

## **A Structural Modelling Approach to The Impact of Electronic Auditing Determinants on The Financial Performance of Islamic Banks in Kurdistan**

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**ARTICLE INFO**

**Article History:**

Received: 10/11/2022

Accepted: 26/2/2023

Published: Spring2024

**Keywords:** *Audit infrastructure and technical expertise; ethical conduct; financial performance; organizational funding; technological risk.*

**Doi:**

10.25212/lfu.qzj.9.1.45

**ABSTRACT**

The study aims to develop a model that can effectively capture the impact of internal electronic auditing determinants on the financial performance of Islamic banks. Specifically, the objectives were to (1) determine the effect of technological risk, organizational funding, audit infrastructure and technical expertise and ethical conduct on the financial performance of Islamic banks and (2) ascertain the validity of propositions that moderating ethical conduct moderates the interactive connections linking technological risk, organizational funding, and audit infrastructure and technical expertise with financial performance. Consequently, the study applied a structural equation modelling approach in analyzing 250 questionnaire responses collected from managers, auditors, accountants and other employees of 11 Islamic banks in Erbil Kurdistan. The results of the study revealed that organizational funding, audit infrastructure and technical expertise, and ethical conduct electronic internal auditing determinants distinctively contribute positively toward improving financial performance, but the extent of the impact differs from one internal control component to the other. It was further revealed that technological risk poses huge adverse effects on banks' financial performance and this demands bank managers to enact effective risk management and mitigation strategies to curb the prevalence of such risks. The study concludes that it is important for bank managers to restructure the banks' internal auditing practices according to the banks' technological risk, organizational funding, audit infrastructure and technical expertise, and ethical conduct.

## **1. Introduction**

The business world has witnessed substantial contemporary advancements in technology demanding professionals such as accountants and auditors to keep abreast of such changes. Such changes are undeniably and inevitably important and necessary for facilitating innovative improvements in accounting and auditing activities as the professions continue to embrace the adoption of information systems. Hence, the adoption of electronic internal auditing by companies such as financial institutions is deemed as having an instrumental role in curbing corruption and corporate misconduct (Bayunitri et al., 2021& BRAIM, 2020). There is a common agreement among studies that incidences such as the Enron Sage could have been avoided and banks enjoyed substantial improvements in performance through the increased adoption of internal electronic auditing practices and methods (Kaban, 2020; Samad, 2004; Siraj & Pillai, 2012). This aligns with Charlton and Marx's (2009) positions denoting that adopting internal electronic auditing practices and methods are vital for enhancing performance by deterring fraudulent activities and corporate governance malpractices tarnishing the corporations' image and reputation.

As it is becoming inevitably transparent that there is a connection linking internal electronic auditing with financial performance, it is essential to bear that internal electronic auditing determinants are posed to influence the nature and significance of each factor on financial performance. But such connections have remained underexplored, especially in the context of Islamic banks. Though some studies consider that solid corporate governance and performance benefits enjoyed by Islamic banks are a result of good auditing practices (Bible, Graham & Rosman, 2005; Kaban, 2020; Sun, Alles & Vasarhelyi, 2015), there is little evidence to support such arguments. Furthermore, the lack of evidence surrounding the interactive effects of vital technological risk, organizational funding, audit infrastructure and technical expertise, and ethical conduct with Islamic banks' financial performance overshadows such judgements. It is vital to acknowledge prior examinations'

outcomes denoting negative interactions between technological risk and financial performance (Kahn, 2022; Peykani, Namazi & Mohammadi, 2022) and, organizational funding, audit infrastructure and technical expertise, and ethical conduct on financial performance (Chambers & Rand, 2011; Flynn, 2022; Ghose & Koliadis, 2007; Islam, 2022).

and how this influences' bank financial performance. Thus, this current contributes to the existing body of literature by addressing such gaps

While it is true that internal electronic auditing serves a vital purpose in enhancing financial performance (Al-Zoubi & Al-Qadi, 2016; Bible, Graham & Rosman, 2005; Maria & Ariyani, 2014), ascertaining and decomposing the exact factors or channels through which internal electronic auditing affects financial performance still remains nascent fantasy studies are yet to explore. Most importantly, the ability of studies to depict a positive interaction spanning from internal electronic auditing to financial performance (Charlton & Marx, 2009; Sun, Alles & Vasarhelyi, 2015), still leaves a lot to be desired, especially when various organizational and industry-specific factors are having an instrumental effect on both the adoption and effective use of internal electronic auditing as well as the performance of banks. Given that factors such as technological risk, organizational funding, audit infrastructure and technical expertise, and ethical conduct have a huge bearing on how internal electronic auditing works to influence financial performance, studies have resorted to methodological approaches incapable of modelling the exact impact of these factors on financial performance. This can be evidenced by the use of experiments (Bible, Graham & Rosman, 2005), descriptive analysis methods (Al-Zoubi & Al-Qadi, 2016) and single regression analysis (Maria & Ariyani, 2014). As a result, there is a lack of a model that integrates the combined effects of technological risk, organizational funding, audit infrastructure and technical expertise, and ethical conduct and assesses the distinct effects on financial performance. Besides, the possibility of financial performance being moderated by other factors such as ethical conduct cannot be overruled as various factors like compliance (Ghose & Koliadis, 2007),

reliable information (Singh et al., 2019), corporate governance (Paniagua, Rivelles & Sapena, 2018) etc., have been considered to be some of the key factors moderating financial performance.

