

The impact of cloud accounting application on the quality of internal auditing in Jordanian public shareholding companies under the Corona pandemic

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ABSTRACT

This study aimed to identify “the effect of applying cloud accounting on the quality of internal auditing under the Corona pandemic”, and to achieve the goal of the study, a tool was developed represented by a questionnaire, and its stability as well as its validity were confirmed, and the study community was represented by all auditors working for Jordanian Jordanian public shareholding companies.(148) auditors were selected from among them as a sample for the study, and (148) questionnaires were distributed, but (43) questionnaires were excluded because they were not suitable for the statistical analysis tests. SPSS) to reach the objectives of this study and after analyzing the tool, the study concluded that there is an impact of the application of cloud accounting on the quality of internal auditing in light of the Corona pandemic. As well as conducting studies related to the subject of the study, provided that they include samples and different commercial sectors.

Keywords: *Cloud Accounting, Internal Audit Quality, Corona Pandemic, Jordanian Public Shareholding Companies.*

1. Introduction:

In the midst of the COVID-19 pandemic, companies have faced the challenge of improving and enhancing their performance efficiently and effectively. To gain a competitive advantage, it was necessary for companies to leverage networks and the internet in addition to their traditional physical operations while utilizing the features offered by the use of the World Wide Web (the internet). Consequently, many companies turned to electronic accounting to streamline their accounting processes through specialized software and tools. This reliance on electronic accounting contributes to carrying out accounting tasks with great accuracy, efficiency, and cost-effectiveness. Furthermore, it allows for easy access and quick retrieval of data. Cloud accounting also provides a significant advantage in terms of massive data storage and accounting information (Al-Amousi et al., 2020).

Cloud accounting is defined as the storage of data and programs accessible via the internet. It involves borrowing from the internet, and users can browse it through their connected web browsers. This shift transforms accounting software from a product to a low-cost service, available 24 hours a day, seven days a week (Al-Omari, 2018).

In the midst of these technological advancements, internal auditing has become a crucial factor in accountability and oversight. It is one of the most important tools for modern scientific management in examining and evaluating the components of the accounting system to ensure its ability to achieve both measurement and disclosure functions efficiently. International internal auditing standards have also underscored this through the attributes, performance, and implementation standards. Internal auditing, including the examination and evaluation of all financial and administrative processes, ensures that they are carried out in accordance with pre-drawn plans and policies. The internal auditor is an employee of the company and has recently been structurally linked to the audit committee to achieve a level of independence from top management (Al-Qadi, 2016). The internal auditor is accountable solely to the audit committee and not to the general manager or company president (Al-Qadi, 2016).

As is well known, the COVID-19 pandemic, declared a global pandemic by the World Health Organization on January 30, 2019, also known as COVID-19, continues to affect many countries around the world. Many companies and stakeholders, like others, have contributed to the control of the disease by taking precautionary measures to reduce its spread. These measures include resorting to remote work to reduce overcrowding among customers. Many companies have encouraged working from home, making use of the internet. Many companies have also benefited from cloud accounting, with some being more receptive to these measures than others (World Health Organization, 2022). Based on the above, this study aims to investigate the impact of cloud accounting implementation on the quality of internal auditing in Jordanian public shareholding companies amid the COVID-19 pandemic.

2. Cloud Accounting:

With the advancement of modern technologies on the internet and the significant increase in internet usage, many organizations have turned to making their applications accessible through the internet. This technology, known as cloud accounting, offers advanced features that result in cost savings and the availability of information services to a larger user base. It also allows users and organizations to store, process, transfer, and collaborate on data from anywhere in the world at any time, using any web browser or operating system (Windows, iOS, Android), without the need for a personal computer as a storage and processing tool (Dimitriu, 2015).

The information technology revolution has brought about significant changes in the field of accounting, especially in the past few decades. In the 21st century, accounting cannot be imagined without the support of information technology. In 2013, the term "cloud accounting" emerged, and its concept has since evolved. Cloud accounting is defined as a fundamental system for making data and software accessible online at any time and from anywhere, using almost any internet-connected device (Khanom, 2017).

