks, such as credit risk assessment, fraud detection, trading and investment, and customer service. They also discuss AI's challenges and opportunities in finance, including data privacy and security, ethical concerns, and the need for human oversight. It thus highlights the importance of interdisciplinary collaboration between finance and computer science to advance the field of AI in finance and highlights the need for ongoing research and development in this area.

AI and Financial Forecasting: AI has the potential to improve financial forecasting significantly. With the ability to process vast amounts of data quickly and accurately, AI can analyze market trends and make predictions more accurately than traditional methods. One way AI is being used in financial forecasting is through machine learning algorithms. These algorithms can learn from historical data and use that knowledge to predict future trends. This can be particularly useful in predicting stock prices or market trends. Another way AI is being used in financial forecasting is through natural language processing (NLP). These algorithms can analyze news articles and social media posts to gain insight into how people are feeling about certain stocks or companies. This information can then be used to predict future trends in the market.

For instance, Carta et al. (2022) discuss the importance of transparency in financial forecasting models and how explainable AI can improve their accuracy and reliability. The authors highlight the challenges in building reliable financial forecasting models, such as the complexity of financial data, the high degree of uncertainty, and the need for accurate and timely predictions. They argue that explainable AI can address these challenges by providing insights into how the models work, which can help users better understand their predictions and make informed decisions. Based on the application of explainable model AI for forecasting stock prices, the authors use a deep learning model to predict the stock prices of a set of companies. They compare the model's performance with and without explainability, showing that it is more accurate and reliable than the non-explainable model. They also provide insights into how the model works, highlighting the importance of features such as historical stock prices, financial statements, news articles, and social media sentiment. In short, the authors highlight the potential benefits of explainable AI for financial forecasting, including improved accuracy and transparency, and provide insights into how these models can be built and applied in practice.

Zaremba and Demir (2023) discuss the potential of a Generative Pre-trained Transformer (ChatGPT) in the finance industry. It highlights the capabilities of ChatGPT in natural language processing (NLP) and its ability to analyze large datasets, which could be used to generate insights and make predictions in financial markets. The paper also discusses the challenges and ethical concerns associated with using AI and NLP in finance, such as potential biases in data and the need for transparency and accountability. Thus, it clearly shows that ChatGPT has the potential to revolutionize the finance industry by enabling more efficient and accurate analysis of financial data. This is supported by Krause (2023) when examining the potential benefits and limitations of using ChatGPT and other AI models as a due diligence tool for private firm investment analysis. The author explains how AI models can assist in analyzing large amounts of data, identifying patterns and trends, and making predictions, which can aid in investment decision-making. The author also acknowledges the limitations of using AI models, including the lack of transparency and interpretability in some models, potential bias, and the risk of overreliance on technology. The paper concludes by suggesting that while AI models can be valuable, they should be used with traditional due diligence methods and human judgment.

AI and Financial Risk Management: The combination of AI with financial risk management has transformed how organizations and institutions reduce risks in the complicated world of finance in recent years. AI has emerged as a significant tool in financial risk management. AI is a discipline of computer science that focuses on constructing intelligent computers capable of executing activities that would normally require human intelligence. AI has dramatically improved the ability of the financial sector to identify, assess, and manage risks by employing complex algorithms, machine learning techniques, and massive volumes of data.

Fraud Detection: AI can detect fraudulent activity in real-time. AI systems can detect patterns that may indicate fraudulent behavior by analyzing massive amounts of transactional data. Xie (2019) investigates the evolution of artificial intelligence (AI) and its impact on the financial sector. According to the author, the introduction of AI technology has resulted in substantial changes in the financial industry, particularly in risk management, fraud detection, and customer service. The article also covers the problems of integrating AI into the financial system, such as worries about data privacy and security, as well as the possibility of bias in AI algorithms. Xie (2019) investigates the impact of AI in boosting efficiency and lowering costs in the finance sector. According to the report, AI-powered chatbots and virtual assistants can provide more personalized and timely customer service. Simultaneously, AI systems can automate processes like data processing and decision-making, allowing human workers to focus on more difficult jobs. This clearly demonstrates the importance of continuing research and development in AI technology to fully realize its potential benefits in the financial industry while resolving concerns about data privacy, security, and ethical considerations. Overall, Xie's study provides useful insights into the ongoing evolution of the financial industry in the age of artificial intelligence.

