The impact of artificial intelligence on the quality of external auditing in Jordanian commercial banks: The mediating role of the quality of financial reports

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CHRONICLE	ABSTRACT
	The current problem of the study is to explore the mediating role of financial reporting quality in the impact of artificial intelligence (AI) on the quality of external auditing in Jordanian commercial banks. A descriptive analytical approach was used. The target population in this research consists of all 13 Jordanian commercial banks listed on the Amman Stock Exchange. The researcher was able to collect 198 questionnaires that were approved to be filled out by employees of Jordanian commercial banks. The present research in Jordanian commercial banks discovered that the impact of AI on external auditing quality is moderated by the quality of financial reporting. The study recommends paying attention to the quality of external auditing, as the auditing process must be carried out efficiently and effectively in accordance with auditing standards. In order for errors and violations discovered during the audit process to be detected, the quality of financial reports must be audited. It also highlights the need to enhance the use of artificial intelligence in the bank to raise the efficiency of the banking systems and thus raise the bank's efficiency.

1. Introduction

Advances in internet technologies, software, and computer hardware have irrevocably reshaped society. Economic agents without computers, internet, or mobile devices are hard to imagine (Du Toit, 2019). The rapid evolution of information technology (IT) offers enormous potential to attract new clients, create new products or improve existing ones, and enhance efficiency in a short time. However, organizations who miss the IT wave may be overrun fast (Gudaparthi et al., 2023). AI is one of the most notable IT innovations. AI is when computers have cognitive skills like humans, which could boost efficiency for organizations and their clients. Due to its potential to boost profits, the financial sector was an early adopter of AI technologies. It's crucial to examine AI's potential role in banks' digital transformation (Mogaji & Nguyen, 2022). Data is vital to most bank business lines, from deposit taking and lending to investment banking and asset management. Automatic data management allows banks to improve speed, accuracy, and efficiency (Cara, 2020). Banks are mostly testing AI technology rather than adopting them. AI solutions focused on customers and operations are being explored more: AI is being tested for real-time online banking fraud detection and prevention (Hassan et al., 2023). Auditing process is particularly well-designed to AI applications and data analytics tools, according to Kokina and Davenport (2017), because it has become increasingly difficult to analyze a company's both, financial and non-financial performance results using large amounts of structured and unstructured data. Possible AI applications for audit firms include client advice, service offering (including audit and fraud detection), and internal operations enhancement. Artificial intelligence is being utilized to improve the precision and effectiveness of auditing, identify possible problems with a company's financial accounts, and uncover instances of possible bookkeeping fraud. Additionally, it can be utilized to detect issues with an organization's accounting practices. The use of AI further enhances the precision of an organization's accounting processes (Kaplan & Haenlein, 2019). Beyond that, technological advancements have helped raise the bar for audit quality. Timely, accurate, and comprehensive audits have been made possible with the use of AI (Aduloju et al., 2014).

The financial collapses of companies and banks that occurred in developed countries are considered one of the most important reasons for weak investor confidence in financial reports, which necessitated the importance of researching how to control, achieve and measure the quality of financial reports to restore confidence and credibility, especially among investors (Paulinus et al., 2017). The integration of financial markets, the globalization of business, and the expansion of commercial operations between countries have increased the demand for high-quality financial reports and for information that is fair and transparent among investors, stakeholders, and society in general. According to the above, the current problem of the study is to explore the mediating role of financial reporting quality in the impact of artificial intelligence on the quality of external auditing in Jordanian commercial banks.

2. Literature review

2.1 Artificial intelligence

The American scientist Johan McCarthy is the one who introduced the term artificial intelligence in 1956, and he defined it as the engineering method and science of making intelligent machines, or it is the branch of computer science that aims to create intelligent machines (Li, 2024). Artificial intelligence is defined as the ability of a computer or a technological device to analyze input information and reach results similarly to the thinking process of humans to make different decisions, and solving problems (Jaakkola et al., 2019). In addition, AI refers to the different methodologies and techniques used to produce machines with the capability of simulating human intelligence, using powerful algorithms to provide effective, reliable, and personalized answers to users by combining hardware and software (Korteling et al., 2021). Artificial Intelligence works to mobilize multidisciplinary knowledge such as electronics, computer science, and mathematics. Therefore, the aim of applying artificial intelligence systems is to construct systems with the capability to address complex problems similarly to the logical and deductive processes of humans (Fogel, 2022). Artificial intelligence consists of (artificial neural networks, expert systems, natural languages, and intelligent agents). Artificial neural networks: defined as "a mathematical, software attempt to simulate the way the human brain works, and it is an interconnected group of virtual neurons that work like a biological neuron, using processing Information based on the communication method in the computer (Semerikov et al., 2018). Expert systems: An expert system is an information system that contributes to solving problems by acquiring knowledge in a special and specific field of human experience (Leo Kumar, 2019). The expert system helps in making decisions by asking relevant questions and explaining the reasons for adopting procedures. As for natural languages, it is a branch of machine learning and artificial intelligence in which computers intelligently and practically analyze, comprehend, and interpret the meaning of human language. Using NLP, programmers can use their knowledge to perform tasks such as automatic summarization, translation, naming entity recognition, relationship extraction discovery, and analysis (Mah et al., 2022). Sentiment, speech recognition, organization and composition of topic segmentation and finally, the intelligent agent, an intelligent agent is a machine learning application that applies an intelligent method to perception through input devices (hardware sensors) and action on the environment through output devices or controllers (Grigorescu et al., 2020).