Regarding the above-mentioned issues, this study aims to build an integrative model analyzing the yet-to-be-determined distinctive effects of internal electronic auditing determinants (technological risk, organizational funding, audit infrastructure and technical expertise, and ethical conduct) on financial performance. This comprises attempts to ascertain the validity of this study's propositions that moderating ethical conduct moderates the interactive connections linking technological risk, organizational funding, and audit infrastructure and technical expertise with financial performance.

The study advances the literature on electronic auditing as corporate governance and performance-enhancing tool and electronic auditing's conceptual framework for financial performance. Additionally, the study also advances construct and item development involving internal electronic auditing determinants and financial performance while testing relationships to uncover the significance of their impact on financial performance.

## **2. Materials and Methods**

### **2.1 Hypotheses development: The impact of internal electronic auditing determinants on financial performance**

Technological risks constitute part of the major obstacles hindering a company's operational activities (Kahn, 2022), productivity (Peykani, Namazi & Mohammadi, 2022) and performance (Shahzad et al., 2022). In the absence of the ability to charge high returns commensurate with such risks, adverse changes in financial performance are inevitable. Besides, the TAM contends that technology and information systems such as internal electronic auditing can only be adopted if their perceived ease of use and benefits are high (Marangunić & Granić, 2015). The advent of such risks can reduce the obtainable benefits of internal electronic

auditing resulting in increased errors and cases of fraud hindering financial performance. Besides, technological risks make it expensive to implement effective financial performance-enhancing measures (Kahn, 2022; Peykani, Namazi & Mohammadi, 2022) and reduce investment in effective internal electronic auditing systems resulting in errors and fraudulent activities that are financially expensive (Chambers & Rand, 2011; Ghose & Koliadis, 2007). Amid such observations, it is logical to portray a negative connection between technological risk and financial performance by formulating the following hypothesis;

- **H<sub>1</sub>**: A negative significant relationship exists between technological risk and financial performance.

As highlighted in the prior section, sound improvements are evident and obtainable on the prevalence of certain conditions or factors. Following establishments showing that having sufficient funding enhances both the effective adoption and enactment of conditions and factors like recruitment of trained and skilled personnel as well as training and development (Flynn, 2022), it is evidently becomes crucial to integrate such a factor when analysing matters involving the adoption of internal electronic auditing and financial performance. This carries huge relevancy when determinants like audit infrastructure and technical expertise, and ethical conduct are brought into the picture. As such, studies contend that audit infrastructure and technical expertise, and ethical conduct play a pivotal role in enhancing the effective adoption of internal auditing systems and practices (Chambers & Rand, 2011; Flynn, 2022; Ghose & Koliadis, 2007; Islam, 2022). However, such has not been incorporated in the area of internal electronic auditing. Amid such observations, the following hypotheses were crafted to cater for such empirical voids;

- **H<sub>2</sub>**: Audit infrastructure and technical expertise have an indirect positive effect on financial performance.
- **H<sub>3</sub>**: A positive significant relationship exists between organizational funding and financial performance.

- **H<sub>4</sub>**: A positive significant relationship exists between ethical conduct and financial performance.

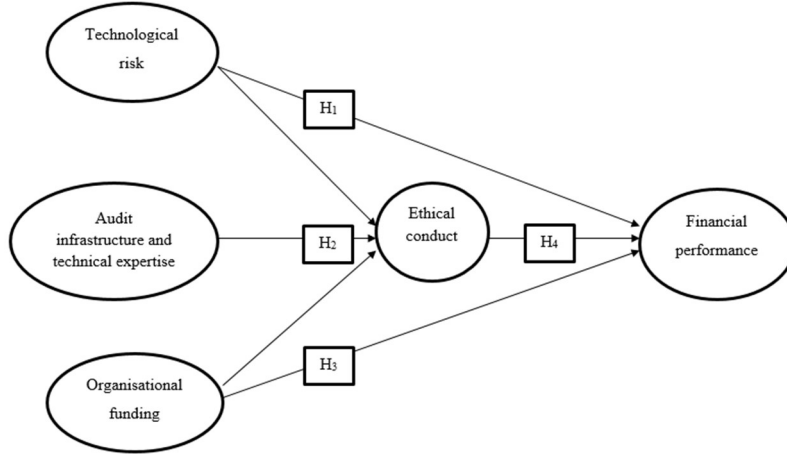


Figure (2-1): Conceptual framework

In line with the aforementioned hypotheses, a conceptual model shown in Figure 1 will be used as a base upon which a structural equation modelled will be estimated to model and examine the impact of internal electronic auditing determinants on the financial performance of Islamic banks.

