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**Auditors' perceptions of
the continuous auditing role
in mitigating audit risks in Egypt
during the Corona pandemic –
An Experimental Investigation**

Abstract

This research aimed to explore the perceptions of external auditors in Egypt on both increasing the risks of auditing in the environment of electronic publication of financial reports, the role of the application of continuous auditing in reducing these risks, and the extent to which the experience of external auditors of information technology is considered an important determinant in the application of continuous auditing, and then to discuss the fundamental difference of these perceptions between the period before the coronavirus pandemic and during the pandemic.

Data were collected using experimental approach by online surveys from 126 local audit firms to achieve these research objectives. Six hypotheses were tested, t-test, Paired Samples Statistics and Wilcoxon signed ranks Test are used to test the research hypotheses.

The overall results indicate that there are a fundamental difference in the awareness of external auditors in Egypt about the audit risks arising from the electronic publication of financial reports, and the importance of applying continuous auditing in this type of accounting and auditing firms to reduce audit risks, as well as considering the degree of auditor training and experience in dealing with information technology as one of the determinants of the success of the application continuous auditing.

The future research should focus on internal audit application for continuous audit of risk management and quality support for electronically published financial reports in Egypt.

Key Words: External Auditors in Egypt, Covid-19 pandemic, Audit risks (AR), Continuous auditing (CA), and Internet financial reporting (IFR).

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مدى إدراك المراجعين لدور المراجعة المستمرة في تخفيض مخاطر المراجعة في مصر خلال جائحة كورونا - دراسة تجريبية

ملخص البحث

الهدف من هذا البحث استكشاف تصورات المراجعين الخارجيين في مصر حول كل من زيادة مخاطر المراجعة في بيئة النشر الإلكتروني للتقارير المالية، ودور تطبيق المراجعة المستمرة في الحد من هذه المخاطر، ومدى اعتبار معرفة وخبرة المراجعين الخارجيين في تكنولوجيا المعلومات محددًا مهمًا في تطبيق المراجعة المستمرة، ومن ثم مناقشة الاختلاف الجوهري لهذه التصورات بين الفترة التي سبقت جائحة فيروس كورونا وأثناء الجائحة.

تم جمع البيانات باستخدام منهج تجريبي من خلال استطلاعات الرأي عبر الإنترنت من 126 مراجع من مكاتب المراجعة المصرية لتحقيق أهداف البحث. تم اختبار ستة فروض وتم تحليل البيانات باستخدام عدد من الاختبارات الاحصائية تتمثل في اختبار T-test واختبار Paired Samples Statistics واختبار Wilcoxon signed ranks.

تشير النتائج الإجمالية إلى وجود اختلاف جوهري في وعي المراجعين الخارجيين في مصر بمخاطر التدقيق الناشئة عن النشر الإلكتروني للتقارير المالية، وأهمية تطبيق المراجعة المستمرة في هذا النوع من شركات المحاسبة والمراجعة لتقليل مخاطر المراجعة، وكذلك اعتبار درجة تدريب وخبرة المراجع في التعامل مع تقنية المعلومات أحد محددات نجاح تطبيق المراجعة المستمرة.

يجب أن تركز البحوث المستقبلية على أهمية استخدام المراجعة الداخلية للمراجعة المستمرة لإدارة المخاطر ودعم الجودة للتقارير المالية المنشورة إلكترونيًا في مصر في فترة جائحة كورونا عن الفترة السابقة لحدوث الجائحة.

الكلمات المفتاحية: المراجعين الخارجيين في مصر، جائحة كورونا، مخاطر المراجعة، المراجعة المستمرة، التقارير المالية المنشورة إلكترونيًا.

1-Introduction

The growing use of electronic accounting information systems has made it easy to electronically publish a large amount of data in a timely manner for the use of stakeholders, internet financial reporting (IFR) has an impact on how financial data is stored and handled (Gal, 2008). The number of companies publishing their financial reports on their websites is increasing, especially considering the spread of the Corona virus, which obligated everyone to social distance, and e-commerce operations have become prevalent. There is a burden on the auditor to keep pace with these developments to provide credibility on the information published electronically.