It involves transferring storage space and accounting operations to the cloud, accessible quickly and instantly through a web browser from anywhere and at any time, without the need to pre-install software on personal computers or servers associated with the organization (Al-Akkour, 2018).

Saha et al. (2020) describe cloud accounting as the use of cloud computing via the internet to build a virtual accounting information system. Allahverdi (2017) views cloud accounting as the use of online software and data storage in the cloud instead of physical hard drives, with data accessible from any internet-connected device.

Cloud accounting relies on technology to transfer data processing and financial information storage from the user's computer to what is known as the cloud, an internet-accessible server located outside the user's premises. With cloud accounting, there is no need to purchase servers, operating system licenses, power backup devices, or even backup devices or antivirus software to protect the servers. This offers a significant advantage in the current economic conditions that focus on avoiding the risks associated with high-cost asset purchases of software and high-end computer equipment (Khanom, 2017).

Cloud accounting utilizes advanced technological capabilities to enable users to transfer, process, and store their data on an internet-accessible server at any time and from anywhere, as long as the user is connected to the internet. This service allows users to benefit from the high capabilities of accounting systems that do not require substantial investments to meet their needs, transforming accounting software from products into services (Al-Akkour, 2018).

Cloud accounting can be extremely beneficial for external audit firms, as it enables the analysis of vast amounts of data instantly and may reduce the burden of preparing semi-annual or annual reports. The advantages it offers, such as reducing time and costs required for accounting operations, empower clients and business owners to handle their accounting and taxation tasks more efficiently (Jarrar et al., 2020).

The requirements for implementing cloud accounting encompass various components, including physical components such as hardware and equipment, technical components like software, human components including IT support teams and professionals, and administrative requirements such as decisions related to facilitating the empowerment of accountants for cloud computing (Al-Amsi, 2018).

3. Internal Audit Quality:

The internal audit process represents a set of means, procedures, evaluative methods, and assessment techniques adopted by management to preserve and utilize its resources in the most appropriate manner and protect all of its assets from fraud, theft, and embezzlement. It also aims to ensure the accuracy and integrity of financial statements and accounting reports, as well as achieve operational efficiency and effectiveness in accordance with the organization's laws and regulations. Therefore, the quality standards of internal audit can be expressed as follows (Alwan, 2019):

3.1. Property Standards:

These standards focus on the personal qualities of the internal auditor and the characteristics of the management that carries out the internal audit process. These standards include four sub-standards: Objectives, Independence and objectivity, Competence and due professional care, Quality control program and development of the internal audit process

3.2. Performance Standards:

The Arab Association of Legal Accountants (Jordan, 2018) outlines several basic performance standards, such as: planning, Communication, Resource management, Policies and procedures, Coordination, Reporting to the board of directors and senior management

3.3. Application Standards:

These standards involve the application of both property and performance standards in specific situations, such as compliance assessments, fraud and misconduct investigations, or self-assessment projects for control.

4. The Relationship between Cloud Accounting and Internal Audit Quality:

There is a relationship between cloud accounting and the quality of internal audit. Many accountants and internal auditors can perform their functions from anywhere as long as they have internet access. They can carry out all internal audit procedures through cloud accounting, which enhances accuracy and quality, and reduces the likelihood of errors. This represents a new way of performing various accounting functions. It also allows for the storage and efficient retrieval of relevant information at any time, reducing the cost of implementing different accounting functions. Cloud accounting can contribute to decision-making by providing accountants with a wealth of accounting information. It also ensures compliance with disclosure requirements to increase transparency. Moreover, it helps in recording information and data that affect the company's financial position and conveys information to internal and external stakeholders. It also aids management in performing its functions more efficiently and with greater flexibility than using traditional methods, all through internet-based access (Al-Nsour et al., 2021).

In this way, cloud accounting has become a new business model that helps companies carry out their accounting functions professionally. In terms of security and safety procedures, traditional methods allow access to records held in the company's archive, and many employees can access this information by logging into the company's computers. However, this can be significantly different when using cloud accounting applications, making it difficult for others to access this accounting information.

