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The impact of digital transformation on the future of the audit committee

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Abstract

This article aims to study the influence of digitalization on audit activity and to understand how it can strengthen the role of auditing as a governance mechanism. This empirical study uses panel data covering the period 2012-2021, from a sample of 79 international banks operating in 20 countries. To estimate the regression model, we employ the generalized method of moments (GMM). Moreover, the Sobel test will be used to evaluate the presence of a mediation effect. This research highlights the importance of implementing digital strategies to provide regulators with the necessary modifications to audit committees.In the era of digitalization, this study enriches the existing literature, complementing previous works and shedding new light on how digitalization and emerging technologies are transforming the Islamic banking sector.

Keywords :

Digitalization, Islamic banking sector and the effectiveness of the audit committee.

1. Introduction

The literature on governance generally perceives auditing as a governance mechanism to avoid potential conflicts of interest between shareholders and executives and to ensure the publication of reliable accounting information (Carcello et al., 2011). It also identifies the control mechanisms at play, specifying which aspects of governance and control are essential for optimizing performance management in a digitized Islamic banking environment.

Thus, three essential reasons necessitate the evolution of the audit committee. First of all, it is primarily aimed at shareholders, who see the audit as a service that provides them with reasonable protection. Indeed, past performance must accurately reflect the state of the company and comply with regulatory standards. Moreover, the audit report, written several months after the end of the fiscal year, is based on past data and does not include any forward-looking aspects. Finally, the standardization of the audit report does not meet the specific requirements of its current or future users, particularly for decision-making. Thus, leaders perceive auditing as a cost and not necessarily as added value, as reports generally do not provide recommendations on the issues identified in historical data. Digitalization has profoundly transformed the labor market (Dengler and Matthes, 2018) and altered business practices across all sectors, including audit firms. A consensus is emerging regarding its impact on organizations and employe activities (Dumitru, 2016). These technologies are indeed currently the most widely used by audit committees as part of their digital transformation. The digital audit committee platform has achieved comprehensive coverage of core corporate audit committee oversight, and its level of structure, data, and intelligence has been continuously improved. Consequently, an efficient, automated audit committee has reduced the profitability of Islamic banks (Leiby et al., 2021).

Increase their competitiveness. They can benefit from interconnected applications such as Big data, artificial intelligence, robotics, blockchain, virtual currencies, the Internet of Things (IoT), and smartphones (Ab Razak et al., 2020). Thanks to these technological advancements, Islamic banks can offer more innovative and personalized services to their customers, which also contributes to their expansion and development in the market. It is therefore crucial that Islamic banks take advantage of the opportunities offered by digital technology and make the necessary adjustments to maintain their competitiveness (Ikhwan, 2022). he emergence of digitalization has radically altered the auditing profession, requiring a fundamental revision of the skills necessary to practice this profession. Classical auditing skills, although essential, are no longer sufficient in an increasingly technology-driven context such as artificial intelligence (AI), blockchain, data analytics, and robotic process automation (RPA). This progression requires auditors to develop technological skills to effectively understand the complexity of the digital universe.

The main objective of this research is to study how digital transformation improves the audit committee of Islamic banks.

In this context, this article aims to study the impact of digitalization within audit committees. How can it strengthen the role of auditing as a governance mechanism ?

The remainder of the paper is organized as follows : Section 2 presents the literature review and hypothesis development ; Section 3 describes the methodology ; Section 4 discusses the empirical results ; and Section 5 concludes with theoretical, practical, and policy implications.

2. Literature Review and Hypothesis Development

Digitization is a method that aims to convert a process, a profession, an object, or a tool into computer code in order to optimize an entity's performance. The digital age has brought multiple benefits to financial services and products.