However, the use of advanced technology exposes users to a variety of hazards furthermore, the enormous advancement in IT is not matched by an equal advancement in the skills and capacities of the human users of this technology and the development in electronic information systems and electronic disclosure has not been accompanied by a similar development in the controls (Abu-Musa, 2004; Abu Saleem and Ibrahim, 2020).

The previous changes certainly affected the audit profession in terms of the procedures used, the timing of the audit, and the audit risks, whose assessment is a basis for planning the audit process, there has become a growing demand for a different type of external audit that is suitable for the electronic disclosure of information, incorporating and effectively utilizing new audit technology is essential for the profession to stay relevant in the real-time economy and to serve the growing and changing demand for real-time assurance, according to Chan and Vasarhelyi, (2011).

The motive behind doing this research is to determine the extent to which professional auditors in Egypt are aware of the importance of reducing the risks of auditing, which is greatly increased due to the electronic publication of financial reports, especially during the coronavirus pandemic, by taking advantage of the benefits of applying continuous auditing, the model of this study is shown in figure 1.

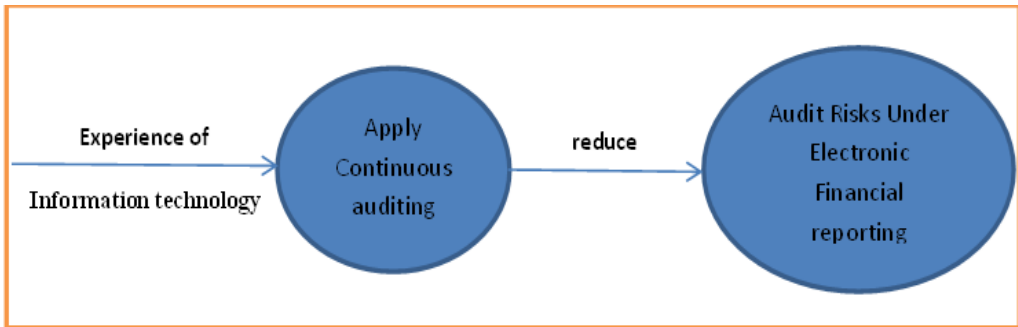


Figure 1: External auditor perceptions before versus during Corona Pandemic

(Source: The Researchers)

2- Research Problem

The way financial statements are prepared, audited, and used is changing rapidly as a result of information technology, through electronic disclosure, companies were able to disclose a large volume of financial and non-financial information, which represents a challenge for the auditors to play their role in giving credibility to the financial statements published electronically (Ibrahim et al., 2021; Zhao, Yen and Chang, 2004).

Despite the many advantages of relying on technology in processing accounting data, in contrast, there are numerous kinds of risk that are mainly related with information technology such as, maximized risk of fraud, mistaken record keeping, distort the inputs if the incorrect information technology is chosen, loss of information, business disruption and privacy violations (Abu-Musa, 2004).

Government-imposed precautionary measures to restrict the spread of the Covid -19 virus had an impact on the auditor's work in terms of timely access to evidence and the quality of the actions he planned to take, while the perspective of audit risk requires the auditor to provide reasonable assurance that the published financial statements are free of material errors (Nikolovski et al., 2016).

It is vital to thoroughly investigate audit risks and do all possible to mitigate their severity, as well as to limit the risk of expressing an inappropriate audit

opinion to the lowest possible and acceptable level, this is because the external auditor's view is extremely essential to a number of stakeholders, the most important of which are: (shareholders, government and creditors), Continuous Auditing (CA) appears to have arisen as a response to restore the auditing profession's confidence while still complying with Sarbanes-Oxley (SOX) requirements (Dal-Ri Murcia, Fernando et al., 2008).

One of the most important findings (El-Sokhary, 2018) said that the implementation of the online auditing has become an imperative and it was also clear that there is some ambiguity in the role and responsibilities of the external auditor about the risks of this environment in general.

Following this line of reasoning, this study has one main, and three sub-questions as follows:

2-1 Main question of the study

From the viewpoint of auditors in Egypt what role can continuous auditing play in reducing the risk of auditing associated with the electronic publication of financial reports before and during the coronavirus pandemic?

