






The Impact of Applying Electronic Internal Auditing in Raising the Efficiency of Financial Performance in Jordanian Commercial Banks

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Abstract. This study aims to identify the impact of applying electronic internal auditing in raising the efficiency of financial performance in Jordanian Commercial Banks. In order to achieve the study objectives, the analytical descriptive approach was followed. A questionnaire consisting of (19) items was developed to measure the electronic internal auditing. A number of (168) questionnaires were distributed among the internal auditors and accountants in these banks, and the number of questionnaires valid for analysis was (137), representing (81.5%) of the study sample. The financial performance was measured by (RoA, RoE and EPS) for (13) banks within the financial period (2015–2021) Findings showed that applying electronic internal auditing reached a high level. Results also showed that there is a statistically significant effect at the significance level ($\alpha \geq 0.05$) for applying electronic internal auditing in raising the efficiency of financial performance with its indicators (ROA, ROE and EPS) in Jordanian Commercial Banks. The study recommended the necessity of holding workshops and specialized training programs periodically for auditors and accountants on electronic internal audit systems, to keep them acquainted with the latest in the field, and to help enhance the financial performance of these banks.

Keywords: Electronic Internal Auditing · Financial Performance · Jordanian Commercial Banks

1 Introduction

“The sectors with their various activities are witnessing an accelerated growth in the use of technology in the auditing domain, as traditional auditing is being shifted to the electronic version, and the profession is being developed and presented in a new form, since that ensures credibility, accuracy and transparency of financial statements, as well as raises the performance and efficiency of internal auditors, especially after the turmoil that negatively affected the auditing and accountancy profession and its loss of confidence from the part of investors due to the financial scandals and breakdowns of international major businesses. Hence, the role of electronic internal auditing is to

ensure that auditing tasks in the Jordanian commercial banks flow as planned, to boost the efficiency of the process and raise the level of financial performance in such banks. Thus, the problem of the study can be expressed through the following main question:”

Does applying the electronic internal auditing have an impact in raising the efficiency of financial performance in Jordanian Commercial Banks? Branching out from the previous main question are the following sub-questions:

”Does applying the electronic internal auditing have an impact on return on assets (ROA) in Jordanian commercial banks?

”Does applying the electronic internal auditing have an impact on the return on equity (ROE) in Jordanian commercial banks??

”Does applying the electronic internal auditing have an impact on earnings per share (EPS) in Jordanian commercial banks?

2 Literature Review

This study aims to identify the impact of electronic auditing in raising the efficiency of financial performance in the Jordanian commercial banks. Many studies have addressed the subject or some of its aspects coming up with different results. [1] Concluded that electronic auditing reveals the weaknesses of internal control and provides ways to remedy such weaknesses, which contributes to improving the quality of internal auditing. [2] Found that electronic auditing raises the quality of accounting information producing flawless and deviation-free information. [3] Conforms to the above that electronic processing of accounting information increases the efficiency of auditing in activating internal control. Researchers agree that information technology increases the efficiency of internal auditing work. This was also confirmed by [4], by asserting that the application of electronic auditing increases the independence of the internal auditor, which is one of the most important requirements of the auditing profession. On the other hand, many studies have dealt with the aspect of financial performance and the elements affecting it. [4] Concluded that the financial performance of banks is positively and strongly influenced by the application of the COSO components of internal control, as these increase the quality of the financial performance of banks [5] studied the impact of the female role in internal auditing on the financial performance in banks. The study concluded that the presence of the female component positively affects the financial performance in banks.

It is clear from the above that the use of Information Technology in auditing increases the efficiency of internal audit. Moreover, any amendment to internal auditing, whether being that a new component such as (COSO) components or a female component, which can be described as gender diversity in auditing, positively affects the financial performance of banks [3].

“It was noted from the previous studies reviewed that some of them either addressed electronic audit or financial performance, while the current study combines both electronic internal auditing and financial performance.” Thus, the current study differs from some previous studies in terms of the sectors that were studied and analyzed, and the time period that was covered, as it seeks to analyze the impact of the application of electronic internal auditing in raising the efficiency of financial performance in Jordanian commercial banks between (2015–2021).”

“Thus, this study is one of the few studies within the researcher’s knowledge that links electronic internal audit and financial performance with its indicators: (return on assets (RoA), return on equity (RoE), and profitability per share (EPS) in Jordanian commercial banks, as it presents an intellectual framework for the study, its various variables and the study population, looking forward to paving the way to other future studies.