5. Study Methodology:

5.1. Study Population and Sample:

The study population consists of internal auditors in Jordanian public joint-stock companies. The total number of such companies was (240) companies according to the Securities Commission (2021/2022). Total of (148) questionnaires were distributed to the target sample, based on the estimates of Sekran and Bougie (2013). Out of these, (105) questionnaires were retrieved, representing a response rate of (70.1%) from the target sample.

5.2. Measurement of Study Variables:

The necessary data related to hypothesis analysis and descriptive analysis of the study variables were collected through the questionnaire. The questionnaire was developed with reference to several relevant studies. It was designed to measure the dimensions comprehensively. The study instrument, the questionnaire, consists of two parts. The first part includes personal information data, such as educational qualification, years of experience, training courses, and professional certifications. The second part consists of two dimensions: the independent variable (cloud accounting) and its dimensions (physical requirements, technical requirements, human requirements, administrative requirements, and legislative requirements), and the dependent variable (represented by the quality of auditing standards) and its dimensions (property standards, performance standards, and application standards). This questionnaire was designed based on a five-point Likert scale, where the agreement level was categorized into five categories: very high (5 points), high (4 points), moderate (3 points), low (2 points), and very low (1 point).

5.3. Stability of the study tool: Stability coefficients for the questionnaire and its fields

paragraphs	Domain	consistency (Cronbach Alpha)	
The first dimension: cloud accounting			
(1-6)	The first field: physical requirements	0.789	6
(7-12)	The second field: technical requirements	0.885	6
(13-20)	The third field: human requirements	0.963	8
(21-28)	The fourth field: administrative requirements	0.875	9
(29-35)	Fifth field: legislative requirements	0.929	6
The second dimension: the quality of internal auditing standards			
(36-40)	First field: properties standards	0.909	5
(41-45)	Second area: performance standards	0.852	5
(46-50)	Third field: application standards	0.740	5
	All	0.867	

From the previous table, it is evident that the stability coefficients (Cronbach's alpha) for the study variables ranged between (0.884 - 0.934). These values are considered sufficient indicators for adopting the study tool in its final application, and they can be relied upon in subsequent steps and stages. Since the stability coefficient is greater than ($0.70 \leq \alpha$), it is considered a high stability coefficient according to both Sekaran & Bougie (2013) and Milier (2013). Therefore, the stability coefficients mentioned above are higher than this ratio.

5.4. Testing the Fit of the Study Model for the Statistical Methods Used:

Before conducting the hypotheses test of the study, and in order to ensure the appropriateness and suitability of the data, the study assumed the necessity of no high correlation between the independent dimensions. A test for the Variance Inflation Factor (VIF) and the allowable variance for each dimension of the independent variables was conducted. The following table shows the inflation factor, variance, and skewness for the variables related to cloud accounting application requirements.

Variables	Skewness value	Allowable Variation Tolerance	Factor (VIF) Variables
First field: physical requirements	0.121-	0.232	1.312
Second field: technical requirements	0.169-	0.359	2.786
Third field: human requirements	0.796-	0.430	2.328
Fourth field: administrative requirements	0.460-	0.128	1.830
Fifth field: legislative requirements	0.032-	0.181	1.524

From the previous table, it is evident that if the Variance Inflation Factor (VIF) for a variable is less than 10, and the allowed variance value is greater than 0.05, then this variable has a strong and high relationship with other independent dimensions. Consequently, regression analysis can be conducted. This rule has been relied upon to test the correlation between independent variables. Additionally, the allowed variance value for each variable ranges from 0.128 to 0.430.

To verify the assumption of normal data distribution, the skewness values for the variables were calculated. It is clear that the skewness values for all dimensions of the study were less than one. Therefore, there is no significant issue regarding the normal distribution of the study's data (Landau & Everilt, 2004). This allowed for the use of linear regression tests in their various forms to test the hypotheses.

6. Hypothesis Testing:

This section includes a presentation of the study's results based on the means, standard deviations, representing the level of agreement of the study sample individuals on the paragraphs.