**2.2 Data collection**

The analysed data were collected from the 4<sup>th</sup> of May to the 3<sup>rd</sup> of July using questionnaires that were randomly distributed to 11 Islamic banks in Erbil, Kurdistan (Credit bank of Iraq, Emerald Bank, Harem Bank, Alarabiya Islamic Bank, Kurdistan International Bank, Cihan Islamic Bank, Al Bilad Islamic Bank, Al Qurtas Islamic Bank – Erbil, Abu Dhabi Islamic Bank (ADIB), International Kurdistan Bank and Iraqi Islamic Bank). The internal electronic auditing and financial performance variable constructs were adapted from auditing books and a review of previous related examinations done by the author and measured using a five point-Likert scale from one (strongly disagree) to five (strongly agree). The questionnaire comprised 8 technological risks, 6 organisational funding, 10 audit infrastructure and technical expertise, 8 ethical

conduct, and 14 financial performance constructs. The questionnaire was pretested using three Islamic bank managers and subsequently distributed to other managers, auditors, accountants and employees upon successful completion of the focus group tests.

The study focused on Islamic banks because of a lack of initiatives analysing the effects of internal electronic auditing on Islamic banks' financial performance as a core number of studies limit their focus to conventional banks in countries such as the United States of America (Sun, Alles & Vasarhelyi, 2015), Turkey (Kaban, 2020) and South Africa (Charlton & Marx, 2009). Additionally, the importance of testing the significance attached to the influence of internal electronic auditing determinants on financial performance continuously evolves with changes in organisational, industry and country-specific factors. Hence, introducing internal electronic auditing and financial performance concepts in the context of Islamic banks becomes of huge importance, especially in Kurdistan which has been overshadowed by countries such as the United States of America (Sun, Alles & Vasarhelyi, 2015), Turkey (Kaban, 2020) and South Africa (Charlton & Marx, 2009). Additionally, there is a need to ascertain whether the stability and improved financial performance levels enjoyed by Islamic banks compared to conventional banks (Samad, 2004; Siraj & Pillai, 2012) is partly linked to internal electronic auditing.

### **3. Sampling method**

A judgmental sample of 200 participants was used to ensure that the study directly targets the population of interest (Etikan & Bala, 2017). As a result, judgment sampling enhanced the relevance of the sample to the population of interest, as only managers, auditors, accountants and employees fitting the internal electronic auditing and financial performance criteria were included in the sample. A description of the study's sample participants is provided in Table 1. The 250 respondents comprised 195 male employees and 55 female employees with 17.6% of the participants occupying managerial positions, 9.6% in accounting positions,



8.8% in auditing positions and 64% occupying other positions. Table 1 also shows that 7.2% of the participants have been working for the banks for less than one year, 41.6% for 1-5 years, 48.4% for 6-10 years and 2.8% for at least 11 years.

Table 1. Sample description

Gender			Respondent's positions			Years of experience		
Category	Frequency	%	Category	Frequency	%	Category	Frequency	%
Male	195	78	Managers	44	17.6	> 1 year	18	7.2
Female	55	22	Accountants	24	9.6	1-5 years	104	41.6
			Auditors	22	8.8	6-10 years	121	48.4
			Others	160	64	11 years +	7	2.8
<b>Total</b>	<b>250</b>	<b>100</b>	<b>Total</b>	<b>250</b>	<b>100</b>	<b>Total</b>	<b>250</b>	<b>100</b>

### 3.1 Data analysis

A Structural Equation Modelling approach (SEM) was applied in this study to satisfy quests aimed at modelling the impact of internal electronic auditing determinants using AMOS. Besides, the study’s scientific contributions are engraved in its capacity to model beyond the scope of experiments (Bible, Graham & Rosman, 2005), descriptive analysis methods (Al-Zoubi & Al-Qadi, 2016) and single regression analysis (Maria & Ariyani, 2014). Additionally, this assisted in enhancing clarity as to whether other factors like ethical conduct can moderate connections linking internal electronic auditing determinants with financial performance amid suggestions contending that internal electronic auditing is a mediator variable (Prabowo & Suhartini, 2021). For such reasons, SEM, a multivariate analysis method analyzing the structural connections between the latent variables (technological risk, organizational funding, audit infrastructure and technical expertise, ethical conduct and financial performance) was applied (Barret, 2007). Additionally, such a model

played a pivotal role in modelling the impact of each distinct internal electronic auditing determinant and ascertaining the significance of their effects on financial performance using the regression analysis function of SEM (Hair et al., 2017; Sarstedt, Ringle & Hair, 2021).