2-2 Sub-questions of the study

1. What are the types of audit risks associated with auditing electronically published financial statements especially in light of the Corona pandemic?
2. What is the continuous audit and what is its role in auditing electronically published financial statements?
3. How affected are the perceptions of external auditors in Egypt about the role of continuous auditing in reducing the risks of auditing before and during the coronavirus pandemic?

3- Research objective

This study aimed to explore the auditors' perception on the effect of using continuous auditing to mitigate the auditing risks in Egyptian business environment during the Corona pandemic.

This study aims to achieve the following objectives:

- 1- Identify the audit risks in companies that electronically published financial statements, especially in the presence of the Corona pandemic.
- 2- Identify the concept, methods, role of continuous auditing in light of the electronic publication of financial reports and its implementation constraints.
- 3- Analysis of the impact of using continuous audit on audit risks and the impact of auditors' IT experience on this.

4- The importance of the research

First: Scientific importance

The importance of the study stems from the importance of continuous auditing in adding credibility to financial and non-financial information published electronically, while maintaining an acceptable level of audit risks, to our knowledge, this study is the first to look at issues related to (CA) in relation to audit risk especially arose during the COVID-19 pandemic in Egypt.

Second: Practical importance

This study sheds light on the ingredients for the success of audit offices in Egypt in implementing the continuous audit model in terms of auditors' skills in using electronic audit programs.

Moreover, the study contributes to reducing the audit risks faced by the external auditor in a complex IT environment by increasing the efficiency of the audit procedures used, thus increasing the confidence in the audit profession and increasing the credibility of the information published electronically.

5- Research Methodology

The research used the positive model in analyzing, interpreting and predicting the relationship between applying the continuous auditing and reducing the risk of auditing in the environment of electronic publishing of financial reports, especially during the coronavirus pandemic from the point of view of the external auditors in Egypt.

Based on what was analyzed in the theoretical study, the inductive method (experimental approach) is used to obtain the responses of the external auditors about their understanding of the aforementioned relationship, and to test the research hypotheses.

6- Research limits

The study sample was limited to external auditors in audit firms registered in the Egyptian Financial Services Authority; the paper was not exposed to the opinions of the internal auditors.

7- Literature Review and hypotheses development

7-1 Literature Review of Audit Risks

The US Audit Standard SAS. 107 defined audit risk as "the risk that an auditor fails to report unknowingly when there is an existential risk in the financial statements, while ISA400 defined audit risk as "risks that lead an auditor to give an inappropriate opinion when financial information is known to contain material misstatement"(IFAC, 2008). The audit risk is that the auditor may express the opinion that the financial statements are not presented fairly and impartially when they are actually presented (Nikolovskia et al, 2016).

Many studies show that the audit risk has three components: inherent risk, control risk and detection risk. The inherent risk is a component of the audit risk that cannot be overridden when planning the audit process; professional organizations and Egyptian Audit Standard No. 200 of year 2008 have defined the inherent risk as: "The probability that a particular account balance or type of operation will be subject to an error that is material if combined with other account or other transaction balances errors, and that there are no internal control procedures related to it", many factors generally influence the inherent risks, e.g., activity seasonality, size of the firm under audit, degree to which accounts are subject to fraud and manipulation, the industry to which the company belongs, For example, technological advances may lead to obsolescence of a particular product, making inventory vulnerable to overvaluation. Control risk is defined as "risk arising from an error in a particular type of transaction, which may be material if combined with an error in other balances or another

type of transaction and which cannot be prevented or detected in a timely manner through internal control procedures, is considered a function of the effectiveness of internal control procedures. Egyptian audit standards typically do not refer to both inherent and oversight risk separately but rather to a common assessment of the "risk of significant distortion." However, auditors can make separate or joint assessments of inherent and control risk based on best audit techniques and practical considerations. Detection risk is defined as "the risk that audit procedures may result in the auditor finding that there is no error in a balance or in a particular transaction type at the time that the error exists and is material if combined with errors in other balances", This risk results in part from the uncertainty that prevails in the audit process when one or some of the following events occur:

- Lack of comprehensive examination of accounts.
- Use inappropriate review procedures.
- Improperly apply audit procedures.
- Misinterpretation of audit results (Shibano, 1990; Karsou and Youssef, 2008; Ali, 2009).