2.2 The quality of external auditing

The concept of audit quality has received great academic and professional attention, because of its great importance in light of the criticism directed at the auditing profession due to the collusion of many audit offices with companies to issue false reports about the performance of these companies (Salih & Flayyih, 2020). Therefore, a set of standards was issued that aim to rebuild the confidence of financial statement users in the auditor, and to increase the quality of the auditing practice (Akther & Xu, 2020). The quality of the external audit was defined as the probability that the external auditor will discover any violation or violation in the organization's accounting system (He et al., 2017), including reporting these violations to users of the financial statements (Toumeh et al., 2018). It is also defined by Alaraji (2017) as commitment to auditing standards and performance standards by individuals within audit offices, as performance standards in audit offices relate to a set of personal characteristics that must be present in employees of audit offices, such as objective integrity and independence. The importance of the quality of external audit stems from increasing the reliability of the financial statements and reports (Almasria et al., 2021). Auditing, as the more quality the audit process is, the greater the confidence in the financial statements and the greater the reliance on the auditor's reports (Cavaliere et al., 2021). It is also important to confirm adherence to professional standards, as this commitment leads to the performance of the audit process with high quality, and the quality of the external audit process confirms adherence (Almasria, 2018). The auditor adheres to professional standards. On the other hand, the owners adopt a control system capable of discovering violations in the financial statements and reducing information asymmetry between interested parties, and this is achieved only if the auditor performs his work with high quality (Suharsono et al., 2020).

2.3 The quality of financial reports

Good financial reports provide useful information to stakeholders, especially about the quantity and timing of future cash flows (Lev, 2018). The quality of financial reports is defined as the honesty in reporting information in financial reports (Dewi et al., 2019). The quality of financial reports includes the disclosure of all company transactions, in addition to information

about choosing and applying accounting policies, as the financial information disclosed by companies is considered an essential source of information for users of that information regardless of their interests (Osadchy et al., 2018). The primary goal of preparing financial reports is to provide financial information that is free from errors related to economic entities that is useful for financial statement users to support their economic decision-making process (Gardi et al., 2021). Disclosing high-quality financial information positively affects the efficiency of financial markets, investment and credit decisions, resource allocation, capital providers, and others. One of the main goals of the financial reporting system is to reduce information asymmetry between users in the capital markets and to provide investors with accurate and timely financial information (Su-harsono et al., 2020). Investors rely on an independent external auditor's report to increase the quality of financial reports, as it helps investors evaluate the efficiency of companies' performance and investment efficiency. From a practical standpoint, many Studies have found that it is difficult to determine the economic effects of the credibility of financial reports between companies (Call et al., 2017). The quality of financial reports can be expressed through the quality of the report's formulation, through the quality of the report content, or through the quality of the report's presentation (AL-Shatnawi, 2017). There are many approaches to evaluating the quality of financial reports, some of which depend on the user's needs approach, some of which depend on the investor protection approach, and some of them rely on the third-party trust approach in financial reports.

3. Hypotheses development

The audit profession has adopted AI to enhance its performance in conducting tasks such as audits, oversight, and advisory roles. AI has been embraced in certain areas for its benefits while facing opposition or doubt in others. Advocates highlight benefits like enhanced sampling procedures, decreased labor and time for audits, improved effectiveness, and efficiency through improved audit coverage, leading to enhanced audit quality. Adversaries express practical issues regarding the breach of ethical principles in the audit profession, potential biases leading to job loss, and the difficulties of coordinating machine and human tasks (Mpofu, 2023). Noordin et al. (2022) discovered a non-significant difference in the perceived contribution of applying artificial intelligence to audit quality between international and local audit firms. Local and international audit firms are perceived to contribute equally to audit quality. Managers in both private and public sectors should recognize the significance of implementing AI to enhance efficiency and quality of work. They need to strategically plan and organize the adoption of AI to prevent subpar outcomes. Managers should choose proficient accounting professionals who can effectively work with AI systems to enhance firm performance and minimize the chances of misusing the AI systems. AI is a centralized function in the company, with employees focusing in a few teams and specific geographic areas. The study by Fedyk et al. (2022) demonstrates that AI investment enhances audit quality, lowers fees, and eventually replaces human auditors, with the impact on employment taking a few years to become evident. Allami (2022) concluded that artificial intelligence applications can be utilized across multiple fields. They have several advantages that make them more necessary for financial reporting and examination. Moreover, they enhance the role of auditors by developing technology and enhancing the quality of their performance. An external auditor utilizes artificial intelligence and data mining technology to enhance auditing processes. It is suggested to integrate artificial intelligence in auditing practices. Ensure that the curriculum meets audit objectives and specify in the external auditor's report the extent and nature of modern technology utilized in the audit. According to the above, the following hypothesis can be reached:

H₁: *There is a positive impact of artificial intelligence on the quality of external auditing in Jordanian commercial banks.*

The demanding nature and expenses associated with financial reporting, along with the significant risk of material errors and misstatements in financial statements, are a cause for concern. Osamor & Adeniran (2020) discovered that artificial intelligence had a notable impact on financial reporting. The study concluded that artificial intelligence technologies are essential for companies to stay competitive and relevant soon. Anantharaman et al. (2023) suggest that AI technologies can enhance the accuracy of estimates in different reporting categories by automating data collection, extracting intricate data, and using experience to predict business factors like demand, creditworthiness, defects, and failures. AI adoption enhances the accuracy of accounting estimates in forecasting future cash flows. Chunkha (2023) states that artificial intelligence technology enables accountants to significantly enhance the quality of financial reports at the highest level. The research hypothesis test revealed that the utilization of artificial intelligence technology has a positive and statistically significant effect on the quality of financial reports, both in general and in specific aspects. According to the above, the following hypothesis can be reached:

H₂: There is a positive impact of artificial intelligence on the quality of financial reports in Jordanian commercial banks.

Financial analysts focus on the earnings potential of companies, so accurate information provided by a reputable external audit and financial reporting is crucial. Alsmady's (2022) findings suggest that earnings power, audit quality, and financial reporting quality positively impact companies' performance. Agency theory supports that enhancing financial reporting quality and audit quality improves the trustworthiness of financial statements and reduces information asymmetry. Azzam et al. (2020) found that objectivity positively and significantly impacted the cooperation between internal and external auditors, leading to an increase in financial reporting quality. Furthermore, the quality of financial reporting has improved due to the positive impact of the audit's technical competence and professional diligence. The collaboration between the two auditing teams was evident in the nature and scope dimensions, ultimately enhancing the quality of financial reporting. Qawqzeh et al. (2020) found that auditor size has no significant effect on financial reporting quality. However, industry specialization has a

significantly positive impact on financial reporting quality by deterring earnings management practices, while auditor tenure has a significantly negative impact on financial reporting quality. The study found that auditor size negatively impacts audit quality, while industry specialization and auditor tenure positively and significantly influence audit quality. The results showed that the connection between the auditor's effectiveness and financial reporting quality is partially influenced by the audit quality (fees). According to the above, the following hypotheses can be reached:

H₃: *There is a positive impact of the quality of financial reports on the quality of external auditing in Jordanian commercial banks.*

H₄: *There is a positive effect of the mediating role of the quality of financial reports on the impact of artificial intelligence on the quality of external auditing in Jordanian commercial banks.*