Risk Assessment: AI can be used to assess and quantify risks. For example, AI algorithms can analyze financial data to calculate the probability of default for a borrower or the expected loss of a portfolio. Mhlanga (2021) explores using machine learning and artificial intelligence (AI) in credit risk assessment to promote financial inclusion in emerging economies. The author discusses the challenges of traditional credit scoring methods and the potential of AI and machine learning algorithms to provide more accurate credit risk assessments. The paper also discusses the regulatory challenges and ethical considerations associated with using AI and machine learning in credit risk assessment. The author argues that applying AI and machine learning in credit risk assessment can contribute to financial inclusion and promote economic growth in emerging economies. Anshari et al. (2021) explore the rise of financial technology (FinTech) and its use of artificial intelligence (AI) in the financial industry. The study emphasizes the potential benefits of FinTech, such as increased financial inclusion, increased efficiency, and cost savings. The authors do, however, point out that there are ethical issues related to the use of AI in FinTech, such as prejudice, privacy concerns, and transparency. According to the study, regulators and policymakers should address these ethical issues to ensure that the use of AI in FinTech is appropriate and benefits society as a whole. Overall, the article gives insights into the convergence of FinTech and AI, as well as the ethical issues that occur as a result of this intersection.

Mhlanga (2020) and Qi and Xiao (2018) explore the impact of artificial intelligence (AI) on the Fintech industry. The authors discuss how AI is being used in various applications such as fraud detection, risk management, investment analysis, and customer service and how it is helping to improve the efficiency and effectiveness of financial services. The article also examines some ethical concerns associated with using AI in finance, including privacy, security, and bias. The authors conclude that AI has the potential to transform the financial industry but that careful consideration must be given to the ethical implications of its use. Overall, the essay provides a useful summary of the junction between fintech and AI, as well as the possible impact on financial services. AI can assist financial organizations in improved risk management and mitigation, potentially lowering the possibility of financial losses. It is crucial to stress, however, that AI is not a replacement for human skill and judgment and should be utilized in conjunction with human oversight.

AI and Financial Education: AI can also be used to improve financial education by making financial information more accessible and understandable to people. Awasthi (2023) and Yue et al. (2023) discuss how the Chat Generative Pre-Trained Transformer (ChatGPT) model can democratize financial knowledge and empower individuals with financial literacy. The authors argued that the traditional approach to financial education, which relies on textbooks, seminars, and lectures, is ineffective in reaching a wide audience due to various reasons such as time constraints, accessibility, and information overload. They suggest that the ChatGPT model can create an interactive and personalized learning experience for individuals seeking financial knowledge. The authors offered an overview of the ChatGPT model, including its strengths and limitations, as well as an explanation of how it might be used to generate natural language responses to financial-related inquiries. They suggest that because the model can be trained on massive financial datasets to give relevant and accurate responses, it may be used to teach financial literacy. Furthermore, they discuss the model's potential limitations, such as the possibility of generating biased responses and the need for ongoing training to ensure the model's accuracy and relevance, emphasizing ChatGPT's potential as a tool for democratizing financial knowledge and empowering individuals to make informed financial decisions. Future research should concentrate on developing more advanced AI models that can better capture the intricacies of financial education and increase broad public financial literacy.