### **3.2 Validity, reliability and model tests**

A convergent validity test was carried out by comparing the obtained Average Variance Explained (AVE) values with the prescribed 0.50 cutoff denoting the existence of convergent validity (Hair et al., 2017; Sarstedt et al., 2022; Sarstedt, Ringle & Hair, 2021). Composite reliability and Cronbach’s alpha tests were used in assessing the variables’ reliability following agreements that values of at least 0.70 warrants reliable explanations (Hair et al., 2017; Sarstedt, Ringle & Hair, 2021).

The deployed model fitness tests include the use of a parsimony-adjusted index called the Root Mean Square Error of Approximation (RMSEA) that considers values less than 0.08 as representing a good fit (Sarstedt, Ringle & Hair, 2021). Other tests applied included the chi-square test, the Normed Fit Index (NFI) and the Tucker Lewis index (TLI) and the Comparative Fit Index (CFI) which set a minimum cutoff value of 0.90 to indicate an acceptable model fit (Fan, Thompson & Wang, 1999).

## **4 Results**

The first attempt was to ascertain the extent to which the variables are related to given factors (Sarstedt, Ringle & Hair, 2021). A cutoff of 0.70 was used to reduce the set of variables in a dataset and the selected technological risk, organizational funding, audit infrastructure and technical expertise, and ethical conduct constructs are shown in Table 2.

*Table 2.* Factor loadings

<b>No.</b>	<b>Selected constructs</b>	<b>Loadings</b>
TR2	Technological risks reduce the perceived benefits of internal electronic auditing systems.	0.74

TR3	Technological risks increase the risk of fraud.	0.81
TR4	Technological risks increase the risk of making more and significant errors.	0.72
TR5	Technological risks prevent banks from investing in internal electronic auditing systems.	0.84
TR7	Technological risks affect the bank’s financial performance.	0.82
OF1	The bank has the necessary funding to adopt and maintain internal electronic auditing systems.	0.76
OF2	Funds are equally distributed between the audit department and other bank departments.	0.71
OF3	There is a separate budget allocated for internal electronic auditing systems.	0.81
OF4	The allocated funding is sufficient to maintain and upgrade internal electronic auditing systems.	0.80
OF6	The budget allocated for internal electronic auditing systems is constantly revised each year.	0.86
OF7	The entire audit department participates in determining the internal electronic auditing systems budget.	0.78
AITE1	The bank has the necessary audit infrastructure to support internal electronic auditing systems.	0.73
AITE2	The bank has skilled and qualified audit professionals to support internal electronic auditing systems.	0.84
AITE3	Employees take responsibility for improving their own auditing skills and knowledge.	0.86
AITE5	Annual audit training programs are offered to all bank employees.	0.70
AITE7	The bank invests in new and modern audit infrastructure every year.	0.81
AITE8	The bank invests in improving employees’ expertise and skills.	0.74

EC1	Ethics promotes acceptable behaviour among employees and managers.	0.83
EC3	Ethics enhances the effective use of resources.	0.72
EC4	Managers and employees are accountable for fraud committed.	0.70
EC5	The bank has an ethics committee monitoring managers' and employees' conduct.	0.84
EC8	Employees and managers are rewarded for demonstrating good ethical behavior.	0.78
FP2	Annual revenue inflows have increased significantly following the adoption of e-auditing.	0.82
FP5	Costs affecting financial performance have declined following the adoption of e-auditing.	0.74
FP6	E-auditing has reduced fraudulent activities affecting the bank's financial performance.	0.76
FP7	Shareholders' investments have increased considerably over the past five years.	0.82
FP9	Returns on equity have been growing considerably over the past five years.	0.88

In line with efforts to ensure that the estimated model possesses the desired reliability and validity features, all the variables were highly reliable as denoted by their Cronbach's alpha values exceeding 0.70 (Sarstedt, Ringle & Hair, 2021). Composite reliability was established following indications that all composite reliability values were more than 0.07 (Hair et al., 2017; Sarstedt et al., 2022; Sarstedt, Ringle & Hair, 2021). AVE values of more than 0.50 were obtained and thus, denoting the existence of convergent validity (Hair et al., 2017; Sarstedt et al., 2022; Sarstedt, Ringle & Hair, 2021) as shown in Table 3.