Based on the previous hypotheses' development section, the study model can be drawn as seen in Fig. 1.
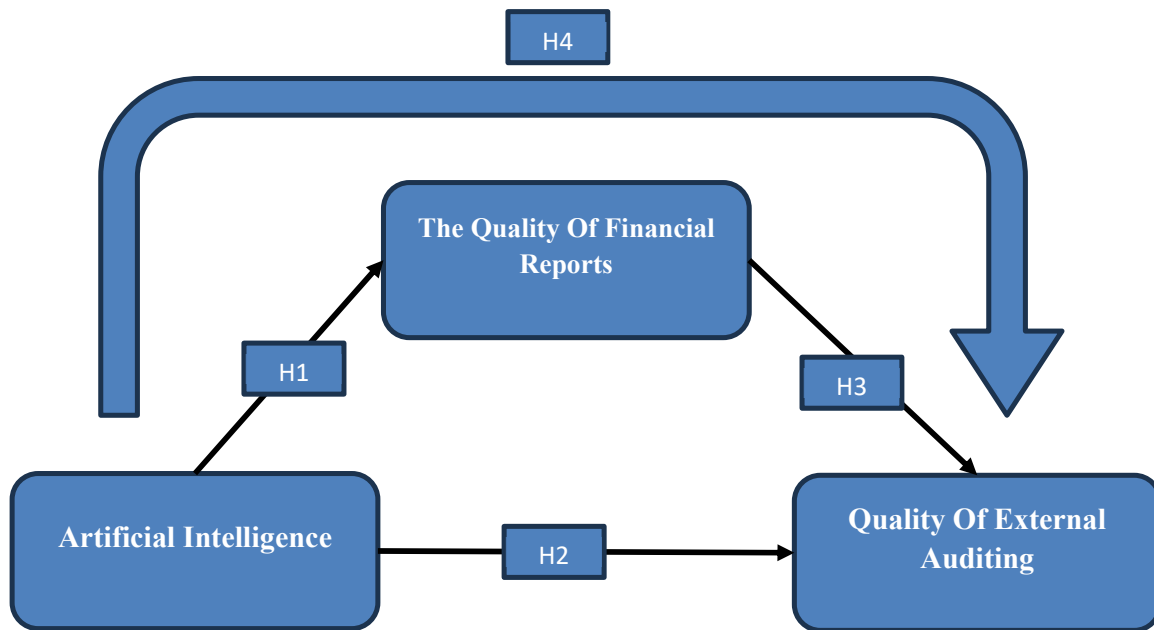
Fig. 1. Research model

4. Research Methodology

To accomplish the study's goals and provide answers to its inquiries, the descriptive analytical approach was used. In order to investigate the link between the study's variables and dimensions, the descriptive technique was used based on an analysis of the research issue using a suitable instrument for data collection. The gathered data was processed, examined, and tested using the analytical approach in order to arrive at the study's conclusions and provide pertinent suggestions.

4.1 The Study Population and Sample

The target population in this research consists of all (13) Jordanian commercial banks listed on the Amman Stock Exchange, as commercial banks are considered one of the most important sectors in the country that have a direct impact on national income and are trying to keep pace with global changes in the field of information technology. To collect data for this study, a paper questionnaire was sent to all Jordanian commercial banks listed on the Amman Stock Exchange. The researcher was able to collect (198) questionnaires that were approved to be filled out by employees of Jordanian commercial banks.

4.2 Data Collection

The data required to fulfill the study's goals was gathered from two distinct sources. The use of scientific and theoretical literature marked the beginning of the usage of secondary sources. The material that researchers required to develop the study's theoretical framework, clarify its objectives, and examine important results was gathered in large part thanks to these sources.

They also played a critical role in refining the study's hypotheses and advancing the discussion. The secondary sources included academic works published in peer-reviewed publications, books, university theses, scholarly research papers, and academic works.

4.3 Reliability Test

The Cronbach's Alpha value was used to ensure the adequacy and the consistency of the questioner's items. Accordingly, a result of more than 70% is considered statistically acceptable, and a higher percentage that is closer to one (or 100%), means the search tool will be more reliable (Sekaran and Bougie, 2016). Based on the information shown in Table 1, the Cronbach's Alpha value results range from 0.869 to 0.941. Therefore, the research tool is considered reliable, and the data it produces is accurate for evaluating the variables. As a result, reliability is considered since all independent variable dimensions have a value greater than 70%.

Table 1
Cronbach's Alpha Value

	Number of items	Cronbach alpha
Artificial Intelligence	10	0.898
The quality of external auditing	10	0.940
The quality of financial reports	10	0.869
Total	30	0.941

4.4 Hypothesis Testing

Multi simple regression analysis was used to test the First, Second, and Third hypothesis of this study.

4.4.1 The first hypothesis: The effect of AI on quality of auditing

A positive association was found between the first dimension (Artificial Intelligence) and the second dimension (the quality of external auditing), based on the results of R-value of (0.893) shown in Table 2. Holding all other factors constant, the coefficient of determination results shows that ($R^2 = 0.797$), which indicates that, when it comes to the quality of external auditing, the (Artificial Intelligence) domain accounted (79.6%) of the variation. The results also show that at the significant level ($\alpha \leq 0.05$), the regression's significance was supported at the confidence level (sig = 0.000), by the value of (F) is 769.267.

Table 2
Results of the first hypothesis

D.V	Model Summery		ANOVA		Coefficients			
	R	R^2	F	Sig F*	B	standard error	T	Sig T*
the quality of external auditing	0.893	0.796	769.267	0.000	0.917	0.033	27.736	0.000

*The effect is statistically significant at the level ($\alpha \leq 0.05$)

4.4.2. The effect of AI on the quality of the reports

A positive association was found between the first dimension (Artificial Intelligence) and the second dimension (the quality of Financial Reports), based on the R-value of (0.780) shown in Table 3. Holding all other factors constant, the coefficient of determination results shows that ($R^2 = 0.608$), which indicates that, when it comes to the quality of financial reports, the (Artificial Intelligence) domain accounted (60.8%) of the variation. The results also show that at the significant level ($\alpha \leq 0.05$), the regression's significance was supported at the confidence level (sig = 0.000), by the value of (F) is 304.034.

