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The Role of Artificial Intelligence in Eliminating Accounting Errors

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Abstract: This study investigates the impact of artificial intelligence (AI) on reducing accounting errors from two distinct angles: that of accounting software developers and of certified public accountants. We employ a questionnaire-based approach informed by prior research and validated through pilot testing. Our findings reveal significant benefits for software developers. AI effectively addresses various accounting errors, including tax rate discrepancies, cutoff period inaccuracies, principal violations, concealed transactions, mathematical mistakes, and manipulation errors. However, when considering users, AI's effectiveness varies. While it successfully mitigates certain errors, such as those related to principles, it falls short in eliminating mathematical errors. This research contributes fresh insights into the role of AI in accounting within emerging markets, enhancing our understanding of its potential and limitations.

Keywords: artificial intelligence; blockchain technology; robotic process automation; deep neural network; accounting error; value-added tax; tax reporting

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1. Introduction

The role of artificial intelligence (AI) in accounting has become increasingly intriguing due to its capacity to streamline tasks and enhance accuracy, particularly in tax reporting (Hasan 2022). Chukwuani and Egiyi (2020) emphasize AI's significance in rectifying accounting errors, especially those that traditional accounting software struggles to address. Complex algorithms empower AI systems to identify and eliminate errors effectively. Furthermore, AI's ability to process vast amounts of data contributes to improved accuracy and completeness, ultimately enhancing the quality of tax reporting (Tandiono 2023).

Improving tax reporting quality is a critical objective for stakeholders. While corporate governance (CG) plays a role in achieving this goal, it falls short of ensuring the complete elimination of accounting errors. The effectiveness of CG depends on the advanced analytical capabilities embedded within accounting software (Sinaga et al. 2022). In emerging markets, CG faces significant challenges. Resource limitations, complex legal frameworks, and systemic issues such as corruption and administrative weaknesses hinder efforts to enhance tax reporting quality (Fischer et al. 2020; Shahrour et al. 2022). Despite a commitment to CG, it remains essential to recognize that financial information may still contain errors (Henk 2020).

In response to market demands, practical tools have emerged to address accounting errors. These tools require sophisticated algorithms that extend beyond linear relationships, enabling users to surpass traditional analytical abilities and enhance tax reporting quality (Samek et al. 2021). Recognizing the need for more accurate financial information and the risks associated with low-quality tax reporting, the technology industry has responded by developing intricate algorithms. Notably, machine learning (ML) has emerged as a prominent subdomain of AI, representing a pivotal phase in the ongoing technological revolution (Geirhos et al. 2020; Shahrour and Dekmak 2023).

Blockchain technology (BCT) was first introduced in 2008 and has since become one of the most prominent and promising subdomains of AI in the accounting field. Its popularity is due to its effectiveness and high level of security. BCT is defined as a "distributed database of records, or public ledger of all transactions or digital events that have been executed and shared among participating parties." Any change in the BCT database requires the consensus of all parties involved in the transaction (Demirkan et al. 2020).

Traditionally, the accounting process relied heavily on manual labor due to the limitations of accounting software, which led to a higher incidence of accounting errors and lower quality in tax reporting (Kanaparthi 2024). Despite advancements in technology, accounting software has faced challenges in addressing various accounting issues, including errors. However, the integration of AI into accounting software has proven effective in reducing these errors (Faccia and Mosteanu 2019). The need to eliminate manual human intervention and improve the quality of tax reporting has driven the development of AI applications in accounting software, particularly in tax accounting (Li 2023).

The integration of robotic process automation (RPA) with traditional accounting software may increase the reliance on automation, which offers advanced capabilities for data analysis, pattern recognition, and predictive modeling that enhance efficiency and mitigate the risk of accounting errors (Ajayi-Nifise et al. 2024). Also, the implementation of AI solutions such as BCT in traditional accounting platforms sharing real-time information results in real-time reporting and up-to-date bookkeeping and reconciliation, which may improve the information security and reliability, reduce the IT investment costs by getting involved in the global cloud system, allow more concentration on analytical functions rather than routine tasks, and reduce the risk of errors driven by reliance on the human role (Mihai and Duţescu 2022).