In Personalized Learning, AI can personalize financial education for individual learners. AI algorithms can provide personalized recommendations and learning paths by analyzing user data and behavior. Murugesan and Manohar (2019) highlight the potential of AI to drive financial literacy in the financial sector. They argue that AI can help financial institutions personalize their services and improve the financial decision-making process for consumers. The authors also discuss how AI can provide personalized financial education to consumers, such as chatbots that can answer financial questions and provide guidance on budgeting and savings. They highlight the importance of financial literacy for individuals and the potential benefits for the financial sector in promoting financial literacy through AI. It may be utilized in gamification to build interactive financial games and simulations to assist learners comprehend financial concepts in a fun and engaging way. Pal et al. (2021) investigate the impact of gamification on the financial behavior of young investors. According to the findings, using gamification approaches in financial apps can boost financial awareness, engagement, and motivation among young investors. The study also emphasizes the importance of developing personalized and interactive financial applications with gamification features to increase financial literacy among young investors. In agreement, Rodrigues et al. (2018) explore gamification's effectiveness in teaching financial education to self-directed bank investors. The authors conducted a case study in Portugal using a web-based platform that incorporates gamification elements such as points, badges, and leaderboards to teach financial education topics. The study found that using gamification elements positively impacted self-directed bank investors' engagement, motivation, and learning outcomes. Participants who interacted more with the gamified platform also reported greater financial knowledge gains than those who did not engage as much. From the study, they suggested that gamification has the potential to be an effective tool for financial education, especially for younger generations who are more accustomed to digital technologies and gaming experiences. The article provides insights and implications for financial institutions, educators, and policymakers interested in using gamification to enhance financial literacy.

Rodriguez-Ruiz et al. (2021) also investigate AI-powered natural language processing (NLP) in analyzing financial news items and reports and producing summaries in an understandable way. This study explores the use of natural language processing (NLP) technologies to test digital literacy skills by presenting a framework for measuring digital literacy that includes analyzing learners' language use and knowledge of technology ideas using NLP techniques such as text mining and sentiment analysis. The results demonstrate that NLP tools can effectively assess learners' digital literacy skills and provide important feedback to instructors by providing a case study utilizing this framework to analyze learners' language use in an online course on digital marketing.

Overall, the article emphasizes NLP's promise in educational contexts for assessing and increasing students' digital literacy. When Niszczota and Abbas (2023) address the prospect of using huge language models, such as GPT, as a financial advisor, Chat GPT might also be the financial advisor. According to the authors, GPT can be trained on massive amounts of financial data and then used to provide forecasts and investment suggestions. The report also looks at the ethical and legal issues of utilizing AI models as financial advisors. It emphasizes the significance of openness, accountability, and regulation in ensuring the responsible usage of these models. However, the ethical and legal ramifications of their use must be carefully considered.

AI and Fraud Detection: AI can significantly improve fraud detection by analyzing large volumes of data in real time and identifying patterns that may indicate fraudulent behavior. Anomaly Detection, Network Analysis, Behavioral Biometrics, Natural Language Processing, and Predictive Modeling Behavioral Biometrics, among others, are the legitimate indicators in explaining the potential of AI use and its relationship towards fraud detection. In explaining this relationship, Bao et al. (2022), in their chapter "Artificial intelligence and fraud detection", explore AI's application in fraud detection in the financial industry. They begin by discussing financial fraud's increasing prevalence and sophistication and the limitations of traditional fraud detection methods. Based on the analysis, various AI techniques have been developed for fraud detection, including supervised and unsupervised learning algorithms, natural language processing (NLP), and network analysis. However, the challenges of implementing AI-based fraud detection systems include the need for large amounts of data, the complexity of integrating AI with existing fraud detection systems, and the potential for false positives and negatives. They note that despite these challenges, AI has the potential to improve fraud detection accuracy and efficiency significantly and can also reduce the cost and time required for manual fraud investigations.

Soviany (2018) also highlights that the case focuses on a Romanian bank that implemented an AI-based fraud detection system, which resulted in a significant decrease in the number of false positives and negatives compared to the bank's previous rules-based system. The article also discusses the importance of explainability and transparency in AI-based fraud detection systems and the challenges of implementing such systems in practice. It indicates the potential of AI in improving payment fraud detection and prevention. Choi and Lee (2018) have surveyed financial fraud methods using machine learning and deep learning methodology and proposed a process for accurate fraud detection based on the advantages and limitations of each research. They presented a machine learning-based overall procedure for detecting financial fraud and compared it to the artificial neural networks approach for detecting fraud and processing vast amounts of financial data. The experimental results show that the machine learning-based method has higher detection efficiency than neural networks at various ratios, according to the study. In contrast, neural networks achieved exceptionally high detection accuracy at 95: 1 and 99: 1 ratios, which are virtually identical to the actual ratio in the real world. The findings suggest that AI can detect financial fraud in everyday transactions, including errors and fraud using enormous volumes of data.