3 Research Methodology

This study aims to shed light on the impact of electronic auditing on the financial performance of commercial banks.

The study relies on the descriptive analytical approach as it serves the objectives of the study and it is one of the most widely used approaches in the study of social and human phenomena. The data analysis relied on the Statistical Analysis Program (SPSS), and some well-known tests were applied to reach some proposed results and recommendations.

3.1 Data Collection Method

This study will rely on both primary and secondary data sources, as follows:

A - Secondary Data Sources

This study relies on some secondary data sources, which are mainly represented in books, references, research, studies, and some related websites on the Internet, as well as the annual published bulletins and reports of the Amman Stock Exchange.

B - Preliminary Data

This study mainly relies on a questionnaire designed and distributed to address the questions of the study with the aim of identifying the extent of the expected impact of applying electronic internal auditing in raising the efficiency of financial performance in Jordanian Commercial Banks.

Study Population

“The study population comprised 13 Jordanian commercial banks by the end of 2021. It relied on the data provided by the annual financial reports of these banks, during the period between (2015–2021). The sampling unit, for the purposes of distributing the study questionnaire, and measuring the independent variable: (electronic internal auditing), is represented by the (297) internal auditors and accountants operating in these banks, according to the Human Resources Department of the banks under research.”

Study Sample

The researcher withdrew a simple random sample from the study population, where the size of the withdrawn sample was based on the size of the total study population, and the margin of error allowed in the current study is (0.05), according to the required samples size table (Sekaran & Bougie, 2016). Thus, the researcher distributed (168) “electronic

questionnaires -prepared by (Google Forms) - among the study sample individuals for the purposes of measuring the independent variable (electronic internal audit), 144 questionnaires were retrieved, and the number of questionnaires valid for analysis was 137, making up 81.5% of the study sample.”

In order to measure the dependent variable (financial performance), the following criteria were used: excluding all banks that were subjected to a merger or acquisition process during the study period, excluding banks for which insufficient data is available, and excluding all banks that were liquidated or stopped trading” The banks that were listed after the year (2015) were also excluded, since the study uses what is known as (Panel Balanced Data), which requires the availability of sufficient data within the years under study. “The banks in which the researcher could not distribute the questionnaires were excuded, too.”

After applying the criteria, the study sample was limited to (9) banks whose data on (return on assets, return on equity, and earnings per share) were available continuously for the period between (2015–2021), and this sample represents (69.2%) of the total number of banks. The names of the searched banks and their data are shown “in Appendix No. 1.”

3.2 Study Tool

The researcher developed a questionnaire as a means of collecting data regarding the independent variable (electronic internal auditing) in order to meet the objectives of the study and answer its questions. To determine the dimensions of the questionnaire, the researcher relied on [1–4, 5–8]. The questionnaire consisted of two parts:

“The first part: the functional data of the study sample including: (job title, academic qualification, professional certificates, and years of experience in auditing, while gender was excluded).”

“The second part: this part aims to identify the level of (electronic internal auditing) in Jordanian commercial banks. It comprised (19) paragraphs.”

The stability of the questionnaire:

The researcher verified the stability of the research questionnaire by using the Cronbach Alpha coefficient, as follows:

As shown in Table No. (3–3), The high Cronbach Alpha values indicate a high level of stability ranging between (1–0), where these values are acceptable at the stability coefficient ratio (0.70) and above [9].

Domain	Stability Coefficient (Cronbach Alpha)
Electronic auditing	0.953

“Table no. (3–3) shows that the value of the stability coefficient was acceptable for the purposes of application, where the value of the stability coefficient was (0.953), which indicates that the study tool generally has a high stability coefficient, and the ability to achieve the study purposes.

3.3 Data Analysis and Hypothesis Testing

“This chapter includes a description of the characteristics of the study sample, descriptive statistics of the study variables, and the results of a simple single regression test of the study hypotheses.”