Table 3
Results of the second hypothesis

D.V	Model Summery		ANOVA		Coefficients			
	R	R^2	F	Sig F*	B	standard error	T	Sig T*
The quality of financial reports	0.780	0.608	304.034	0.000	0.756	0.043	17.437	0.000

*The effect is statistically significant at the level ($\alpha \leq 0.05$)

4.4.3 The effect of quality of financial reports on the quality of external auditing

Table 4
Results of the third hypothesis

D.V	Model Summery		ANOVA		Coefficients			
	R	R^2	F	Sig F*	B	standard error	T	Sig T*
the quality of external auditing	0.848	0.720	503.116	0.000	0.899	0.040	22.430	0.000

*The effect is statistically significant at the level ($\alpha \leq 0.05$)

A positive association was found between the first dimension (the quality of financial reports) and the second dimension (the quality of external auditing), based on the R-value of (0.848) shown in Table 4. Holding all other factors constant, the coefficient of determination results shows that ($R^2 = 0.720$), which indicates that, when it comes to the quality of external auditing, the (the quality of financial reports) domain accounted (72%) of the variation. The results also show that at the significant level ($\alpha \leq 0.05$), the regression's significance was supported at the confidence level (sig = 0.000), by the value of (F) is 503.116.

4.4.4 The effect of the mediating role of the quality of financial reports on the impact of AI on the quality of external auditing

According to Table 5, the results show a positive relationship between artificial intelligence and the quality of external auditing based on the result of the correlation value (R = 0.893). The results also showed that there is a statistically significant effect of the artificial intelligence variable on the quality of external auditing, where the value was (F = 769.267) and the significance level (Sig = 0.000), which is less than (0.05).

Table 5
Hierarchical multiple regression analysis of the mediating role statement

DV	IV	First model			second model		
		B	T	Sig*	β	T	Sig*
The quality of external auditing	artificial intelligence	0.917	27.736	0.000		-	
	the quality of financial reports ×artificial intelligence	-			0.590	13.594	0.000
	R		0.893			0.925	
	R^2		0.797			0.856	
	ΔR^2		0.796			0.855	
	ΔF		769.267			579.842	
	Sig. ΔF		0.000			0.000	

The value of the determination coefficient was ($R^2 = 0.797$), meaning that the value of (0.797) changes in the quality of external auditing results from the change in artificial intelligence. The impact score value was (B=0.917), which indicate that an increase of one degree in the level of interest in artificial intelligence leads to an increase in the quality of external auditing with a value of (0.917), which indicates that artificial intelligence explains (91.7%) of the variation in the quality of external auditing.

In the second model, the mediating variable (the quality of financial reports) was added to the regression model, as a result, the value of the correlation coefficient has increased to become (R = 0.925), as well as the value of the determination coefficient R^2, to become (85.6%). Moreover, this percentage is statistically significant, as the change in the value of F (579.842) and the level of significance (Sig = 0.000), which is less than (0.05).

The effect score value β was (0.590) for the mediating variable (the quality of financial reports), and the calculated T value was (T = 13.594) with a significance level (Sig = 0.000), and this confirms the significant role of the mediating variable (the quality of financial reports) in improving the impact of artificial intelligence in the quality of external auditing, as the rate of interpretation of the discrepancy in the quality of external auditing improved by (79.7%), rising from (79.6%) to (85.5%).

4.5 Hypotheses Testing (Path Coefficient)

The hypothesis testing in this paper involves evaluating t statistics (T), probability values (P), and original value sample estimates (O). When values are near +1, it suggests a positive relationship, whereas values close to -1 indicate a negative relationship between the variables. The subsequent depiction of these metrics in Table 6 provides a detailed analysis of the hypothesis testing results. This presentation aids in understanding the relations among variables, facilitating researchers in drawing meaningful conclusions backed by statistical evidence.

Table 6
Hypothesis testing of model

		Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values	Decision
H1	Artificial → External	0.579	0.578	0.071	8.163	0	supported
H2	Artificial → Financial	0.659	0.663	0.071	9.292	0	supported
H3	Financial → External	0.382	0.386	0.077	4.966	0	supported
H4	Artificial → Financial → External	0.252	0.255	0.056	4.511	0	supported

Notes: Significant level at α=0.05

The results of the hypothesis testing of the model are summarized in Table 6. Hypothesis H1, which proposes that Artificial Influences External, is supported with an original sample value of 0.579, a sample mean of 0.578, a standard deviation of 0.071, a T statistic of 8.163, and a P value of 0.00. This indicates a significant and positive relationship between Artificial and External.