The accounting industry has experienced tremendous change, especially since the introduction of AI; the incorporation of AI technologies is transforming traditional accounting practices, which were previously dominated by manual processes and linear workflows. The integration of AI in accounting software, applying RPA and BCT, reshaped the process through a major change in the reporting, data privacy and security, recording and reconciliating, and analysis of data (Odonkor et al. 2024). Moreover, connecting current technologies in the accounting industry in every stage in the accounting process may have huge benefits in term of real-time accounting among participants and reducing the potential accounting errors at the processing stage, which may be achieved by automating the process through RPA and sharing the real-time secured database with BCT (Alkan 2022).

In the Czech Republic, the existence of accounting errors in firms is reduced due to the adoption of advanced accounting software that eases the application of the correct accounting treatment and enhances tax reporting quality (Paseková et al. 2019). In emerging markets such as Oman, accounting errors still exist due to the inability of the current accounting software to eliminate errors, which cannot be guaranteed by committing to CG and still threaten tax reporting quality (Muneerali 2020). In Jordan, accounting errors would not be solved if the manual process were not automated (Al-Zaqeba et al. 2022). A recent study by Al Najjar et al. (2024) explored several accounting errors that exist and significantly influence tax reporting quality in emerging markets. The purpose of this study is to examine the influence of AI on accounting errors, explored previously in the literature, which have an impact on tax reporting quality in emerging markets.

Moreover, literature gaps occur in studying the topic, such as a weak concentration on the role of AI in emerging markets and a weak concentration regarding its role in improving tax reporting quality by eliminating accounting errors. This study's significance is proven from two primary perspectives: the practical and the academic. From the practical perspective, this study will help lay the groundwork for the application of AI in accounting software by proving its role in eliminating accounting errors. From the academic perspective, this study will contribute to the literature by providing knowledge about the role of AI in improving tax reporting quality by eliminating accounting errors in

an emerging market, which is rarely considered, and that will form a solid base for future examinations and experiments.

The remainder of this study is structured as follows: Section 2 presents a theoretical framework. Section 2 presents the literature review and hypotheses development. Section 3 describes the study methodology and sample. Section 4 presents the main results. Section 5 discusses the main findings. Section 6 concludes. Section 7 mentions the limitations and future research opportunities.

2. Conceptual Framework

Several theories are relevant to understanding the adoption of AI in accounting software, notably, the technology acceptance model (TAM) and modernization theory. The technology acceptance model (TAM), proposed by Davis in 1989, serves as a foundational framework for examining technological adoption by both organizations and individuals (Taib et al. 2022). TAM explains the acceptance of new technologies through two primary factors: perceived usefulness and perceived ease of use (Gangwar et al. 2014; Carr et al. 2010). These factors significantly influence organizational and individual behaviors regarding the decision to adopt new technologies such as AI (Khafit et al. 2020; Lazim et al. 2021). Essentially, if AI is perceived as beneficial for improving the quality of outputs by detecting errors and enhancing information quality, and if it is deemed easy to use without requiring complex skills, organizations and individuals are more likely to adopt it. Modernization theory, as discussed by Uyar et al. (2021), focuses on the macroeconomic implications of technology adoption. This theory posits that benefits realized at the company level through modernization are reflected in broader macroeconomic growth. Chyzhevska et al. (2021) elaborate that modernization, defined as the adoption of new technologies, results in higher growth rates both at the company and macroeconomic levels. This theory suggests that companies are driven to adopt advanced technologies like AI due to the anticipated benefits, such as minimizing risks by preventing financial penalties and avoiding reputational damage (Cooper and Nguyen 2020; Deloitte 2020).

In conclusion, modernization theory posits that technological adoption is driven by the expected advantages, including risk reduction and enhanced growth. Meanwhile, the TAM indicates that if AI adoption is perceived as useful and easy to implement, it is more likely to be embraced by organizations and individuals. Together, these theories provide a comprehensive framework for understanding the factors influencing the adoption of AI in accounting software.

As for the outstanding literature, several studies have explored the impact of accounting errors on tax reporting quality, while others have examined the role of AI in improving this quality by eliminating such errors. The examination of AI's role from the user's and developer's perspective is based on their beliefs in how much those tools are useful, easy to use, and profitable for the parties.

Yang et al. (2021) conducted a case study at one of the Big Four Australian accounting firms, PEYG. Through interview coding, the study revealed significant benefits from integrating machine learning (ML) into PEYG's accounting software since 2017. These benefits include enhanced data analysis, mathematical accuracy tests, information extraction from PDFs, transaction matching, risk assessment, account classification, and lease document analysis.