6.1. Testing the First Main Hypothesis:

The first main hypothesis states that there is no impact of the application of cloud accounting with its dimensions combined (material requirements, technical requirements, human requirements, administrative requirements, legislative requirements) on the quality of internal auditing with its dimensions (property standards, performance-related standards, application-related standards) in Jordanian public joint-stock companies. To determine the likelihood of positivity and acceptance of this hypothesis, the study conducted a multiple regression analysis.

Multiple Regression of the First Primary Hypothesis

Independent Variable	β	t	Calculated F	Df	(sig)	dependent variable	R	R ²	Sig
physical requirements	0.032	0.447	148.25	104	0.000	Internal audit standards Quality	0.939	0.882	0.000*
Technical requirements	0.108	1.875							
human requirements	0.022	0.417							
administrative requirements	0.746	7.726							
legislative requirements	0.109	1.340							

The previous table indicates that the level of significance (Sig) reached (0.000), which is lower than the significance level adopted in the study, which is (0.05). This confirms the statistical significance of this effect, as indicated by the calculated F-value, which is (148.25) and is significant at the level of ($\alpha \leq 0.05$). This means rejecting the null hypothesis and accepting the alternative hypothesis, which states, "There is an impact of implementing cloud accounting with its dimensions (material requirements, technical requirements, human requirements, administrative requirements, legislative requirements) on the quality of internal auditing with its dimensions (standards of propriety, performance-related standards, application-related standards) in companies."

Furthermore, the table's results show that the value of ($r=0.939$), which means there is a strong positive correlation (93.9%) between the variable of cloud accounting with its dimensions (material requirements, technical requirements, human requirements, administrative requirements, legislative requirements) in enhancing the quality of internal auditing in Jordanian companies. Additionally, the determination coefficient value ($r^2=0.882$), which means that (88.2%) of the variance in the cloud accounting variable with its dimensions has explained the variance in the dimensions of the internal auditing quality, while (11.8%) is attributed to other factors not covered by this study.

6.1. Subsidiary Hypothesis Testing:

Simple Linear Regression analysis was used to test the following subsidiary hypothesis:

6.1.1. First Sub- hypothesis:

There is no impact of material requirements as a dimension of cloud accounting adoption on the quality of internal audit in its various dimensions (property standards, performance-related standards, application-related standards) in Jordanian public shareholding companies.

Results of the simple regression test related to the first sub-hypothesis.

Independent variable	R	R2	Calculated F	Df	Sig	Regression coefficients			
						dependent variable	β	t	sig
physical requirements	0.877	0.770	112.558	104	0.000	properties criteria	5.703	1.353	0.000*
						Performance Standards	7.156	1.552	0.000
						application standards	5.956	0.658	0.000

The first sub-hypothesis was tested at a significance level ($\alpha \leq 0.05$), and Table (4) shows that the significance level (Sig) was (0.000), which is lower than the significance level adopted in the study (0.05). This confirms the significance of this effect, as indicated by the calculated value of F, which reached (112.558) and is significant at a level ($\alpha \leq 0.05$). This means rejecting the null hypothesis and accepting the alternative hypothesis, which states, "There is an impact of physical requirements as a dimension of cloud accounting on the quality of internal auditing with its dimensions (property standards, performance-related standards, and application-related standards) in companies. "Furthermore, the table's results indicate that the value of ($r=0.877$), meaning that there is a high correlation (87.7%) between the variable of physical requirements as one of the dimensions of cloud accounting and the enhancement of audit quality. It is also evident that the coefficient of determination ($r^2=0.770$), which means that the variance in the variable of physical requirements explained (77.0%) of the variance in enhancing internal audit quality, with (23.0%) attributable to other factors not addressed by this study.

6.1.2. Second sub-hypothesis:

Is there no impact of technical requirements as a dimension of cloud accounting application on the quality of internal auditing in its dimensions (standards of properties, performance-related standards, and application-related standards) in Jordanian public shareholding companies?

Results of the simple regression test related to the second sub-hypothesis.