Hypothesis H2, stating that Artificial affects Financial, is also supported. The original sample value is 0.659, the sample mean is 0.663, the standard deviation is 0.071, the T statistic is 9.292, and the P value is 0.00, showing a significant and positive influence of Artificial on Financial.

Hypothesis H3, which examines the relationship between Financial and External, is supported as well. The original sample value is 0.382, the sample mean is 0.386, the standard deviation is 0.077, the T statistic is 4.966, and the P value is 0.00, indicating a significant and positive effect of Financial on External.

Lastly, Hypothesis H4, which suggests a mediating effect of Financial in the relationship between Artificial and External, is supported. The original sample value is 0.252, the sample mean is 0.255, the standard deviation is 0.056, the T statistic is 4.511, and the P value is 0.00, confirming a significant mediation effect of Financial between Artificial and External. All hypotheses are supported at a significant level of $\alpha=0.05$.

5. Discussion

A positive association was found between the first dimension (Artificial Intelligence) and the second dimension (the quality of external auditing), which indicates that, when it comes to the quality of external auditing, the (Artificial Intelligence) domain accounted (79.7%) of the variation. According to Noordin et al. (2022), there is no significant difference in local and multinational audit companies' perceptions of AI's impact on audit quality. Fedyk et al. (2022) found that AI investment improves audit quality, decreases fees, and substitutes human auditors, although it takes years to affect employment. Artificial intelligence may be used in many industries, according to Allami (2022). Financial reporting and examination are more required due to their benefits. By creating technology and improving auditor performance, they strengthen their function. External auditors use AI and data mining to improve auditing. A positive association was found between the first dimension (Artificial Intelligence) and the second dimension (the quality of financial reports). When all other factors stay constant, when it comes to the quality of financial reports, the (Artificial Intelligence) domain accounted (60.8%) of the variation. Osamor and Adeniran (2020) found that AI affected financial reporting. Anantharaman et al. (2023) believe that AI technology can automate data collecting, extract complex data, and anticipate business characteristics including demand, creditworthiness, faults, and failures to improve reporting category estimations. AI improves accounting estimations for cash flow forecasting. Chunkha (2023) claims that artificial intelligence helps accountants produce top-notch financial reports. The hypothesis test showed that artificial intelligence technology improves financial reports in general and in specific ways. A positive association was found between the first dimension (the quality of financial reports) and the second dimension (the quality of external auditing), the coefficient of determination results shows that when it comes to the quality of external auditing, the (the quality of financial reports) domain accounted (72%) of the variation. Alsmady (2022) found that earnings power, audit quality, and financial reporting quality boost company success. Agency theory suggests that improving financial reporting and audit quality increases financial statement reliability and minimizes information asymmetry. Azzam et al. (2020) observed that objectivity greatly improved internal-external auditor collaboration, improving financial reporting quality. While Qawqzeh et al. (2020) found that audit quality (fees) partially affects auditor effectiveness and financial reporting quality. The results confirm the significant role of the mediating variable (the quality of financial reports) in improving the impact of artificial intelligence in the quality of external auditing, as the rate of interpretation of the discrepancy in the quality of external auditing improved by (79.7%), rising from (79.6%) to (85.5%).

6. Conclusion

Even though accountants have used computers and basic computing to make their jobs easier for a long time, technology still can't replace the expertise that accountants bring to the table. Most organizations rely on accountants, particularly those with a background in financial decision-making. To stay ahead of the competition, automating their business processes has become more important for banks. This will help them speed up operations, improve quality, and decrease survival costs. As a result, financial institutions are seeking innovative solutions, such as artificial intelligence, to replace human accountants who do mundane but essential cognitive activities. Accounting professionals and company owners may save a ton of time and energy every day with the help of AI technology that can analyze past data to predict future outcomes and handle all sorts of financial and service-related duties. AI is available to firms of all sizes and in all kinds of industries. The present research in Jordanian commercial banks discovered that the impact of AI on external auditing quality is moderated by the quality of financial reporting. The study recommends paying attention to the quality of external auditing, as the auditing process must be carried out efficiently and effectively in accordance with auditing standards. In order for errors and violations discovered during the audit process to be detected, the quality of financial reports must be audited. It also highlights the need to enhance the use of artificial intelligence in the bank to raise the efficiency of the banking systems and thus raise the bank's efficiency. It is also

important for future research to investigate the obstacles to artificial intelligence in Jordanian banks, in addition to the extent of the application of artificial intelligence in Jordanian banks and its impact on accounting systems.