Heye (2021) performed a descriptive case study on AI investment among the Big Four accounting firms using a SWOT analysis. The study found that EY developed an AI project capable of analyzing lease contracts and unstructured data. This capability enables EY to extract information more accurately, reduce resource expenditure in terms of time and labor, and minimize human error by automating document review processes, thereby improving the quality of accounting by reducing errors.

In Vietnam, significant accounting errors that reduce tax reporting quality include data entry errors, omission errors, compensating errors, duplication errors, and reversal entry errors. These errors often stem from accountants' skill levels and knowledge

(Van Hoa et al. 2022). Similarly, in emerging markets, low skill levels and overload on accountants lead to various errors, which could be mitigated through automation (Bua 2023).

In Oman, SMEs are particularly prone to accounting errors such as errors of principle, duplicate records, and omission errors. These errors are attributed to employing fresh graduates who lack skills and the low functionality of accounting software (Muneerali 2020). In Zambia, manual processes and reliance on accountants' skills contribute to errors like mathematical mistakes, hidden transactions, and record manipulation. These issues could be resolved with advanced technologies (Mwange and Chansa 2022).

In Jordan, common accounting errors include calculation mistakes, duplication, omission, and cutoff errors. These errors persist in manual processes and adversely affect tax reporting quality (Al-Zaqeba et al. 2022). Al Najjar et al. (2024) identified significant errors in emerging markets, such as tax rate errors, cutoff period errors, principle errors, hidden transactions, mathematical errors, and overreporting expenses. These errors are often due to human error and legal complexities.

The labor-intensive nature of accounting processes, which require manual data entry into spreadsheets or accounting software, presents challenges to accuracy. These challenges can be addressed by adopting AI in accounting software, since the AI application may help in automating tasks, enhancing security, and providing advanced analytical capabilities. Moreover, the key point to apply AI in accounting refers to the ease of using AI, its usefulness, and the anticipated benefits from such abilities (Han et al. 2023). It has become an essential aspect of modern business practices, and its adoption has seen a significant shift in the way commerce is conducted across the world (Marta and Shahrour 2024). AI tools offer significant advantages, such as avoiding complexities in data processing, improving information monitoring, and preventing errors, thereby enhancing information accuracy and tax reporting quality (Ruan et al. 2019; Bakas and Kontoleon 2020; Saragih et al. 2022; Osaloni et al. 2022; Pavlova and Knyazeva 2022; Rahmi and Gangodawilage 2022; Nurhayati et al. 2023; Zhang 2023; Fjord and Schmidt 2023).

Robotic process automation (RPA) is one AI tool that positively influences tax reporting quality by automating data input, processing, and output, thereby eliminating human involvement at the entry level (Chukwuani and Egiyi 2020; Huettinger and Boyd 2020; Zhang et al. 2020; Faúndez-Ugalde et al. 2020; Hasan 2022). RPA's usefulness and benefits in tax accounting by eliminating errors appears very significant, since according to the previous survey examination among accountants in firms, RPA eliminates the human role at the entry levels, which in turn will eliminate both intentional and unintentional errors by transferring and recording transactions without any human interaction or manipulation.

Deep neural networks (DNNs) also improve tax reporting quality through their ability to analyze structured and unstructured data, helping accountants detect errors in records and transactions (Mehta et al. 2020; Coita et al. 2021; Raikov 2021; Xavier et al. 2022; Delgado et al. 2023). DNN's ability to analyze the interacted transactions between parties and analyze for any inconsistency in the same transaction made the accountants believe that such tools are really valuable and useful for CPAs and firms for improving VAT reporting quality.

Blockchain technology (BCT) significantly enhances tax reporting quality by preventing manipulation, period shifting, and record adjustments through a secure database shared among the relevant parties (Bonsón and Bednárová 2019; Cristea 2020; Rahayu 2021; Van Hoa et al. 2022; Setyowati et al. 2023; Prasad et al. 2023). BCT appears to be one of the most interesting techs of AI due to its high level of security and the permissions required for any engagement. Moreover, several studies noted that the integration of AI tools in accounting software to automate the process by RPA, secure the data, share real-time transactions by BCT, and benefit from the deep big-data analytics of DNN, will have a huge effect on AI usefulness and is expected to be advantageous for all related parties.