**Table 3.** Reliability and validity test results

Variable	Cronbach's alpha	Composite reliability	AVE
TR	0.74	0.78	0.54
OF	0.82	0.81	0.64

AITE	0.79	0.73	0.58
EP	0.88	0.84	0.70
FP	0.86	0.82	0.62

**TR – Technological Risk; OF – Organizational Funding; AITE – Audit Infrastructure and Technical Expertise; EC- Ethical Conduct; FP – Financial Performance.**

The applied model test reveals that the chi-square value of 16.433 is significant at 1% (Aburumman et al., 2022; Sarstedt et al., 2022) indicating that the model was fit and acceptable for analysing the impact of internal electronic auditing determinants on Islamic banks’ financial performance. Additionally, the computed GFI values surpassed the required 0.90 mark (Hair et al., 2017; Sarstedt, Ringle & Hair, 2021). This was further supported by the established Table 4 CFI, NFI and TLI’s values of 0.921, 0.953 and 0.961, respectively providing additional evidence of the model’s fitness (Hair et al., 2017; Sarstedt et al., 2022; Sarstedt, Ringle & Hair, 2021). Besides, the RMSEA was less than 0.08 as prescribed by Sarstedt, Ringle and Hair (2021).

**Table 4.** Model test results

	$\chi^2.df$	GFI	CFI	NFI	TLI	RMSEA
Result	16.433 (0.000)	0.920	0.921	0.953	0.961	0.07

Given that the model successfully passed all the required fitness tests, the study proceeded in interpreting the path analysis results. The path analysis results presented in Table 5 show that there is a significant negative interaction between technological risk and financial performance of 0.122. This supports Kahn’s (2022) findings denoting a negative interaction as technological risk is viewed as hindering a company’s financial performance. As a result, hypothesis 1 was accepted. Meanwhile, the study upholds the notion that audit infrastructure and technical expertise have an indirect positive effect on financial performance ( $\beta=0.276$ ;  $p=0.000$ ) technological risks’ effects were observed as triggering significant improvements in ethical conduct by 0.280. Similarly, the positive contributions of

organizational funding to financial performance were not dismissed but rather were found to hold significantly ( $\beta=0.558$ ;  $p=0.000$ ) resulting in the acceptance of hypothesis 3 as linked to improving the company’s financial performance is attached to various performance-enhancing benefits linked to growth (Martinez & Potluka, 2015), development and innovation (Quero & Ventura, 2015).

*Table 5. Path analysis results*

Effect	Estimate	S.E.	P	Hypothesis
TR → FP	-0.122	0.042	0.003	<b>H<sub>1</sub></b> : Accepted
AITE → EC → EC	0.276	0.078	0.000	<b>H<sub>2</sub></b> : Accepted
OF → FP	0.558	0.061	0.000	<b>H<sub>3</sub></b> : Accepted
EC → FP	0.213	0.060	0.018	<b>H<sub>4</sub></b> : Accepted

**TR – Technological Risk; OF – Organizational Funding; AITE – Audit Infrastructure and Technical Expertise; EC- Ethical Conduct; FP – Financial Performance.**

The findings also support the validity of hypothesis 4 asserting a positive connection ( $\beta=0.213$ ;  $p=0.018$ ) linking ethical conduct to financial performance as noted by Flynn (2022). This mirrors related suggestions by Islam (2022) denoting that positive goodwill, image and reputation are presumed to confer advantages to a company leading to improved financial performance. This also aligns with the notion that acceptable ethical conduct reduces the need to invest in people and technology to reduce errors and fraud resulting in a reduction in operational and investment costs leading to improved financial performance (Chambers & Rand, 2011; Ghose & Koliadis, 2007). Such connections had been lacking empirical verifications that are not documented in prior studies (Al-Zoubi & Al-Qadi, 2016; Bible, Graham & Rosman, 2005; Maria, & Ariyani, 2014).

**4.1 Discussion of findings**

A key number of connections modelled in this study have been lacking empirical validation. Additionally, it had remained to be proven in the context of Islamic banks if the proposition that all the individual determinants of internal electronic auditing

have distinct effects on financial performance. In that regard, the AMOS SEM results proved that it is vital to uphold the first hypothesis asserting that there is a negative significant relationship exists between technological risk and financial performance. Thus, the results add empirical substance to studies that do not model beyond the scope of experiments (Bible, Graham & Rosman, 2005), descriptive analysis methods (Al-Zoubi & Al-Qadi, 2016) and single regression analysis (Maria & Ariyani, 2014). Therefore, the results of the study have huge scientific, theoretical and practical implications for manufacturing companies. Nonetheless, this study's findings concur with related prior suggestions denoting that technological risks make it expensive to implement effective financial performance-enhancing measures (Kahn, 2022; Peykani, Namazi & Mohammadi, 2022) and reduce investment in effective internal electronic auditing systems resulting in errors and fraudulent activities that are financially expensive (Chambers & Rand, 2011; Ghose & Koliadis, 2007). As a result, technological risk's impact on financial performance is significantly negative.