Digital transformation involves using digital technologies to modify a bank's business model, thereby generating new sources of revenue and added value. It is a process of transitioning to a digital bank, as well as, the scope of action of the modern audit committee by offering concrete recommendations to determine the function of IT audit in the era of digital transformation. Thus, the advancement of this digital transition will undoubtedly have a positive and significant effect on the dynamics of the role of IT audit. The theory of dynamic capabilities forms a crucial foundation of corporate governance. It helps leaders make informed decisions and deploy strategies in line with the fluctuating challenges of the business world. This theory explains how companies can identify and leverage their internal capabilities to respond to environmental changes, take advantage of new opportunities, and maintain their long-term competitive advantage.

2.1. The Impact of Digitalization on audit committee effectiveness

According to Kaaroud et al. (2020), they analyzed the influence of cloud computing technology on the functioning of the audit committee and discussed the potential consequences of technological trends on the committee profession. According to the study, cloud computing has a beneficial effect on audit process procedures by making the procedures more efficient while reducing costs, time, and necessary efforts.

Indeed, Deniswara et al. (2022) have demonstrated that the influence of the digital work of the audit committee has a significant impact on the quality of the financial statements of Islamic banks and also resolves issues related to financial information.

Furthermore, Dheeriya and Singhvi (2021) expressed that digital technologies can serve as a valuable means to enhance the overall services of the audit committee by optimizing its skills, audit quality, flexibility, reputation, reliability, and bridging expectation gaps. This strengthens the role of the audit committee in corporate governance and its commitment to effective

oversight of financial and risk management practices. Taking all these elements into account, we formulate and verify the following hypothesis (H1): Digitalization has a favorable impact on the effectiveness of the audit committee.

3. Research Methodology

3.1. Research Sample and Data

The sample consists of annual report data from 79 Islamic banks operating across 20 countries. These reports were collected directly from the official websites of the respective banks. The study covers the period from 2012 to 2021. Data were manually extracted from annual reports published in both English and Arabic, resulting in a total of 790 bank-year observations over the study period.

3.2. Definitions and Measurement of Variables

3.2.1. Dependent Variable

This variable has been employed by Ojeka and Egbide (2017) and Rochmah Ika and Mohd Ghazali (2012) to assess the effectiveness of banks' audit committees. The effectiveness of the audit committee is evaluated thru two main dimensions : composition, diligence, and authority. The composition of the committee is assessed by the proportion of non-executive directors who sit on it (ACom-Indep), as well as by the level of expertise of its members, notably technological expertise (ACom-Tech Ex), measured by the number of members with experience in information technology, and financial expertise (ACom-Fin Ex), evaluated based on the skills and financial experience of the committee members. The diligence of the committee is measured by the frequency of its meetings, captured by the number of meetings held during the year (ACom-MET).

- Results of the Principal Component Analysis :

Given that the Audit Committee Effectiveness variable is multidimensional (independence, number of meetings, technological expertise, financial expertise), we performed a principal component analysis to convert a latent variable into an observable one. The results, as presented in Table 37, show that this variable is two-dimensional with a cumulative total explained variance of 58.335%. The first factor comprises technological expertise and independence. The second factor consists of financial expertise, the number of meetings, and accountability. A second PCA performed on these two factors yielded a unidimensional variable

representing the Audit Committee Effectiveness with a total explained variance of 55.257%.

3.2.2. Independent Variable

The digitization score (DIG) is an explanatory variable we measured using

Python. Calculation methods by Barnewold and Lottermoser (2020):

$$DIG\ (rapport\ annuel_{\mathrm{i}}\ )Ln \sum_{x=1}^{n} = \frac{tf}{NT}$$

3.2.4. Control Variables

In this study, we utilized the following control variables :

SIZE_BANK: calculated by taking the natural logarithm of total assets (Al-Homaidi et al., 2020).

LEVERAGE: determined as the ratio of total debt to total assets (Salem et al., 2021).

AGE_BANK: calculated by determining the number of years since the bank was founded (Milad & Bicer, 2020).

PROFITABILITY: assessed by the profitability of assets, calculated as the ratio of net income to total assets (Al-Homaidi et al., 2020).