While many studies support the positive role of AI in improving tax reporting quality, Cooper et al. (2019) caution that a lack of understanding of AI's practical capabilities in tax accounting may lead to resistance to technological transformation. Gotthardt et al. (2020) argue that practical challenges in applying advanced technologies make AI less efficient

among accountants in tax services. Widjaja (2021) and Korinek and Stiglitz (2021) state that despite easing tax filing and reporting, AI may not eliminate errors entirely due to limited examination and complex tax requirements.

Through the reviewed literature, it is clear that while some studies support the positive role of AI in accounting, others highlight some limitations and challenges. The positive results were highly related to the extent that AI is found useful, easy to use, and profitable for the users. Abdullah and Almaqtari (2024) examined the extent to which CPAs in Saudi Arabian accountancy firms believe in the usefulness and easiness of AI application in accounting, which will improve their services with clients in accounting. Also, an examination among CPAs was done by Akinadewo (2021), stating that the application of AI techs in accounting, such as RPA in tax accounting, could be highly profitable for both related parties, the accounting industry and the firms, even though it might be not very clear whether it is easy to use since it depends on the individual's skills, but no doubt appears to have usefulness and advantages.

Throughout this study, the examination of the attitudes regarding the role of AI in accounting was based on its perceived usefulness and ease of use according to TAM and its expected benefits according to the modernization theory. A significant gap in the literature exists for studying such advances in the accounting industry in Lebanon; the current research aims to answer the research question, which is: Does AI significantly influence the existence of accounting errors that reduce tax reporting quality in emerging markets to improve VAT reporting quality? The question will be answered from two different attitudes, the developers and the potential users, referring to what extent those potential users believe in such advances in fintech as AI applications in tax accounting. Therefore, to answer the research question, the formulated hypotheses below will be examined, which are represented in alternative form:

H1: *AI perceived to have significant negative influence on the existence of accounting errors to improve VAT reporting quality.*

H1a: *AI perceived to have a significant negative influence on the existence of tax rate errors to improve VAT reporting quality.*

H1b: *AI perceived to have a significant negative influence on the existence of cutoff period errors to improve VAT reporting quality.*

H1c: *AI perceived to have a significant negative influence on the existence of principle errors to improve VAT reporting quality.*

H1d: *AI perceived to have a significant negative influence on the existence of hidden transaction errors to improve VAT reporting quality.*

H1e: *AI perceived to have a significant negative influence on the existence of mathematical errors to improve VAT reporting quality.*

H1f: *AI perceived to have a significant negative influence on the existence of manipulation errors to improve VAT reporting quality.*

3. Research Methodology and Sample

The study examines the significance of the influence of AI on accounting errors that reduced tax reporting quality in Lebanon in the year ending 2023. The data instrument is a questionnaire, which is outlined to measure the respondents' attitudes using a Likert five-point scale, which reflects to what extent they believe that AI application will help in eliminating the accounting errors in Lebanon. Since the application of such advanced tools in emerging markets is still very weak, the current research measures the attitudes of respondents in accordance with the previous studies of the literature. The questionnaire

developed asks users to respond to what extent the sample agrees or disagrees, using a Likert five-point scale, that AI's ability will influence accounting errors.

To make it clear, with respect to measuring the influence of AI (independent) on tax rate error existence (dependent), the statements were adopted from Rathi et al. (2021): First, do you agree that with AI tax system, tax reporting will be more accurate by the accurate application of tax rules and rates? Second, do you agree that AI will help in calculating the tax more accurately, referring to the regulated tax rates? Then, the dependent is measured as follows: Do you agree that applying AI in tax accounting will eliminate tax rate error? (Yes/No).

The measurement scales and the statements for measuring the influence of AI on accounting errors were adopted from prior studies to enhance the quality of the instrument (Akinadewo 2021; Hashem and Alqatamin 2021; Karmanska 2021; Rathi et al. 2021; Elsayed 2023; Monteiro et al. 2023; Abdullah and Almaqtari 2024). The reason why the questionnaire is adopted based on the previous statements is to increase the quality of the instrument due to the lack of examination of AI's role in accounting errors in Lebanon.

The population selected for examination consists of two groups in Lebanon: the accounting software developers and the users, certified public accountants (CPAs) registered in the Lebanese association for certified public accountants (LACPA), who are experienced and active in the field. Moreover, since the first population selected is unknown, the researcher adopted the rule of thumb for the sample size, stating that the sample should not be less than 50 (VanVoorhis and Morgan 2007). The second population consists of 1961 CPAs registered in the LACPA until the end of 2023. Also, before delivering the questionnaire to the population, a pilot test was conducted among a group of academic instructors who are experts in business research to ensure that the instrument measures what it is intended to measure. Finally, a binary logistic regression was applied for the data analysis for both groups.