Independent variable	R	R ²	Calculated F	Df	Sig	Regression coefficients			
						dependent variable	β	t	sig
Technical requirements	0.770	0.592	48.893	104	0.000	properties criteria	0.550	1.742	0.000
						Performance Standards	0.797	2.762	0.000
						application standards	0.536	3.649	0.000

The second sub-hypothesis was tested at a significance level ($\alpha \leq 0.05$), and Table (5) shows that the significance level (Sig) reached (0.000), which is lower than the significance level adopted in the study, which is (0.05). The calculated F-value, which was (48.893), confirms the significance of this effect at a level of ($\alpha \leq 0.05$). This means rejecting the null hypothesis and accepting the alternative hypothesis, which states that "there is a statistically significant effect at a level of ($\alpha \leq 0.05$) for technical requirements as a dimension of the impact of cloud accounting on the quality of internal auditing in its dimensions (property standards, performance-related standards, application-related standards) in companies."

The table results also indicate that the value of ($r=0.770$), which means that there is a significant relationship (77.0%) between the technical requirements variable as one of the variables of cloud accounting and enhancing the quality of internal auditing. The coefficient of determination ($r^2=0.592$) means that the variance in the technical requirements variable explains (59.2%) of the variance in the quality of internal auditing, with (40.8%) being the result of other factors not addressed in this study.

6.1.3. Third Sub-hypothesis:

There is no impact of human requirements as a dimension of cloud accounting application on the quality of internal auditing with its dimensions (property standards, performance-related standards, application-related standards) in Jordanian public shareholding companies.

Results of the simple regression test related to third Sub-hypothesis.

Independent variable	R	R2	Calculated F	D f	Sig	Regression coefficients			
						dependent variable	β	t	sig
Human requirements	0.728	0.529	37.864	104	0.000	properties criteria	0.512	1.508	0.005
						Performance Standards	0.499	1.609	0.011
						application standards	0.741	4.691	0.000

The third sub-hypothesis was tested at a significance level ($\alpha \leq 0.05$), and Table (6) shows that the significance level (Sig) reached (0.000), which is less than the significance level adopted in the study, which is (0.05). This confirms the significance of this effect with the calculated F value, which reached (37.864), and it is significant at the ($\alpha \leq 0.05$) level. This means rejecting the null hypothesis and accepting the alternative hypothesis, which states that "there is a significant effect at the ($\alpha \leq 0.05$) level for human requirements as a dimension of the impact of cloud accounting on the quality of internal auditing with its dimensions (property standards, performance-related standards, application-related standards) in Jordanian public shareholding companies."

Furthermore, the table results indicate that the value ($r=77.8$), which means that there is a correlation with a value of (77.8%) between the human requirements variable as one dimension and enhancing the quality of internal auditing in Jordanian companies. It also shows that the coefficient of determination ($r^2=0.529$), which means that the variation in the human requirements variable as part of the cloud accounting variables has explained (52.9%) of the variation in enhancing the quality of internal auditing, with (47.1%) being the result of other factors not covered by this study.

6.1.4. Fourth Sub-hypothesis:

There is no impact of administrative requirements as a dimension of cloud accounting implementation on the quality of internal auditing in its dimensions (standards of characteristics, performance-related standards, and application-related standards) in Jordanian public shareholding companies.

Results of the simple regression test related to fourth Sub-hypothesis.

Independent variable	R	R ²	Calculated F	D f	Sig	Regression coefficients			
						dependent variable	β	t	sig
Administrative requirements	0.935	0.875	67.091	104	0.000	properties criteria	0.207	1.183	0.010*
						Performance Standards	0.401	2.506	0.014*
						application standards	0.355	4.355	0.001*

The fourth sub-hypothesis has been tested, as well as the main hypothesis at a significance level ($\alpha \leq 0.05$). Table (7) shows that the significance level (Sig) reached (0.000), which is less than the significance level adopted in the study (0.05). This confirms the significance of this effect with a computed F-value of (67.091), which is significant at the level ($\alpha \leq 0.05$). This means rejecting the null hypothesis and accepting the alternative hypothesis, which states that "there is a statistically significant effect at a level ($\alpha \leq 0.05$) for administrative requirements as a dimension of the implementation of cloud accounting on the quality of internal auditing in its dimensions (property standards, performance-related standards, application-related standards) in Jordanian public shareholding companies."