References

Aduloju, S. A. (2014). Information technology managerial capabilities and customer service performance among insurance firms in Nigeria. *SAGE Open, 4*(4), 2158244014561198.

Akther, T., & Xu, F. (2020). Existence of the audit expectation gap and its impact on stakeholders' confidence: The moderating role of the financial reporting council. *International Journal of Financial Studies, 8*(1), 4.

Alaraji, F. A. A. S. (2017). The role and impact of corporate governance on narrowing the expectations gap between the external auditor and the financial community (a practical study of a sample of external audit offices and companies invested in Iraq) (Case Study in Iraq). American Scientific Research Journal for Engineering, Technology, and Sciences, 33(1), 305-327.

Allami, F. A. J. (2022). The Use of External Auditor to Data Mining as an Artificial Intelligence Technology to Examine the Internal Control Systems in an Electronic Business Environment. *Czech Journal of Multidisciplinary Innovations, 9*, 1-13.

Almasria, N. A. (2018). The relationship between internal corporate governance mechanisms and the quality of external audit process-empirical evidence from Jordan. PhD thesis. University of Bedfordshire.

Almasria, N., Airout, R. M., Samara, A. I., Saadat, M., & Jrairah, T. S. (2021). The role of accounting information systems in enhancing the quality of external audit procedures. *Journal of management Information and Decision Sciences, 24*(7), 1-23.

AL-Shatnawi, H. M. (2017). Measuring the Quality of the Interim Financial Reports Using the Qualitative Characteristics of the Accounting Information and its Effect on the Investment Decisions According to the" IAS 34.". *International Journal of Economics and Finance, 9*(5), 159-170.

Alsmady, A. A. (2022). Quality of financial reporting, external audit, earnings power and companies performance: The case of Gulf Corporate Council Countries. *Research in Globalization, 5*, 100093.

Anantharaman, D., Rozario, A., & Zhang, C. A. (2023). Artificial Intelligence and Financial Reporting Quality. Available at SSRN 4625279.

Azzam, M., Alrabba, H., AlQudah, A & Mansur, H. (2020). A study on the relationship between internal and external audits on financial reporting quality. *Management Science Letters, 10*(4), 937-942.

Call, A. C., Campbell, J. L., Dhaliwal, D. S., & Moon Jr, J. R. (2017). Employee quality and financial reporting outcomes. *Journal of Accounting and Economics, 64*(1), 123-149.

Cara, I. (2020). The impact of information and communication technologies on the effectiveness of internal control system in banks. In Development through research and innovation (pp. 38-46).

Cavaliere, L. P. L., Rakesh, D. S. K., Muda, I., Polisetty, A., Swadia, B. U., Rajest, S. S., & Regin, R. (2021). The Determinants of Audit Quality and Impact on Overall Audit Performance. Nveo-Natural Volatiles & Essential Oils Journal| NVEO, 12963-12984.

Chunkha, P. (2023). The level of excellence in the accounting profession and the usage of artificial intelligence technology affect the quality of financial reports of certified accounting practice.

Dewi, N., Azam, S., & Yusoff, S. O. U. T. H. (2019). Factors influencing the information quality of local government financial statement and financial accountability. *Management Science Letters, 9*(9), 1373-1384.

Du Toit, C. W. (2019). Artificial intelligence and the question of being. *HTS: Theological Studies, 75*(1), 1-10.

Fedyk, A., Hodson, J., Khimich, N., & Fedyk, T. (2022). Is artificial intelligence improving the audit process?. *Review of Accounting Studies, 27*(3), 938-985.

Fogel, D. B. (2022). Defining artificial intelligence. Machine Learning and the City: Applications in Architecture and Urban Design, 91-120.

Gardi, B., Abdalla Hamza, P., Sabir, B. Y., Mahmood Aziz, H., Sorguli, S., Abdullah, N. N., & Al-Kake, F. (2021). Investigating the effects of financial accounting reports on managerial decision making in small and medium-sized enterprises. Bawan Yassin and Mahmood Aziz, Hassan and Sorguli, Sarhang and Abdullah, Nabaz Nawzad and Al-Kake, farhad, Investigating the Effects of Financial Accounting Reports on Managerial Decision Making in Small and Medium-sized Enterprises (April 28, 2021).

Grigorescu, S., Trasnea, B., Cocias, T., & Macesanu, G. (2020). A survey of deep learning techniques for autonomous driving. *Journal of field robotics, 37*(3), 362-386.

Gudaparthi, H., Niu, N., Yang, Y., Van Doren, M., & Johnson, R. (2023). Deep learning's fitness for purpose: A transformation problem frame's perspective. *CAAI Transactions on Intelligence Technology, 8*(2), 343-354.