On the issue of combating cyber threats, Soni (2019) discusses the role of artificial intelligence in combating cyber threats in the banking industry. It highlights the importance of cybersecurity in banking and how AI can enhance security measures. The article explains how AI can be used for threat detection, fraud prevention, and risk management in banking. It also discusses the challenges and limitations of using AI in cybersecurity and emphasizes the need to monitor and update AI algorithms continuously. Generally, the article concludes that AI has the potential to improve cybersecurity in the banking industry significantly. Still, it requires a robust and adaptive approach to address the evolving cyber threats. The same goes for the credit card issue; Nkomo and Breetzke (2020) propose a conceptual model for the use of AI in credit card fraud detection in banks by highlighting the limitations of traditional rule-based fraud detection systems and emphasizing the need for more sophisticated techniques to detect fraud in real-time. The proposed model incorporates machine learning algorithms and data mining techniques to identify patterns and anomalies in transaction data. The authors suggest that the model can improve fraud detection accuracy while reducing false positives and false negatives. They also discuss the challenges and ethical considerations of using AI in fraud detection.

Awotunde et al. (2022) investigate a hybrid machine learning technique for identifying bank loan fraud that integrates decision trees, logistic regression, and neural network algorithms. The system was evaluated on a dataset of loan applications, and the findings demonstrated that it could anticipate fraudulent loan applications with high accuracy. According to the findings, banks might use the technology to improve their fraud detection capabilities and lower the risk of loan fraud. Kaur (2020) adds to this by describing how AI is "Changing the Face of Modern-Day Banks." The study explores the impact of AI on the banking industry, including the changes it has brought to customer experience, fraud detection, risk management, and decision-making processes. It also covers the ethical considerations, labor upheaval, and new business models that arise as a result of integrating AI in banking. The paper finishes by emphasizing the importance of banks embracing AI to remain competitive in the rapidly changing financial world.

By analyzing massive amounts of data and discovering patterns that may suggest fraudulent conduct, AI has the potential to greatly improve fraud detection and prevention. AI systems can swiftly uncover abnormalities and suspicious trends that human analysts may miss due to their ability to handle and analyze enormous amounts of financial data in real-time (Rigano, 2019). AI systems can detect possible fraud attempts and inform financial institutions quickly by continuously monitoring transactions, account activities, and user behaviors. The utilization of AI in fraud detection allows financial institutions to stay one step ahead of fraudsters and mitigate their exposure to financial losses. Real-time monitoring and analysis enable immediate action to be taken upon the detection of suspicious activities, preventing further damage and minimizing the impact on customers (Yaacoub, Salman, Noura, Kaaniche, Chehab & Malli, 2020). Financial institutions can proactively protect their customers' assets and personal information by swiftly identifying and neutralizing potential fraud attempts. AI-powered fraud detection systems can also adapt and learn from new fraud patterns as they emerge (Ryman-Tubb, Krause & Garn, 2018). By constantly analyzing and updating their models based on evolving fraud techniques, AI algorithms can improve their accuracy and effectiveness over time. This adaptability is crucial in the ever-evolving landscape of financial fraud, where new tactics and strategies are continuously being developed. Furthermore, AI can enhance the efficiency of fraud investigations by automatically flagging suspicious transactions and providing valuable insights to fraud analysts (Han, Huang, Liu & Towey, 2020). By narrowing down the focus and highlighting potentially fraudulent cases, AI systems enable fraud investigators to allocate their resources more effectively, leading to faster and more accurate resolutions.

In conclusion, AI's abilities to analyze massive volumes of data, discover trends, and adapt to developing fraud strategies have the potential to revolutionize fraud detection and prevention in financial institutions. Financial institutions may reduce their exposure to financial losses, safeguard their consumers from fraudulent activities, and improve general security and trust in the financial industry by leveraging the capabilities of AI. Aside from fraud detection, AI can assist in the development of efficient fraud prevention measures (Manser Payne, Peltier, & Barger, 2021). AI algorithms can offer insights that assist institutions in proactively bolstering existing security measures, identifying vulnerabilities, and putting in place efficient protections to stop future fraud events by evaluating past fraud data and patterns.