3.4 Description of the Characteristics of the Study Sample

“The study sample consisted of (137) employees in the Jordanian commercial banks, who were selected by a simple random sampling method from the study population. Table 1 shows the distribution of the sample respondents according to demographic and functional variables:”

Table 1. Distribution of respondents according to demographic and functional variables

Variable	Level	Frequency	Percentage
Job title	Auditor	43	31.4
	Accountant	94	68.6
	Total	137	100%
Academic qualification	Diploma	8	5.8
	Bachelor’s degree	90	65.7
	Postgraduate studies	39	28.5
	Total	137	100%
Professional certificates	CIA	14	10.2
	CPA	7	5.1
	CMA	5	3.6
	JCPA	6	4.4
	None	105	76.6
	Total	137	100%
Years of service	Less than 5 years	45	32.8
	From 5 – less than 10 years	35	25.5
	From 10 – less than 15 years	32	23.4
	From 15 – less than 20 years	12	8.8
	20 years and more	13	9.5
	Total	137	100%

Table 1 shows the following:

“The highest percentage of the distribution of the study sample according to the job title variable reached (68.6%) in favor of the job title (accountant), while the lowest percentage reached (31.4%) in favor of the job title (auditor). This result indicates that

approximately two thirds of the sample respondents are accountants, reflecting the need of Jordanian commercial banks for a large number of employees in the accounting departments due to the large amount of accounting and financial activities in these banks.”

“The highest percentage of the distribution of the study sample according to the scientific qualification variable reached (65.7%) in favor of the scientific qualification (Bachelor), while the lowest percentage was (5.8%) for the scientific qualification (Diploma). These percentages are due to the fact that the majority of the respondents have university degrees, since working in Jordanian commercial banks requires scientific knowledge.”

“The highest percentage of the distribution of the study sample according to the professional certificates variables reached (76.6%) in favor of the professional certificate (none), while the lowest percentage reached (3.6%) for the professional certificate (CMA). These ratios indicate that the accountants and auditors surveyed in the Jordanian commercial banks follow specific work procedures on specialized accounting applications, which does not necessitate the need to obtain specialised certificates at the level of internal work in these banks.”

“The highest percentage of the distribution of the study sample according to the years of service variable reached (32.8%) for years of service (less than 5 years), while the lowest percentage was (8.8%) for years of service (from 15-less than 20 years). These ratios indicate a high turnover of work among the surveyed individuals, as a result of the constant movement of accountants and auditors between banks at the local or regional level, and this is due to the intense competition between these banks.”

3.5 Description of the Study Variables

“This part includes a presentation of the results of the analysis according to the arithmetic means and standard deviations in the electronic internal auditing domain in the Jordanian commercial banks, and below is a presentation of these results:”

3.5.1 Independent Variable: Electronic Internal Auditing

“To identify the level of application of electronic internal auditing in Jordanian commercial banks, the arithmetic means and standard deviations were extracted, for the approval of the study sample respondents to the study tool as shown in Table 2.”

Table 2. Arithmetic means and standard deviations of the approval of the study sample respondents to the paragraphs of the “electronic internal auditing” domain in descending order

No.	Paragraph	Arithmetic mean	Standard deviation	Level of evaluation
2	electronic internal audit supports confidentiality of accounting information in the bank	4.41	0.86	High

(continued)

Table 2. (continued)

No.	Paragraph	Arithmetic mean	Standard deviation	Level of evaluation
1	electronic internal audit observes authenticity of accounting information in the bank	4.34	0.8	High
3	electronic internal audit supports the timely provision of accounting information	4.34	0.83	High
14	The auditor has access to the payment and receivables receipts of the bank	4.32	0.82	High
8	electronic internal audit contributes to the detection of deviations in financial statements	4.24	0.85	High
4	electronic internal auditing makes it possible to compare the bank's financial statements with the estimated budgets	4.21	0.88	High
16	electronic internal audit helps to reduce the audit time	4.21	0.96	High
18	The electronic internal auditing system contributes to speeding up decision-making	4.20	0.83	High
19	The auditor undergoes specialized training programs on electronic internal auditing	4.18	0.89	High
12	The auditor has special powers to audit receivable accounts	4.16	0.87	High
17	electronic internal audit helps to detect deviations in costs	4.16	0.92	High

(continued)

Table 2. (continued)