Hassan, M., Aziz, L. A. R., & Andriansyah, Y. (2023). The role artificial intelligence in modern banking: an exploration of AI-driven approaches for enhanced fraud prevention, risk management, and regulatory compliance. *Reviews of Contemporary Business Analytics, 6*(1), 110-132.

He, X., Pittman, J. A., Rui, O. M., & Wu, D. (2017). Do social ties between external auditors and audit committee members affect audit quality?. *The Accounting Review, 92*(5), 61-87.

Jaakkola, H., Henno, J., Mäkelä, J., & Thalheim, B. (2019, May). Artificial intelligence yesterday, today and tomorrow. In 2019 42nd International Convention on Information and Communication Technology, Electronics and Microelectronics (MIPRO) (pp. 860-867). IEEE.

Kaplan, A., & Haenlein, M. (2019). Siri, Siri, in my hand: Who's the fairest in the land? On the interpretations, illustrations, and implications of artificial intelligence. *Business horizons, 62*(1), 15-25.

Kokina, J., & Davenport, T. H. (2017). The emergence of artificial intelligence: How automation is changing auditing. *Journal of emerging technologies in accounting, 14*(1), 115-122.

Korteling, J. H., van de Boer-Visschedijk, G. C., Blankendaal, R. A., Boonekamp, R. C., & Eikelboom, A. R. (2021). Human- versus artificial intelligence. *Frontiers in artificial intelligence, 4*, 622364.

Leo Kumar, S. P. (2019). Knowledge-based expert system in manufacturing planning: state-of-the-art review. *International Journal of Production Research, 57*(15-16), 4766-4790.

Lev, B. (2018). The deteriorating usefulness of financial report information and how to reverse it. *Accounting and Business Research, 48*(5), 465-493.

Li, K. (2024). Shaw and Artificial Intelligence. In Bernard Shaw, Automata, Robots, and Artificial Intelligence (pp. 49-67). Cham: Springer Nature Switzerland.

Mah, P. M., Skalna, I., & Muzam, J. (2022). Natural language processing and artificial intelligence for enterprise management in the era of industry 4.0. *Applied Sciences, 12*(18), 9207.

Mogaji, E., & Nguyen, N. P. (2022). Managers' understanding of artificial intelligence in relation to marketing financial services: insights from a cross-country study. *International Journal of Bank Marketing, 40*(6), 1272-1298.

Mpofu, F. (2023). The application of Artificial Intelligence in external auditing and its implications on audit quality? A review of the ongoing debates. *International Journal of Research in Business and Social Science (2147-4478), 12*(9), 496-512.

Noordin, N. A., Hussainey, K., & Hayek, A. F. (2022). The use of artificial intelligence and audit quality: An analysis from the perspectives of external auditors in the UAE. *Journal of Risk and Financial Management, 15*(8), 339.

Osadchy, E. A., Akhmetshin, E. M., Amirova, E. F., Bochkareva, T. N., Gazizyanova, Y. Y., & Yumashev, A. V. (2018). Financial statements of a company as an information base for decision-making in a transforming economy. *European Research Studies Journal, 21*(2), 339-350.

Osamor, I. P., & Adeniran, O. S. (2020). Effects of Artificial Intelligence on Financial Reporting: Evidence from KPMG and PwC. *Lasu Journal of Accounting and Finance, 5*(1).

Paulinus, E. C., Oluchukwu, N., & Somtochukwu, O. (2017). Empirical investigation of corporate governance and financial reporting quality of quoted companies in Nigeria. *International Journal of Economics, Business and Management Research, 1*(5), 117-137.

Qawqzeh, H. K., Endut, W. A., Rashid, N., & Dakhlallh, M. M. (2020). Impact of the external auditor's effectiveness on the financial reporting quality: The mediating effect of audit quality. *Journal of Critical Reviews, 7*(6), 1197-1208.

Salih, J. I., & Flayyih, H. H. (2020). Impact of audit quality in reducing external audit profession risks. *International Journal of Innovation, Creativity and Change, 13*(7), 176-197.

Semerikov, S. O., Teplytskyi, I. O., Yechkalo, Y. V., & Kiv, A. E. (2018). Computer simulation of neural networks using spreadsheets: The dawn of the age of Camelot. arXiv preprint arXiv:1807.00018.

Suharsono, R. S., Nirwanto, N., & Zuhroh, D. (2020). Voluntary disclosure, financial reporting quality and asymmetry information. *The Journal of Asian Finance, Economics and Business, 7*(12), 1185-1194.

Toumeh, A. A., Yahya, S., & Siam, W. Z. (2018). Expectations gap between auditors and user of financial statements in the audit process: an auditors' perspective. *Asia-Pacific Management Accounting Journal (APMAJ), 13*(3), 79-107.