AI and Behavioral Finance: By giving insights into human behavior and decision-making processes, AI can be utilized to improve behavioral finance. Behavioral finance is the study of how human emotions and cognitive biases influence financial decision-making. Singh, Garg, and Tiwari (2020) investigate AI applications in behavioral finance. They describe how artificial intelligence techniques like machine learning, natural language processing, and sentiment analysis can be utilized to analyze enormous amounts of financial data and forecast market patterns. They also examine the role of AI in financial decision-making, including how it can be used to detect investor biases and improve portfolio management. The authors suggest that AI has the potential to revolutionize the field of behavioral finance but also caution that it is important to carefully consider the ethical implications of using these technologies. Musto et al. (2015) discuss using case-based recommender systems (CBRS) and diversification strategies for personalized finance advisory. The authors propose a hybrid approach combining CBRS with diversification strategies to provide investors with personalized recommendations on allocating their investments. The system is designed to consider the investor's investment history, risk profile, and investment preferences. The authors evaluate the performance of the proposed approach using real-world financial data and find that it outperforms traditional portfolio recommendation methods.

Chun et al. (2021) intend to use deep learning techniques to construct a stock price prediction model based on individual investor emotions. The authors collect data from individual investors' posts on a major online investment community platform in South Korea, then analyze the text and extract emotional aspects using natural language processing (NLP) techniques. They then anticipate stock values using a deep learning algorithm, a long short-term memory (LSTM) model. According to the findings, including emotional elements increases the model's prediction accuracy. The study highlights the potential of using individual investors' emotions as input for stock price prediction models and provides insights into the role of emotions in financial decision-making. Silva (2021) discusses behavioral biometrics in the context of the growing problem of bank fraud and the necessity for more advanced security measures to prevent it in Behavioral Biometric AI. To validate an individual's identification, behavioral biometrics analyzes distinctive patterns in their behavior, such as typing rhythm or mouse movements. Traditional security mechanisms, such as passwords and security questions, are becoming obsolete and open to attack, and behavioral biometrics may offer a more secure option. The article cites several examples of banks and financial institutions implementing behavioral biometrics technology and the potential benefits of using this approach in detecting and preventing fraud. A study by Singh et al. (2022) aims to explore how machine learning can be used to understand the behavioral biases of traders. The article suggests that behavioral biases can be a significant factor in stock market fluctuations, and machine learning can help to identify patterns and relationships that can inform better investment decisions.

By analyzing data from traders, machine learning algorithms can identify behavior patterns indicative of cognitive biases, such as overconfidence, loss aversion, or confirmation bias. This information can help traders to make more informed decisions and avoid costly mistakes. Several examples of how machine learning has been highlighted that can be applied to behavioral finance include sentiment analysis of news articles and social media posts, analysis of trading patterns and prediction of market movements based on historical data (Mehta, Pandya & Kotecha, 2021; Shah, Isah & Zulkernine, 2019). In a nutshell, the study explores the potential of machine learning for eliminating behavioral biases in trading and enhancing investing performance.

AI and Financial Market and Intermediaries: Artificial intelligence is having a huge impact on the financial sector and intermediaries. Artificial intelligence-based systems are being used to analyze market data, monitor trade activity, and spot anomalies or potentially fraudulent behaviors. AI is allowing financial intermediaries to make better-educated investment decisions and produce more accurate market forecasts. AI is also assisting financial intermediaries in identifying market opportunities and hazards, as well as developing more effective ways for managing their investments. Algorithmic trading is a prominent application of AI in the financial sector. Algorithmic trading entails employing complex algorithms to analyze market data and automatically execute deals. This strategy enables traders to react swiftly to shifting market conditions and capitalize on fresh investment possibilities.

Conduct a thorough analysis of the literature on the application of artificial intelligence techniques in finance and financial markets. It includes stock trading, risk management, fraud detection, credit rating, and other issues. They address the possible benefits and limitations of employing artificial intelligence in finance, as well as future research possibilities in the field. It gives a good summary of the present state of AI research in finance and its implications for financial intermediaries. Furthermore, international financial markets are being impacted by artificial intelligence and the digital era, according to Moșteanu (2019). According to the author, artificial intelligence (AI) has the potential to disrupt traditional financial markets, offering new opportunities and problems for market participants. Moșteanu highlights several areas in financial markets where AI is being employed, including investment management, trading, risk management, and compliance. The paper analyzes the advantages and disadvantages of artificial intelligence in financial markets, such as higher efficiency and lower costs, as well as the possible hazards connected with algorithmic bias and a lack of transparency in AI decision-making. As a result, we argue that, while AI presents both potential and difficulties for financial markets, market players must ultimately decide how to incorporate AI into their operations.