The two researchers considered that the concept of audit risk did not change in the Electronic Data Processing environment, but its elements varied due to the complexity of the environment, in the technological company environment, where its activities depend on e-computer technology and the immediate electronic publication of the outcomes of accounting treatments for economic operations, the situation is growing more complex, and audit risks are rising.

Information risks that may affect fair presentation of reports and financial statements posted on corporate websites come from the following sources:

- Online financial operations are recorded, posted to accounts, and reflected in audit and account balances without being reviewed by a human for reasonableness, electronic records take the place of conventional paper records, hiding the audit trail in the process.
- The widespread use of automated processes and computerized commerce.

- Complex operations built on the Internet as a source of knowledge and a way to conduct cross-cutting commercial operations.
- The diffusion of computer viruses.
- Internet hacking and targeted attacks.
- File manipulation and software modification (Abdel Fattah, 2013; Jarbuh and Salim, 2015).

Now the research shows studies that have shown high audit risks associated with online publication of financial reports and the spread of coronavirus:

Regulators, preparers, and auditors have described the June 2020 financial reporting period as one of the most challenging reporting periods ever, as reporting entities were faced with uncertainty due to the COVID-19 pandemic (Kend and Nguyen, 2022). Also, the epidemic's effects on e-commerce and the advancement of financial technology's digitization have both accelerated dramatically (Jamil et al., 2022). However, thus far, there is little about how changes in the COVID-19 environment have affected audit tasks completed by auditors, including judgments on what to include in audit reports and the informational value of those reports to investors. The external auditor is primarily concerned with determining the scope of prudent selection and application of accounting policies in general, and in the context of the Coronavirus pandemic in particular; the extent to which the pandemic affects the entire annual auditing model; and the extent to which the pandemic affects the scope of its non-traditional professional responsibilities and services, such as services other than auditing (Ali, 2021).

Albitar et al., (2020) claimed that the COVID-19 pandemic's repercussions would be the greatest serious threat to audit firms and their auditors since the global financial crisis of 2008/2009. They argue that the COVID-19 social distancing issue can have a major impact on a variety of audit issues, including auditor fees, going concern appraisal, social capital auditing, audit events, and payroll auditing. This could have a substantial impact on the audit process'

quality in the long run, which can significantly affect the ability of auditors to detect material misstatements.

A study (Al-Esawy and Ibrahim, 2020; Nafeh and Ibrahim, 2021) revealed the impact of the spread of the Corona virus on the Egyptian external audit environment in light of international and local standards. Using a sample of Egyptian accounting and auditing offices and academic researchers the following results were reached:

- 1- The COVID-19 pandemic has led to many problems and challenges for external auditors, including high audit risks and the lack of appropriateness of the usual audit procedures.
- 2- The need for flexibility in the audit plan, the use of electronic audit procedures, and the exercise of a greater level of professional skepticism.
- 3- The necessity of continuous training and education for external auditors and relying on the work of internal auditors (Delalio, 2020).

Financial and commodity markets around the world have also witnessed significant fluctuations as a result of the Corona pandemic, which has been accompanied by increased liquidity risks, credit risks, interest rate risks, and risks of fluctuation in exchange rates and foreign currencies. This requires proper disclosure of these risks to users in the financial reports (Mahmoud & Al-Tahan, 2020).

Changes in audit plans, adjustment of recognized risks, and examination of accounting estimates and procedures, and any other challenges found during the audit engagement are all repercussions of the COVID-19 pandemic on auditors' job (Hategan et al., 2022).

In this concern, Al-Khasawneh (2021) investigated the influence of the COVID-19 epidemic on Jordanian banks' external auditing processes. The COVID-19 epidemic, according to Al-Khasawneh (2021), has had a significant impact on audit planning procedures, auditing risks, and evidence collection methods, as well as the audit report's content.

The study conducted by (Diab, 2021) discussed the effect of the COVID-19 issue on audit matters as fraud risk, risk assessment, revising audit plan, subsequent events, and audit evidence and opinion. Fraud risk may arise as a result of the current gaps in controls caused by remote working and social distance needs. The recent failure of internal controls provides a chance for this fraud to be perpetrated. Tunneling, disclosure-related frauds, wrong profits recognition, and inappropriate capitalization of expenditures, vendor fraud, and procurement fraud are among emerging fraud threats that a corporation may face during the COVID-19 pandemic.