Research Model

To examine the influence of AI on accounting errors, since the dependent variable is measured as the existence of an outcome, a binary logistic regression analysis may be applied to examine the following model, as applied in the study of Akinadewo (2021):

$$AE\ (TRE, COE, EOP, HTE, ME, MANE) = \beta 0 + \beta 1\ AI$$

AE refers to the dependent variable, accounting errors, which are stated in the hypotheses for examination, namely: tax rate error (TRE), cutoff period error (COE), error of principle (EOP), hiding transactions error (HTE), mathematical error (ME), and overreporting expenses error (MANE). Each of the dependent variables is measured as an existing error or not with a binary value of 1–0. Also, β0 refers to the constant, and β1 refers to whether the independent variable is significant on the existence of the accounting error.

4. Data Results

The following tables show the frequency of the data gathered among the first sample selected, which consists of the accounting software developers. Table 1 shows that the total of 128 respondents, according to the rule of thumb, is an accepted sample size; 21 respondents are not working in the required domain and were eliminated from the examination, making the net of respondents 107, which is still accepted.

Table 1. Working in accounting software development.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	21	16.4	16.4	16.4
	Yes	107	83.6	83.6	100.0
	Total	128	100.0	100.0	

Table 2 shows that 56 respondents, or 43.8%, are male, while the remaining 72, or 56.3%, are female. Table 3 shows that 54.7% of the respondents hold a bachelor's degree in a related field, with a frequency of 70 respondents; 45.3% hold a master's degree, with a frequency of 56 respondents; and none of the respondents hold a PhD.

Table 2. Gender.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	56	43.8	43.8	43.8
	Female	72	56.3	56.3	100.0
	Total	128	100.0	100.0	

Table 3. Educational level.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Bachelor's	70	54.7	54.7	54.7
	Master's	58	45.3	45.3	100.0
	PhD	0	0	0	100.0
	Total	128	100.0	100.0	

To examine the research hypotheses, a logistic regression analysis was done for each dependent variable against the independent variable. For that purpose, each model's goodness of fit was measured to ensure that the model is significant for studying the significant influence of the independent variable on the dependent.

The omnibus test of model coefficients in block 1 is used to test the model fit according to its p-value. If the model p-value is < 0.05, it is significant, which shows that the model has a good fit. Table 4 shows that the p-value of cutoff period error is $0.024 < 0.05$. The p-value of error of principle is $0.012 < 0.05$. The p-value of hiding transaction error is $0.047 < 0.05$. The p-value of mathematical error is $0.000 < 0.05$. The p-value of manipulation error is $0.000 < 0.05$. The p-value of tax rate error is $0.000 < 0.05$. Thus, all models show a good fit for examining the variables.

Table 4. Block 1: method = enter.

Omnibus Tests of Model Coefficients				
Error		**Chi-Square**	**Df**	**Sig.**
COE	Step	5.084	1	0.024
	Block	5.084	1	0.024
	Model	5.084	1	0.024
EOP	Step	6.335	1	0.012
	Block	6.335	1	0.012
	Model	6.335	1	0.012
HTE	Step	3.929	1	0.047
	Block	3.929	1	0.047
	Model	3.929	1	0.047
ME	Step	19.798	1	0.000
	Block	19.798	1	0.000
	Model	19.798	1	0.000
MANE	Step	63.136	1	0.000
	Block	63.136	1	0.000
	Model	63.136	1	0.000
TRE	Step	71.046	1	0.000
	Block	71.046	1	0.000
	Model	71.046	1	0.000

Table 5 shows that the AI influence on the cutoff period error is significant since the p-value is 0.026 < 0.05. Also, the AI influence is significant on each of the accounting errors, as follows: error of principle, with a p-value 0.009 < 0.05; hiding transaction error, with a p-value 0.041 < 0.05; mathematical error, with a p-value 0.000 < 0.05; manipulation error, with a p-value 0.001 < 0.05; and tax rate error, with a p-value 0.000 < 0.05. The results show that in all six models, AI has a significant influence on all six accounting errors.

Table 5. Variables in the equation.