Xie (2019) analyzes the evolution of artificial intelligence (AI) and its implications for the financial system from the same perspective. The author emphasizes the potential benefits of AI in the financial sector, such as higher efficiency, improved risk management, and increased decision-making accuracy. Xie also discusses the risks of AI adoption, such as the potential for AI to worsen existing biases and inequalities in the financial system and the necessity for ethical concerns in the development and deployment of AI technology. As a result, AI has the potential to fundamentally revolutionize the financial sector. However, the ethical and societal ramifications must be carefully considered. Schemmel (2020) investigates the potential influence of AI on financial markets and the necessity for regulatory control. According to the author, artificial intelligence (AI) provides both benefits and difficulties for financial markets, including the possibility for enhanced efficiency, better risk management, and better investment decisions. However, using AI also raises concerns about algorithmic bias, the potential for market manipulation, and the need for transparent and explainable AI systems (Meske, Bunde, Schneider & Gersch, 2022). To solve these difficulties, a regulatory framework is required, which includes the formulation of AI ethics standards, the construction of regulatory sandboxes to test new AI technologies, and the adoption of explicit guidelines for the use of AI in financial markets. By emphasizing the importance of collaboration among regulators, industrial stakeholders, and the academic community, it may be possible to ensure that the benefits of AI are realized while minimizing any hazards.

A study examines the influence of the Revolution Industry (IR 4.0) on the financial industry, where digital technologies such as AI, the Internet of Things (IoT), and blockchain are integrated into industrial processes. According to the authors, Industry 4.0 will have a substantial impact on the financial sector, particularly in risk management, customer service, and operational efficiency. According to the authors, using artificial intelligence and other modern technologies can assist financial institutions in better understanding and managing risk. For instance, machine learning algorithms can be used to analyze large amounts of financial data and identify patterns and trends that may not be immediately apparent to human analysts. This can help banks and other financial institutions to make better decisions about lending, investment, and other activities.

In addition, the authors believe that IR 4.0 has the potential to improve customer service in the banking industry. Chatbots and other automated systems, for example, can be used to provide quick and efficient support to clients. This can help financial institutions cut costs while enhancing client happiness. Finally, the authors argued that Industry 4.0 can help financial institutions improve their operational efficiency. Blockchain technology, for example, can be utilized to create more secure and efficient payment systems. Both financial institutions and their consumers will benefit from reduced transaction processing time and cost. Overall, the article suggests that Industry 4.0 will have a significant impact on the banking industry. Financial institutions must adapt to these changes to remain competitive and deliver high-quality services to their customers.

5. Conclusion

In conclusion, AI has had a huge impact on financial management studies, revolutionizing a number of aspects of the profession. The purpose of this review is to provide an overview of AI's impact on financial management research. AI may provide knowledge and insights on a variety of finance-related issues, such as financial markets, risk management, and investment strategies, among others. AI may play a big role in finance by offering data-driven insights, enhancing efficiency, and aiding informed decision-making due to its ability to process vast volumes of data and analyze complicated patterns. Finally, there is no doubt that the application of artificial intelligence-driven solutions in numerous financial fields will be beneficial. Human input and software like web browsers can aid in creating AI that is dependable, accurate, and practical for many purposes. The system has difficulty with tough or strange situations.

However, it still demonstrates significant progress in this area. Though AI models can provide realistic solutions to certain problems, their accuracy is uncertain because they are still in development. Finally, as a result of AI, financial management studies have undergone a fundamental shift. It has aided in fraud detection, personalized customer service, risk management strategies, automated trading systems, precise financial forecasting, and regulatory compliance. As AI is integrated into financial management research, there are exciting opportunities for increased industry efficiency, accuracy, and creativity.

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