No.	Paragraph	Arithmetic mean	Standard deviation	Level of evaluation
7	electronic internal audit helps to minimize the expected risks in the bank	4.15	0.96	High
15	special audit programs are available for analyzing financial ratios	4.15	0.87	High
13	The auditor has special powers to audit payable accounts	4.14	0.84	High
10	the auditor is able to conduct an audit of cash flows in relation to salaries and wages in the bank	4.13	0.88	High
5	The audit programs available at the bank make it possible to compare the financial statements of previous periods	4.09	0.81	High
11	the auditor uses programs to audit fixed assets in the bank	4.09	0.94	High
6	electronic internal audit contributes to the identification of financial challenges facing the bank	4.00	0.91	High
9	bank audit programs have the property of giving alerts when errors occur	3.93	0.98	High

“Table 2 shows that the overall level of the application of electronic internal audit in Jordanian commercial banks from the point of view of the study sample respondents was high; the arithmetic average for the field was (4.16) with a high evaluation level, and the arithmetic means of the estimates of the study sample respondents on the dimension paragraphs ranged between (3.93–4.41). Paragraph No. (2), which reads: (electronic internal audit supports the confidentiality of accounting information in the bank) came

first, while paragraph No. (9), which reads: (bank audit programs have the property of giving alerts when errors occur) came last.”

3.5.2 Dependent Variable (Financial Performance)

“Table 3 shows the descriptive statistical measures of the dependent variable: financial performance indicators: (return on assets, return on equity, and profitability per share) based on the study data.” The study was limited to (9) banks whose data were available from the banks listed on the Amman Stock Exchange during a period of (2015–2021). The statistical measures included both the lowest value, the highest value, the arithmetic mean, in addition to the standard deviation to explain the homogeneity of the study data and their relevance.”

Table 3. Statistical description of the dependent variable (financial performance indicators)

Variable	Lowest value	Highest value	Arithmetic mean	Standard deviation
Return on assets	0.58	1.59	1.02	0.31
Return on equity	5.08	9.45	7.58	1.62
Earningsper share	0.07	0.35	0.19	0.09

Table 3 shows the following:

1. “The values of the return on assets of the study sample ranged between (0.58) and(1.59) and the arithmetic mean of the return on assets was (1.02), while the standard deviation was (0.31).”
2. “The values of the return on equity for the study sample ranged between (5.08) and(9.45) and the arithmetic mean of the return on equity was (7.58), while the standard deviation was (1.62).”
3. The values of the earnings per shares for the study sample ranged between (0.07) and (0.35) and the arithmetic mean of the earnings per shares was (0.19), while the standard deviation was (0.09).

4 Study Hypotheses Testing

Main hypothesis: H0: there is no statistically significant impact at the level of significance ($0.05 \geq \alpha$) for the electronic internal auditing on the efficiency of financial performance in its dimensions: (return on assets, return on equity, earnings per share) in Jordanian commercial banks.

“Table 4 shows the presence of a statistically significant impact at the level of significance ($\alpha \leq 0.05$) for electronic internal auditing on the efficiency of financial performance within its dimensions in Jordanian commercial banks. The value of the correlation coefficient (R) was (0.727), which is a statistically significant value, indicating the degree of statistical correlation between the change in electronic internal auditing on the efficiency of the financial performance within its dimensions”, The value of (R-square) was

Table 4. Multiple regression equation analysis to study the impact of electronic internal auditing on the efficiency of financial performance in Jordanian commercial banks.

Variable	B	Std. Error	Beta	T	Statistical significance
(Constant)	-0.64	0.14		-4.73	0.00
ROA	0.40	0.03	0.73	12.30	0.00
ROE	2.31	0.15	0.80	15.45	0.00
EPS	0.07	0.01	0.45	5.89	0.00
R ²	0.528	F	151.19 0.00		
R	0.727	Statistical significance			

(0.528), which is a statistically significant value, meaning that the electronic internal auditing explains the value of (52.8%) of the change in the efficiency of financial performance and its dimensions. And the value of the (F) test reached (151.19) with a statistical significance less than (0.05), therefore the study model is considered acceptable.

Results related to the first sub-hypothesis: There is no statistically significant impact at the significance level ($0.05 \geq \alpha$) for electronic internal auditing on the return on assets (ROA) in Jordanian commercial banks.

Table 4 shows that the return on assets (ROA) affects and is affected by the electronic auditing with a value of (40%), which is the B value, indicating that any change in the electronic audit by one degree affects the return on assets by 40%, since the value of the T test reached (12.3). Based on the above, the first sub-hypothesis is accepted in its alternative statement, which states that “There is a statistically significant impact at the significance level ($0.05 \geq \alpha$) for electronic internal auditing on the return on assets (ROA) in Jordanian commercial banks.”