3.3. Research models

This article uses the generalized estimation of moments (GMM) method to address endogeneity issues in lagged dependent and explanatory variables, particularly when the cross-sectional dimension is significant compared to the time dimension (Chowdhury and Rasid, 2016). The study aims to examine the effect of digitalization on the effectiveness of the audit committee in

Islamic banks.

$$EACom_{it} = \alpha_0 + \alpha_1 EACom_{i,t-1} + \alpha_2 DIG_{i,t} + \alpha_3 SIZE_{i,t} + \alpha_4 LEV_{i,t} + \alpha_5 PROFIT_{i,t} + \alpha_6 AGE_{i,t} + \varepsilon_{i,t}$$

With:

$EACom_{it}$ $_{i,t}$: Audit committee effectiveness of bank i at time t

DIG $_{i,t}$: Digitalization

SIZE $_{i,t}$: Represents the size of the bank

LEV $_{i,t}$: Represents the debt ratio

PROFIT $_{i,t}$: represents the bank's profitability

AGE_Bank $_{i,t}$: represents the age of the bank

$\varepsilon_{i,t}$: represents the error term.

4. Estimation and discussion of results

4.1. Descriptive analysis of the sample

The table presents descriptive statistics for the dependent and independent variables, including the mean, median, standard deviation, minimum, and maximum. The data cover the period from 2012 to 2021, with 79 observations.

The study found that the EACom variable has a low mean of -2.61e-08 and a high standard deviation of 1.315, with all observations falling between -2.150and 1.927.

The independent variable Dig has a low mean 0.008 and a high standard deviation, indicating a non-homogeneous distribution and high dispersion. Observations range from 0 to 0.098.

Table 1 : Descriptive statistics

	EACom	DIG	SIZE	Profit	LEV	Age
obs	790	790	790	790	790	790
Moyenne	-2.61e-08	0.008	22.830	0.339	0.711	24.674
Median	-0.6683	0.001	22.899	0.197	0.841	32
Ecart-type	1.315	0.017	2.560	1.807	0.596	25.194
Min	-2.150	0	15.253	0	0.004	0
Max	1.927	0.098	24.171	36.548	9.114	158

4.2.Correlation matrix

The correlation matrix indicates significant but weak correlations between endogenous EACom and most variables, except PROFIT and LEV, which are not significant. Although there are correlations among exogenous variables, the variance inflation factor (VIF) test yields a value of 1.05, indicating no significant multicollinearity. Alternative models could be considered to accommodate less correlated data.

Table 2 : Multicollinearity test

Variables	VIF
DIGITAL	1.03
TAILLE_BANK	1.06
PROFITABILITY	1.00
LEV	1.03
AGE_BANK	1.10
Moyenne VIF	1.05

Table 3 : Correlation matrix

	EACom	DIG	AGE_ BANK	SIZE_ BANK	LEV	PROFITABILI TY
EACom	1.0000					
DIG	0.0065 0.0560	1.0000				
AGE_ BANK	0.0066 0.8535	0.1530 0.0000	1.0000			
SIZE_ BANK	-0.0386 0.2779	0.1100 0.0020	0.2196 0.0000	1.0000		
LEV	-0.1169 0.0010	0.0233 0.5134	0.1752 0.0000	0.0102 0.7751	1.0000	
PROFITABILITY	-0.0409 0.2511	-0.0170 0.6336	-0.0105 0.7684	-0.0302 0.3960	-0.0056 0.8758	1.0000

4.3.Results and discussion

Context: In this article, we present the results of the empirical model. In this section, we present the results of the empirical model. We begin by noting that the results contained in Table 4 show that the coefficient associated with the EACom(-