		B	S.E.	Wald	df	Sig.	Exp(B)
COE	AI influence on cutoff period error	0.548	0.246	4.989	1.000	0.026	1.731
	Constant	1.128	0.793	2.024	1.000	0.155	3.089
EOP	AI influence on error of principle	0.514	0.196	6.884	1.000	0.009	1.672
	Constant	−0.103	0.770	0.018	1.000	0.893	0.902
HTE	AI influence on hiding transaction error	1.114	0.544	4.194	1.000	0.041	3.047
	Constant	−2.644	2.268	1.359	1.000	0.244	0.071
ME	AI influence on mathematical error	1.035	0.268	14.972	1.000	0.000	2.816
	Constant	−2.483	1.052	5.574	1.000	0.018	0.083
MANE	AI influence on manipulation error	2.798	0.815	11.790	1.000	0.001	16.410
	Constant	−6.717	2.700	6.188	1.000	0.013	0.001
TRE	AI influence on tax rate error	2.835	0.807	12.345	1.000	0.000	17.029
	Constant	−6.886	2.658	6.712	1.000	0.010	0.001

The results of Table 5 show the odds ratio (B) of each equation, which estimates whether the outcome group of the equation is > 1. The odds ratio (B) of the equation of the AI influence on cutoff period error is 1.731 < 1. The odds ratio (B) of the equation of the AI influence on error of principle is 1.672 < 1. The odds ratio (B) of the equation of the AI influence on hiding transaction error is 3.047 < 1. The odds ratio (B) of the equation of the AI influence on mathematical error is 2.816 < 1. The odds ratio (B) of the equation of the AI influence on manipulation error is 16.41 < 1. The odds ratio (B) of the equation of the AI influence on tax rate error is 17.029 < 1.

According to the previous results, based on the accounting software developers' attitude toward the role of AI, AI shows a significant role in eliminating accounting errors, and the probable outcome is that the targeted group believes that accounting errors will not exist by using AI, since the odds ratio (B) for all the equations is greater than 1. The following presents the results of the second group examined, representing the users of AI in the accounting field, namely, the CPAs.

Table 6 shows 111 total respondents, which includes 19 CPAs not practicing, who were excluded from the examination; the net sample remaining is 92. Table 7 shows that the gender is diversified: 90 men, which form 81.1% of the total respondents, and 21 women, 18.9% of the total respondents. Table 8 shows that the highest frequency of educational level is for bachelor's holders, 64 persons forming 57.7%; master's holders came next, with 44 persons forming 39.6%; while PhD holders are only 3 persons, forming 2.7%.

Table 6. Certified public accountants.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	19	17.1	17.1	17.1
	Yes	92	82.9	82.9	100.0
	Total	111	100.0	100.0	

Table 7. Gender.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	90	81.1	81.1	81.1
	Female	21	18.9	18.9	100.0
	Total	111	100.0	100.0	

Table 8. Educational level.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Bachelor's	64	57.7	57.7	57.7
	Master's	44	39.6	39.6	97.3
	PhD	3	2.7	2.7	100.0
	Total	111	100.0	100.0	

Table 9 shows that all respondents' answers regarding the usage of AI is no, and according to Table 10, 102 are willing to do so in the near future, while the remaining 9 CPAs are not.

Table 9. Are you using AI currently?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	111	100.0	100.0	100.0

Table 10. Willing to use AI in the near future.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	9	8.1	8.1	8.1
	Yes	102	91.9	91.9	100.0
	Total	111	100.0	100.0	

Table 11, omnibus tests, shows that the p-value of cutoff period error is $0.010 < 0.05$. The p-value of error of principle is $0.000 < 0.05$. The p-value of hiding transaction error is $0.004 < 0.05$. The p-value of mathematical error is $0.003 < 0.05$. The p-value of manipulation error is $0.000 < 0.05$. The p-value of tax rate error is $0.000 < 0.05$. Those results show that the models are significant with respect to the variables' influence with respect to the null models, meaning that the model fits well for measuring the variables' influence.

Table 11. Block 1: method = enter.