Results related to the second sub-hypothesis: There is no statistically significant impact at the significance level ($0.05 \geq \alpha$) for electronic internal auditing on the return on equity (ROE) in Jordanian commercial banks.

“Table 4 shows the presence of a statistically significant effect at the level of significance ($\alpha \leq 0.05$) for the electronic internal audit on the return on equity in Jordanian commercial banks, as the value of (B) reached (80%), which is a statistically significant value indicating the degree of correlation of a statistically significant function between the change in the electronic internal auditing and the return on equity. Based on the above, the first sub-hypothesis is accepted in its alternative statement, which states that” There is a statistically significant impact at the significance level ($0.05 \geq \alpha$) for electronic internal auditing on the return on equity (ROE) in Jordanian commercial banks.”

Results related to the third sub-hypothesis: There is no statistically significant impact at the significance level ($0.05 \geq \alpha$) for electronic internal auditing on the return on earnings per share (EPS) in Jordanian commercial banks.

“Table 4 shows the presence of a statistically significant impact at the level of significance ($\alpha \leq 0.05$) for the electronic internal audit on the earnings per share in Jordanian commercial banks, as the B value reached (45%), which is a statistically significant

value. Based on the above, the first sub-hypothesis is accepted in the alternative statement, which states that "There is a statistically significant impact at the significance level ($0.05 \geq \alpha$) for electronic internal audit on earnings per share in Jordanian commercial banks."

"Based on the results of the sub-hypotheses, the main hypothesis is rejected in the zero formula, and the hypothesis in the alternative statement is accepted, which states that "there is a statistically significant impact at the significance level ($0.05 \geq \alpha$) for electronic internal auditing on the efficiency of financial performance in its dimensions: (return on assets, return on equity, earnings per share) in Jordanian commercial banks."

5 Results

The study showed many different results, first showed that the overall level of application of electronic internal auditing from the point of view of auditors and accountants in Jordanian commercial banks was high. This result may be due to the fact that Jordanian commercial banks are increasingly relying on advanced computers, modern technological infrastructure, specialized software and applications to perform the audit activity at the internal system level, which leads to the collection of data by the internal auditor, evaluating it within an electronic environment, enhancing the confidentiality and reliability of accounting information, and providing the required data and reports in a timely manner. This result is consistent with Bazaz (2020), Sarlkhithm (2020), Omari (2017). Second, the results indicate that Jordanian commercial banks adopt a set of electronic systems in order to monitor internal operations, ensure compliance with procedures on an ongoing basis to ensure the accuracy of accounting and statistical data, verify that employees of Jordanian commercial banks follow the policies, plans and administrative procedures drawn up for them, and measure the validity of those plans, policies and all other means of control in the performance of their purposes, which positively affects the ability of these banks to exploit the available resources optimally, within the available capabilities and leading to the achievement of the desired financial goals. This result is somewhat consistent with Alwan & Al-Sabbati (2017), Abu Hamour et al. (2021). Finally, The results showed that effect for the application of electronic internal auditing on return on assets (RoA) and on return on equity (RoE) in Jordanian commercial banks. This result also conforms with Abu Hamour et al. (2021).

Recommendations

In view of the previous results, the study recommends the following:

First: "Holding specialized workshops and training programs periodically for auditors and accountants on electronic internal audit systems, to inform them about everything that is new in this area, and to help enhance the financial performance in these banks."

Second: "Supporting electronic internal audit programs and systems to allow them to give alerts to professionals when errors occur, and detect deviations as soon as they occur."

Third: "The need to emphasize the commitment of commercial banks to apply a model for measuring Information Technology Governance based on the (5 COBIT) framework

for internal control in these banks, leading to the maximum use of available technology; in order to reduce costs, increase returns, thereby increasing the profitability of banks, and enhance their financial position and performance.”

Fourth: “The need for Jordanian commercial banks to seek to enhance their banking services and products, and to conduct in-depth studies of the risks surrounding them, because of the positive impact on the various financial performance indicators of these banks.”

Fifth: “Conducting further studies on the impact of specific dimensions of the application of electronic internal audit on financial performance in Jordanian commercial banks, and in other business sectors.”

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