According to (Sultana et al., 2022), the COVID-19 pandemic impact on the fair value of the financial assets owned by business organizations, this type of worry is also relevant for the measurement and evaluation of financial assets. The enterprises will be exposed to credit risk as a result of the declining value of financial assets.

Elmarzouky et al., (2021) investigated the timing of opportunistic disclosures. They claim that by proactively publishing more COVID-19-related performance data, companies provide investors with a positive view of management's ability to deal with challenging situations. As a result, systemic risk and the negative impact on stakeholder perceptions are reduced. The findings imply that the relationship between the extent of performance disclosure in annual reports and COVID-19 data is influenced by corporate governance characteristics. Corporate disclosure decisions, on the other hand, might be influenced by the business environment. In another study, Crovini et al., (2022) emphasized the critical importance of risk reporting in the context of the coronavirus disease 2019 (COVID-19) pandemic's effect and uncertainty, as well as stakeholder information demands. The authors explore the issues that the pandemic brings to risk recognition and assessment, as well as the following disclosure choice of risk information, using ideas and aspects from the accounting and risk management literature.

Given this context, many researchers have studied the COVID-19 pandemic impact on auditing (Diab, 2021; Hategan et al., 2022). The COVID-19

pandemic, according to Diab (2021), had an impact on auditors' work, causing them to revise their audit plans, pay more attention to accounting assumptions, and assess going concern. Alternative audit processes, such as video technology, have been used by audit firms to create audit evidence, although this strategy may increase the risk of fraud. Due to the limits of the COVID-19 pandemic, failure to acquire appropriate evidence could result in extra changes and alter the auditors' conclusion (Hay et al., 2021). The effects of the COVID-19 pandemic are already being seen in the audit industry, with the expansion of telework having an influence on audit risk and processes. Digitization has also increased the audit risk, allowing remote work (Hategan et al., 2022).

The study conducted by (Abd El Kreme et al., 2021) divided the matters that auditors should consider as a result of the Corona pandemic in parallel with international auditing standards as follows:

First: With regard to the revised International Standard on Auditing No. 315, Identification and Assessment of Risks Related to Relatively Significant Misstatements, the auditor must consider the following:

- a) The impact of the planned audit entry as a result of the revised assessed risks arising due to Covid-19.
- b) Possibility to conduct a review of the assessment process to identify previously established risks.
- c) The impact of these variables on the auditor's understanding of the company's internal control system.

Second: With regard to International Auditing Standard No. 330, Responding to Assessed risk: the auditor must change the audit plans as a result of developments in the audit environment resulting from the Covid-19 pandemic, and such developments may affect the auditor's ability to obtain sufficient and appropriate evidence.

The pandemic has heightened awareness of risk recognition, as businesses are not only affected by infection risk, but can also be a substantial driver of it. In this situation, businesses must inform a wide range of internal and external

stakeholders about the effectiveness of their pandemic-adjusted risk management systems and mitigation strategies (Crovini et al., 2022).

Similarly, Sultana et al., (2022) reported that companies bear a substantial amount of duty for telling their shareholders about any risky or unpleasant circumstance in which the company finds itself.

Moreover, Crucean and Hategan (2021) found that the auditor may include in the report issued an explanatory paragraph drawing attention to events with insignificant uncertainty about the continuity of the activity or may change the opinion if there are significant uncertainties on it. In order to gain reasonable and appropriate assurance on whether the financial statements are free of major misstatements originating from error or fraud, the auditor's obligations regarding fraud in the auditing of financial statements need extensive vigilance during the audit process (Diab, 2021).

Based on the above: the two researchers notice the wide variety of risks associated with the operation and electronic publication of financial reports, the coronavirus pandemic has also contributed to the deepening uncertainty associated with the company's continuity, accounting estimates, and the effects of telecommuting, which has increased the risk of auditing.