Omnibus Tests of Model Coefficients				
Error		**Chi-Square**	**df**	**Sig.**
COE	Step	6.596	1	0.010
	Block	6.596	1	0.010
	Model	6.596	1	0.010
EOP	Step	28.781	1	0.000
	Block	28.781	1	0.000
	Model	28.781	1	0.000
HTE	Step	8.481	1	0.004
	Block	8.481	1	0.004
	Model	8.481	1	0.004
ME	Step	8.625	1	0.003
	Block	8.625	1	0.003
	Model	8.625	1	0.003

Table 11. *Cont.*

Omnibus Tests of Model Coefficients				
Error		**Chi-Square**	**df**	**Sig.**
MAN	Step	25.502	1	0.000
	Block	25.502	1	0.000
	Model	25.502	1	0.000
TRE	Step	34.959	1	0.000
	Block	34.959	1	0.000
	Model	34.959	1	0.000

Table 12 shows, based on CPAs' attitudes, that the AI influence on the cutoff period error is significant since the *p*-value is 0.022 < 0.05. Also, the AI influence is significant on each of the accounting errors: hiding transaction error, with a *p*-value 0.005 < 0.05; manipulation error, with a *p*-value 0.023 < 0.05; and tax rate error, with a *p*-value 0.016 < 0.05. However, the results show that AI's influence is not significant on each of the following accounting errors: error of principle, with a *p*-value 0.994 < 0.05, and mathematical error, with a *p*-value 0.067 < 0.05.

Table 12. Variables in the equation.

		B	**S.E.**	**Wald**	**df**	**Sig.**	**Exp(B)**
COE	AI influence on cutoff period error	0.726	0.318	5.221	1	0.022	2.067
	Constant	0.529	0.852	0.385	1	0.535	1.697
EOP	AI influence on error of principle	15.479	2146.632	0.000	1	0.994	5,276,643.343
	Constant	−15.612	2146.633	0.000	1	0.994	0.000
HTE	AI influence on hiding transaction error	2.175	0.781	7.747	1	0.005	8.803
	Constant	−6.305	3.038	4.307	1	0.038	0.002
ME	AI influence on mathematical error	1.615	0.880	3.365	1	0.067	5.029
	Constant	−0.606	1.396	0.189	1	0.664	0.545
MAN	AI influence on manipulation error	2.609	1.147	5.169	1	0.023	13.581
	Constant	−6.445	4.207	2.347	1	0.126	0.002
TRE	AI influence on tax rate error	2.712	1.122	5.846	1	0.016	15.057
	Constant	−6.889	4.086	2.843	1	0.092	0.001

The results of Table 12 also show the odds ratio (B) of each equation, which estimates whether the outcome group of the equation is > 1. The odds ratio (B) of the equation of AI influence on cutoff period error is 2.067 < 1. The odds ratio (B) of the equation of AI influence on hiding transaction error is 8.803 < 1. The odds ratio (B) of the equation of AI influence on manipulation error is 13.581 < 1. The odds ratio (B) of the equation of AI influence on tax rate error is 15.057 < 1.

Referring to the accounting software developers, all six null hypotheses are rejected, which means that AI application in accounting software has significant influence on all accounting errors that reduce tax reporting quality in emerging markets. The application will most probably eliminate the accounting errors, namely, tax rate error, cutoff period error, error of principle, hiding transaction error, and manipulation error.

While referring to the CPAs, the null hypotheses of H1c and H1e are not rejected, which means that AI application in accounting software still is not significant for eliminating all accounting errors to guarantee good tax reporting quality. The application will probably eliminate the accounting errors in emerging markets, namely, tax rate error, cutoff period error, hiding transaction error, and manipulation error. However, it is not significant to eliminate mathematical errors and errors of principle.

5. Discussion of Results

The previous results show that AI's role in eliminating accounting errors may still be unclear due to the difference in results, which requires more examination. According to software developers, AI was found to eliminate all accounting errors examined in the emerging market. But CPAs raise a doubt regarding the role of AI since its role in eliminating errors of principle and mathematical errors was not found significant, which may reduce tax reporting quality by not guaranteeing that tax information is error-free.

Such a difference in attitudes among users and developers may be the reason behind the incompatible results, which may refer to overvaluation by developers for AI in the current technological era. Moreover, it may be undervalued by users, since its application among the CPAs may still be weak and require more practical explorations to enhance the trust in AI and to explore its real practical aspects rather than relying on its theoretical abilities in tax reporting and in accounting. The results from CPAs supported previous studies that argued the efficiency of the AI role in accounting, stating that the practical abilities of AI in tax accounting may lead to resistance among accounting firms to advanced technological transformation due to insufficient examination (Cooper et al. 2019). The practical challenges, such as the required IT infrastructure and skills, challenge the accountants for adopting advanced techs in the field (Gotthardt et al. 2020). Moreover, Widjaja (2021) stated that even though the adoption of such advanced tech may ease tax filing and reporting, errors will not be eliminated.