In another instance, the results of this study add substance to long-standing debates about the importance of audit infrastructure and technical expertise in enhancing good corporate governance practices (Chambers & Rand, 2011) as well as maximising financial performance (Ghose & Koliadis, 2007; Paniagua, Rivelles & Sapena, 2018) and business value (Islam, 2022). Hence, by accepting hypothesis two, the study advances auditing, corporate governance and financial performance literature (Chambers & Rand, 2011; Ghose & Koliadis, 2007) and also carry huge practical implications essential for enforcing measures aimed at reducing errors, fraud and other corporate misconducts as called by theories such as the principal agent-theory (Caers et al., 2006; Wright, Mukherji & Kroll, 2001). Therefore, this study has successfully proven that audit infrastructure and technical expertise have an indirect positive effect on Islamic banks' financial performance.

Interestingly, the study findings led to the acceptance of hypothesis three asserting that there is a positively significant relationship exists between organisational funding and financial performance. The significant interaction is relatively different from insignificant connections found in Martinez and Potluka's (2015) and this can be attached to various factors such as financial development and the banks' size. Nonetheless, the findings highlight an essential purpose of organisational funds being used to secure the necessary audit infrastructure, skills and other resources required in effectively implementing internal electronic auditing and ensure that it is well posed to enhance the banks' financial performance. Therefore, the study benefits bank managers on how best to channel funds when implementing internal electronic auditing systems and ensure that the banks remain financially well off. Besides, the importance of organisational funding is widely documented in academic studies and attached to various aspects such as competition (Martinez & Potluka, 2015), growth, development and innovation (Quero & Ventura, 2015). Both aspects can in turn contribute to the improvement of the banks' financial performance.

The study validated hypothesis four asserting that there is a positively significant relationship exists between ethical conduct and financial performance. This mirrors propositions laid forth by the principal-agent theory (Caers et al., 2006; Wright, Mukherji & Kroll, 2001) as well as abstract ideas evident in related studies but lacking empirical verification (Al-Zoubi & Al-Qadi, 2016; Bible, Graham & Rosman, 2005; Maria, & Ariyani, 2014). Thus, the study's theoretical implications command the incorporation of ethics and corporate governance practices in the principal-agent theory when devising theoretical constructs for boosting financial performance. This also supports initiatives laid forth by the principal-agent theory to safeguard stakeholders' interests and maximize the value of the banks.

#### **4.2 Conclusions**

The study was aimed at building an integrative model analyzing the distinctive effects of technological risk, organizational funding, audit infrastructure and



technical expertise, and ethical conduct determinants of internal electronic auditing on financial performance. The study findings suggest that organizational funding, audit infrastructure and technical expertise, and ethical conduct internal electronic auditing determinants distinctively contribute positively toward improving financial performance, but the extent of the impact differs from one internal control component to the other. As a result, this calls for the restructuring of the banks' auditing practices according to the banks' organizational funding, audit infrastructure and technical expertise, and ethical conduct. Additionally, inferences can be drawn that technological risk poses huge adverse effects on banks' financial performance and demands bank managers to enact effective risk management and mitigation strategies to curb the prevalence of technological risk affecting banks.

The present study advances the literature on internal electronic auditing as corporate governance and performance-enhancing tool. Additionally, it also advances internal electronic auditing's conceptual framework on financial performance. Lastly, the results of this study advance construct and item development involving internal electronic auditing determinants and financial performance while testing relationships to uncover the significance of their impact on financial performance. Analysis of the individual impact of internal electronic auditing determinants had been beyond the reach of several academic studies. Hence, the study is the first of its kind to analyses the impact of the five internal electronic auditing determinants on Islamic banks' financial performance in the widely neglected context of Kurdistan. The study corroborates the connection linking internal control as a corporate governance mechanism and organizational performance in real a Middle Eastern context. By and large, the results of our study provide a practical implication to firms striving to enhance financial performance using effective internal electronic auditing.

The first managerial implication is that the study suggests that proper and effective internal electronic auditing systems capable of capturing all the influencing conditions are well posed to boost banks' financial performance. Hence, bank



managers are urged to adopt proper and effective internal electronic auditing systems in line with their financial performance objectives. Secondly, bank managers must closely examine the implications of each internal electronic auditing component in attaining, fostering and boosting sound financial performance levels.

The major limitation of this study is that it restricts its examination to Islamic banks and hence, its findings cannot be generalized to conventional banks as well as other countries other than Kurdistan. Secondly, it uses qualitative measures to develop internal electronic auditing and financial performance constructs at a time when numerical measures exist. Therefore, future studies can explore the impact of electronic internal auditing determinants on the financial performance of other banks located in various countries using numerical measures. Additionally, analysing the impact of technological risk and organisational funding on ethical conduct can influence the banks' financial performance, but this beyond the study's emphasis and scope. Hence, future studies can be designed to cater for such relationships.