Additionally, the table results indicate a value of ($r=0.935$), which means that there is a strong correlation (93.5%) between administrative requirements as one of the dimensions of cloud accounting and enhancing the quality of internal auditing in Jordanian companies. It also becomes clear that the coefficient of determination ($r^2=0.875$), which means that the variation in the variable of administrative requirements as a variable of cloud accounting explains (87.5%) of the variation in the quality of internal auditing, while (12.5%) is the result of other factors not covered by this study.

6.1.5. Fifth Sub-hypothesis:

There is no impact of legislative requirements as a dimension of cloud accounting implementation on the quality of internal auditing with its dimensions (standards of attributes, performance-related standards, and application-related standards) in Jordanian public shareholding companies.

"Results of the simple regression test related to fifth Sub-hypothesis."

Independent variable	R	R ²	Calculated F	Df	Sig	Regression coefficients			
						dependent variable	β	t	sig
Legislative requirements	0.877	0.769	88.897	104	0.000	properties criteria	0.165	0.692	0.003
						Performance Standards	0.434	1.994	0.049
						application standards	0.631	5.701	0.000

The third sub-hypothesis was tested at the significance level ($\alpha \leq 0.05$), and Table 8 shows that the significance level (Sig) reached (0.000), which is lower than the significance level adopted in the study, which is (0.05). This confirms the significance of this effect with the calculated value of F, which is (88.897) at the ($\alpha \leq 0.05$) level. This means rejecting the null hypothesis and accepting the alternative hypothesis, which states that "there is a statistically significant impact at the ($\alpha \leq 0.05$) level of legislative requirements as a dimension of cloud accounting on the quality of internal auditing in its dimensions (property standards, performance-related standards, application-related standards) in Jordanian public shareholding companies." The table results also indicate that the value of ($r=0.877$), meaning that there is a strong correlation (87.7%) between legislative requirements as one dimension of cloud accounting and the requirements for enhancing the quality of internal auditing for Jordanian companies. It is evident that the coefficient of determination ($r^2=0.769$), meaning that the variation in legislative requirements explains (76.9%) of the variation in enhancing the quality of internal auditing, while (23.1%) is due to other factors not addressed in this study.

7. Conclusion:

This study aimed to investigate the impact of cloud accounting on the quality of internal auditing in Jordanian public shareholding companies during the COVID-19 pandemic. Five hypotheses were formulated to determine the impact, and the study found that there is an impact of cloud accounting requirements on the quality of internal auditing in the Jordanian companies listed on the Amman Financial Market. This impact was observed through the physical requirements of cloud accounting on the quality of internal auditing, where companies are updating their hardware and operating systems and conducting regular maintenance. There is also an impact of the technical requirements of cloud accounting on the quality of internal auditing, as Jordanian public shareholding companies are interested in applying operating systems and databases.

The study also revealed an impact of the human requirements of cloud accounting on the quality of internal auditing, as these companies maintain their computer systems and address any problems by turning to specialized programming companies. There is also an impact of the administrative requirements of cloud accounting on the quality of internal auditing, as management leverages cloud accounting applications to facilitate necessary procedures for implementing cloud accounting.

Regarding the legislative requirements of cloud accounting, it was found that they have an impact on the quality of internal auditing because the regulations issued by senior management in the organization facilitate the use of cloud accounting. The study recommends the need to enhance the implementation of cloud accounting principles in Jordanian public shareholding companies, given its significant impact on information security and its potential for improving performance and development. Furthermore, there is a need to enhance and improve the various requirements of cloud accounting, including physical, technical, human, legislative, and administrative requirements, by allocating financial budgets. Additionally, a comprehensive plan should be developed to address unforeseen and unanticipated risks and the development of specialized software to prevent cloud accounting data breaches.

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