From the developers' perspective, the results show compatibility with the previous literature; for eliminating all those examined accounting errors, Hashem and Alqatamin (2021), who examined the role of AI among users, stated that AI will replace the human role, which will remove, in turn, any errors from the clerks at the entry level. Moreover, Akinadewo (2021) supported the previous results among accountants in developed countries, stating that a combination of RPA, BCT, and NLP will lead to huge benefits for the accounting process through removing the human entry role, sharing highly secured financial databases, and analyzing the documents and records for the proper accounting treatment.

Even so, the current examination shows that according to the CPAs' attitudes in Lebanon, AI seems to be not effective to completely support them in tax accounting, which contradicts previous studies' results. In Saudi Arabia, Abdullah and Almaqtari (2024) examined the problem among CPAs and found that AI technologies will help accountants in providing error-free tax reporting through the efficiency and accuracy of its tools. Moreover, the Big 4 have made, in the previous decades, a substantial amount of investment to implement AI in accounting tasks to improve its role through enhancing its accuracy, efficiency, and completeness of information. KPMG developed its digital gateway for tax accounting, meaning that KPMG made it clear that tax implications require special treatment by accountants and require very accurate reporting due to the associated risks.

The study contributes to the theoretical explanation of the influence of AI applications in tax accounting practices in the context of an emerging country, Lebanon, from two different perspectives. The results raise the call for more research in the field, considering different aspects, to enrich such important sides of knowledge. The findings of the study have practical implications for accounting practitioners, policymakers, and scholars, and may call for practical enhancements of CPAs' IT skills and the market needs for such applications; also, policymakers should act for such applications to enhance the quality of VAT reporting in Lebanon. Then, scholars and academics must adapt to the new era of accounting using advanced tools rather than developing courses for the entry level.

6. Conclusions

The research question and hypotheses are answered from two different perspectives: the developers' perspective and the users' perspective. From the developers' perspective, AI was found significant in eliminating all six accounting errors that reduce tax reporting quality in emerging markets, namely, tax rate error, cutoff period error, error of principle, hiding transactions error, mathematical error, and manipulation error. However, from the

user's perspective, AI was not found significant to eliminate all those accounting errors, with no negative influence on the error of principle and mathematical error, which leaves tax reporting quality in emerging markets unguaranteed. This may harm the firms when being fined or suffering from reputational damage.

AI may be not sufficiently known and examined to convince all the related parties, which is clear through the difference in the results between both examined groups: the accounting software developers and the users. Moreover, it is interesting to note that CPAs, particularly when it comes to the quality of VAT reporting in Lebanon, show some skepticism about AI's ability to completely eliminate accounting errors, showing that CPAs may not perceive AI as easy to use and useful, according to TAM, or to hold future benefits, according to modernization theory. Software developers' optimistic projections stand in contrast to this hesitation. Given that top international accounting firms, like the Big 4, are devoting billions of dollars to the development of advanced AI systems, this difference could cause a tremendous professional gap. The competition between domestic and international accounting and auditing firms may become more intense as a result of such investment.

To summarize, there is a significant difference in the expectations of international firms and local CPAs regarding the application of AI in accounting, particularly in the area of tax accounting. For instance, KPMG is actively working on a proprietary digital gateway for tax accounting, highlighting the increasing importance of AI in improving the quality of VAT reporting—an area in which manual approaches are inadequate. Local CPAs may encounter significant difficulties if they do not proactively adopt AI technologies and modify their practices accordingly. Effective, practical solutions for VAT reporting are becoming more and more in demand, and local accounting professionals risk losing out on business if they do not stay ahead of the curve.

7. Limitations and Further Research

The research limitations may include the limited knowledge of participants about the real abilities of AI regarding its relation to deep accounting practices and how it may impact the accounting process. And the unknown population made the sample limited and not accurate, whether it was representative or not.

The originality of this research in an emerging market will form a solid base of literature for future extensions and research in the field and will add more contributions to the knowledge. Also, further studies are needed to experiment by simulating the impact of AI applications on accountants, which may provide a clear practical perspective. In addition, the results of this study will help in examining the knowledge about AI among users and whether they are ready to adopt or not.

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