**Conflict of interest:** The Author declares no conflict of interest.

## 5. References

1. Abu-Musa, A. A. (2004). Auditing e-business: new challenges for external auditors. *Journal of American Academy of Business*, 4(1), 28-41.
2. Aburumman, O. J., Omar, K., Al Shbail, M., & Aldoghan, M. (2022). How to Deal with the Results of PLS-SEM?. In *International Conference on Business and Technology* (pp. 1196-1206). Springer, Cham.
3. Al-Zoubi, A. M., & Al-Qadi, F. S. (2016). The Effect of Electronic Auditing in Reducing the Burden of Electronic Environment Complexity of Accounting Information System on the Auditor. *Research Journal of Finance and Accounting*, 7(14), 175-187.
4. Barrett, P. (2007). Structural equation modelling: Adjudging model fit. *Personality and Individual Differences*, 42(5), 815-824.
5. Bible, L., Graham, L., & Rosman, A. (2005). The effect of electronic audit environments on performance. *Journal of Accounting, Auditing & Finance*, 20(1), 27-42.
6. Braim, s. J. (2020), the role of management accounting in the decision-making process.
7. Boiral, O., Heras-Saizarbitoria, I., & Brotherton, M. C. (2019). Assessing and improving the quality of sustainability reports: The auditors' perspective. *Journal of Business Ethics*, 155 (3), 703–721.
8. Caers, R., Bois, C. D., Jegers, M., Gieter, S. D., Schepers, C., & Pepermans, R. (2006). Principal-agent relationships on the stewardship-agency axis. *Nonprofit Management and Leadership*, 17(1), 25-47.
9. Chambers, A., & Rand, G. (2011). *The operational auditing handbook: auditing business and IT processes*. John Wiley & Sons.
10. Charlton, G., & Marx, B. (2009). An investigation into the impact of continuous auditing on the external auditors of the four largest banks in South Africa. *South African Journal of Accounting Research*, 23(1), 45-65.
11. Etikan, I., & Bala, K. (2017). Sampling and sampling methods. *Biometrics & Biostatistics International Journal*, 5(6), 1-4.
12. Fan, X., Thompson, B., & Wang, L. (1999). Effects of sample size, estimation method, and model specification on structural equation modeling fit indexes. *Structural Equation Modeling*, 6, 56-83.

13. Fera, P., Pizzo, M., Vinciguerra, R., & Ricciardi, G. (2021). Sustainable corporate governance and new auditing issues: preliminary empirical evidence on key audit matters. *Corporate Governance: The International Journal of Business in Society*, 2(1), 194-211.
14. Flynn, G. (Ed.). (2022). *Leadership and business ethics* (Vol. 60). Springer Nature.
15. Gallego, A., Kuo, A., Manzano, D., & Fernández-Albertos, J. (2022). Technological risk and policy preferences. *Comparative Political Studies*, 55(1), 60-92.
16. Ghose, A., & Koliadis, G. (2007, September). Auditing business process compliance. In *International Conference on Service-Oriented Computing* (pp. 169-180). Springer, Berlin, Heidelberg.
17. Gonzalez, G. C., & Hoffman, V. (2018). Effects on auditees of electronic versus face-to-face interaction in continuous auditing. *Journal of Forensic & Investigative Accounting*, 10(1), 100-115.
18. Hair Jr, J. F., Sarstedt, M., Ringle, C. M., & Gudergan, S. P. (2017). *Advanced issues in partial least squares structural equation modelling*. Sage publications.
19. He, X. (2021). Sustainability Assurance: A Call for Specialist Standards: Boiral, O. and Heras-Saizarbitoria, I., 2020. Sustainability reporting assurance: Creating stakeholder accountability through hyperreality? *Journal of Cleaner Production*, 243, 1–17.;
20. Islam, G. (2022). Business ethics and quantification: Towards an ethics of numbers. *Journal of Business Ethics*, 176(2), 195-211.
21. Kaban, I. (2020). Central Audit Activities as a Continuous Audit Approach in the Turkish Banking Sector: A Case Study about Frauds in Savings Accounts. *Öneri Dergisi*, 15(53), 254-275.
22. Kahn, K. B. (2022). Innovation Is Not Entrepreneurship, nor Vice Versa. *Journal of Product Innovation Management*. 39(4), 467-473
23. Marangunić, N., & Granić, A. (2015). Technology acceptance model: a literature review from 1986 to 2013. *Universal access in the information society*, 14(1), 81-95.
24. Maria, E., & Ariyani, Y. (2014). E-commerce impact: The impact of e-audit implementation on the auditor's performance. *Indian Journal of Commerce and Management Studies*, 5(3), 01-07.
25. Martinez, F., & Potluka, O. (2015). Does the EU Funding Increase Competitiveness of Firms by Supporting Organisational Changes? *Journal of Competitiveness*, 7(2), 1-15.