1) variable is positive and statistically significant at a 1% threshold, thus we can assert that the DIG positively and significantly affects the effectiveness of the audit committee at a 1% threshold. So, based on these practical results, we can accept hypothesis 1 and confirm it. These results demonstrate that digitalization is essential for audit committees to have a deep understanding of the impact of these technologies on the company's performance and their integration into business processes (Bughin et al., 2018; Sturgeon, 2021). Furthermore, Adha Ab Hamid et al. (2021) argued that new technological platforms transform the responsibilities of the audit committee by automating repetitive tasks, and that digitalization provides the audit committee with the ability to recommend to the board of directors to opt for additional training or resources in finance and accounting, if necessary. It can also help the audit committee to enhance the board's competence in these areas. In the modern era, modernization theory examines how new technologies and systems lead to a more strongly homogenized world. This finding is in line with that of Ojeka and Egbide (2017) and Ariyanto (2022), who stated that information technology literacy is a fundamental skill for the audit committee. In the same vein, Manita et al. (2020) asserted that the relationship between digitalization and audit committees as a governance mechanism is a positive one. Which means that the digitalization of the audit function increases the efficiency of corporate governance reports. This observation is consistent with the theory of modernization, which states that information technology creates a networked organization in which groups of professionals meet electronically and perform specific tasks. (Yu et al., 2022) (Khelil et al., 2023) (Kyianytsia, 2021).

Our results also show that the age and size of the bank have a positive and significant effect at the 1% and 5% thresholds, respectively, on the effectiveness of the audit committee. We can say that the older and larger the bank, the more precise the audit committee's control and the more it checks all the details, which makes it more effective. Similarly, our results show that the debt-to-profitability ratio has a negative and significant effect at the 5% threshold on the effectiveness of the audit committee. Indeed, we can say that the more indebted the bank is, the more attentive its leaders are, which increases profitability and reduces fraud, thereby making the work of the audit committee more effective.

According to these results, the Sargan over-identification test does not reject the hypothesis of the validity of lagged variables as instruments (p-value 0.007) for the first model. Therefore, the instruments used in this study are valid. In accordance with these results, the second-order autocorrelation test by Arellano and Bond did not allow for the rejection of the hypothesis of the absence of second-order autocorrelation. (p = 0.717). That being said, we prove that there is no second-order autocorrelation of errors in the difference equation (AR2).

Table 4: Results of GMM estimation in the system for the direct effect

VARIABLES	EACom
EACom L1.	0.606*** (0.052)
DIGITAL	0.652*** (0.246)
AGE_BANK	0.015*** (0.0049)
SIZE_BANK	0.050 ** (0.024)
LEV	-0.071** (0.028)
PROFITABILITY	-0.004** (0.001)
Observations	711
Number of Panel	79
AR(2) test (p-value)	-0.36 (0.717)
Sargan test statistics	36.14 (0.007)

5. Conclusion

The objective of this article was to examine the impact of digitalization on the effectiveness of audit committees in Islamic banks. This mechanism, specific to the Islamic banking sector, aims to strengthen the credibility and transparency of financial information and the oversight of the quality of financial reporting within these institutions. We used dynamic panel data as our econometric method, relying on the generalized method of moments (GMM) within the system. Our estimation covered 79 Islamic banks located in various countries worldwide for the fiscal years 2012 to 2021. Using this model, we tested the effect of digital technologies on the effectiveness of the audit committee's work.

Consequently, our results show that digitalization positively and significantly affects the effectiveness of the audit committee's work in the Islamic banking sector. Advances in new technological platforms are transforming the responsibilities of the audit committee by automating routine tasks, improving data analysis, fostering collaboration, and strengthening the capacity to manage risks and ensure compliance. The results showed that new technologies affect the timeliness of the audit committee's work on financial reports, resulting in timely submissions and high-quality financial information for investment decisions. Our findings have been previously cited by Odjaremu and Jeroh (2019), who demonstrated that digitalization significantly impacts the effectiveness of the audit committee. However, it remains crucial that the audit committee has a thorough understanding of these technologies and their implications in order to optimally integrate them into its functions.

This research work highlights significant findings regarding the importance of integrating digitalization in the context of Islamic banks, as we move towards a future marked by technological innovation.

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