26. Omer, R. A., Sourchi, S. M. M., Sabir, S. Y., & Aziz, A. A. (2022). Management Accounting and Electronic-HRM Strategies in Developing of E-Banks Management System in Kurdistan Regional Government. *Polytechnic Journal of Humanities and Social Sciences*, 3(1), 17-28.
27. Paniagua, J., Rivelles, R., & Sapena, J. (2018). Corporate governance and financial performance: The role of ownership and board structure. *Journal of Business Research*, 89, 229-234.
28. Peykani, P., Namazi, M., & Mohammadi, E. (2022). Bridging the knowledge gap between technology and business: An innovation strategy perspective. *PloS one*, 17(4), e0266843.
29. Prabowo, D., & Suhartini, D. (2021). The Effect of Independence and Integrity on Audit Quality: Is There a Moderating Role for e-Audit. *Journal of Economics, Business, and Accountancy Ventura*, 23, 305-319.
30. Quero, M. J., & Ventura, R. (2015). The role of balanced centricity in the Spanish creative industries adopting a crowd-funding organizational model. *Journal of Service Theory and Practice*. 25(2), 122-139.
31. Samad, A. (2004). Performance of Interest-Free Islamic Banks VIS-À-VIS Interest-Based Conventional Banks of Bahrain. *International Journal of Economics, Management and Accounting*, 12(2), 1-15.
32. Sarstedt, M., Radomir, L., Moisescu, O. I., & Ringle, C. M. (2022). Latent class analysis in PLS-SEM: A review and recommendations for future applications. *Journal of Business Research*, 138, 398-407.
33. Sarstedt, M., Ringle, C. M., & Hair, J. F. (2021). Partial least squares structural equation modeling. In *Handbook of market research* (pp. 587-632). Cham: Springer International Publishing.
34. Shahzad, A., Zulfiqar, B., Ali, M., Haq, A. U., Sajjad, M., & Raza, A. (2022). Mediating role of formalization of RM methods among the perceived business risk and organization performance. *Cogent Business & Management*, 9(1), 2024116.
35. Singh, N., Lai, K. H., Vejvar, M., & Cheng, T. E. (2019). Data-driven auditing: A predictive modeling approach to fraud detection and classification. *Journal of Corporate Accounting & Finance*, 30(3), 64-82.
36. Siraj, K. K., & Pillai, P. S. (2012). Comparative study on performance of Islamic banks and conventional banks in GCC region. *Journal of Applied Finance and Banking*, 2(3), 123-161



كارکردن و چوارچێوهی چه مکی بۆ وردبینی ئەلیکترۆنی ئەدای دارایی دەخاتە روو. سەرەپای ئەوه، توێژینهوه که ههروهها بیناسازی و پهرهپیدانی بابهتهکان دهخاته روو لهوانهش دیاریکه رهکانی وردبینی ئەلیکترۆنی و ئەدای دارایی لهکاتی تاقیکردنهوهی په یوه ندیبهکان بۆ ئاشکراکردنی گرنگی کاریگه ریبهکانیان لهسهر ئەدای دارایی

## أثر محددات التدقيق الإلكتروني على الأداء المالي للبنوك الإسلامية في كردستان نهج النمذجة الهيكلية

### الملخص:

تهدف الدراسة إلى تطوير نموذج يمكنه أن يرصد بشكل فعال تأثير محددات التدقيق الإلكتروني على الأداء المالي للمصارف الإسلامية. على وجه التحديد، كانت الأهداف هي (1) تحديد تأثير المخاطر التكنولوجية والتمويل التنظيمي والبنية التحتية للتدقيق والخبرة الفنية والسلوك الأخلاقي على الأداء المالي للبنوك الإسلامية و (2) التأكد من صحة المقترحات التي تؤدي إلى تعديل السلوك الأخلاقي. الروابط التي تربط المخاطر التكنولوجية والتمويل التنظيمي والبنية التحتية للتدقيق والخبرة الفنية بالأداء المالي. وبالتالي، طبقت الدراسة نهج نمذجة المعادلة الهيكلية في تحليل 250 إجابة على الاستبيان تم جمعها من المديرين والمراجعين والمحاسبين وغيرهم من موظفي 11 مصرفاً إسلامياً في أربيل كردستان. وكشفت نتائج الدراسة أن كافة محددات التدقيق الإلكتروني المتميزة تساهم بشكل إيجابي في تحسين الأداء المالي، لكن مدى التأثير يختلف من عنصر رقابة داخلي إلى آخر. تقدم الدراسة الأدبيات المتعلقة بالتدقيق الإلكتروني كأداة لحوكمة الشركات وتحسين الأداء والإطار المفاهيمي للتدقيق الإلكتروني للأداء المالي. بالإضافة إلى ذلك، تقدم الدراسة أيضاً تطوير البناء والبند بما في ذلك محددات التدقيق الإلكتروني والأداء المالي أثناء اختبار العلاقات للكشف عن أهمية تأثيرها على الأداء المالي.