7-2 Literature Review of Continuous Audit

7-2-1 Motives for the emergence of continuous auditing

There is a growing collection of literature on the subject of continuous auditing (CA), the changing nature of how business transactions are made, processed, and reported has forced a change in the structure of audit procedures and methodologies for both internal and external auditing. Chiu, (2014) Control over this data abundance becomes a barrier for auditors when a company organization processes an increasing amount of data over time. As a result, the continuous audit system is a solid instrument for controlling exponential data amplification (Rezaee et al., 2018). Firms are increasingly relying on technology to run their day-to-day operations, resulting in shifts in the nature of work and commercial relationships, this is exacerbated by the extensive use of the internet, real-time accounting systems, electronic commerce (e-commerce), and financial

disclosure via websites and social media, as a result, there is a growing demand for innovative IT audit approaches (Kotb, A. and Roberts, C., 2011). With advances in information technology and web-based services, continuous auditing is becoming more crucial for monitoring and controlling processes (Brown et al, 2007). The motive for using CA to audit electronic financial reports in E-commerce companies was an attempt to avoid the risks associated with online data processing and publishing and thus adding confidence to online disclosure (Abu Talib, 2018). The sudden bankruptcy of some major companies, such as Enron, blamed the profession of external auditing and drew strong consideration to the continuous audit through which it could restore credibility to the auditing profession and fulfill the requirements of the Sarbanes-Oxley Act (Dal-Ri Murcia et al, 2008). There are two possible ways to react to these developments: first direction: professional assurance services are provided by external auditors for the company's website and the information system, second direction: transition to continuous auditing (Al-Azmi, 2022).

7-2-2 The concept of continuous auditing (CA)

Vasarhelyi, (1984) investigated the evolution of audit processes in light of automation. Computer audit implementations, he claimed, did not fully exploit automation benefits since they only reflected direct computerization of manual procedures rather than reengineering of related processes.

Vasarhelyi and Halper, who have the main huge paper on Continuous Auditing in 1991, introduced a model for CA known as (Continuous Process Auditing System), characterizes it as "a review that happens following or intently after a specific occasion (McCann 2009).

The Canadian Institute of Chartered Accountants (CICA) and the American Institute of Certified Public Accountants (AICPA) define continuous Auditing as" methodology that enables independent auditors to provide written assurance on a subject matter using a series of auditors' reports issued simultaneously with or a short period of time after the occurrence of events underlying the subject matter". (CICA/ AICPA, 1999) Later on, a committee was formed by the CICA and the AICPA to examine CA. The nature, purpose, scope, and basics of CA were investigated in this study report. It concluded that the demand for CA can

be dependent on the need for more reliable, relevant, and timely information for the decision-making purposes. Other continuous auditing services, in addition to financial statement continuous auditing, have emerged, including: (a) continuous assurance regarding the authenticity, integrity, and non-repudiation of electronic commerce transactions; (b) continuous assurance on controls over electronic commerce systems, compliance with debt covenants, and security of web sites containing reports on significant decision-making information; and (c) continuous assurance on controls over electronic commerce systems, compliance with debt covenants, and security of web sites containing reports on significant decision-making information.

Guide to Continuous Auditing and Confirmation was published in 2005 by The Institute of Internal Auditors (IIA) which provided a definition of continuous auditing as the method used by the auditor to perform the activities associated with the audit process on a more continuous or ongoing, including a continuum of activities ranging from ongoing monitoring to ongoing risk assessment, (Hefes, 2006) indicates that the continuing auditing as a concept is not new, and the ongoing audit was discovered in internal audit community as of 1970; conceptually, it is the process that focuses on audit of controls and underlying risks based on real-time and this process may involve the use of technology (Al-Qulaiti, 2014).

Several previous research have offered similar definitions for continuous auditing, as well as developed and illustrated its theoretical framework, (e.g., Rezaee et al., 2002) gave the definition of CA as robust electronic auditing procedure that allows auditors to provide some level of confidence on continuous data at the same time as, or shortly after, the data is disclosed. An organized method of assembling electronic evidence for use as a foundation for evaluation, it's reasonable to offer an unbiased expert opinion on the accuracy of reports and financial data generated by a non-paper accounting system (Nasr, Abdel Wahab and Shehata El-Sayed, 2004). Continuous Auditing (CA) is a methodology for issuing audit reports simultaneously with, or a short period of time after, the data is entered into the information system (Farkas, Maia and Uday S. Murthy, 2014).

Based on the foregoing, despite the semantic differences between these definitions, they all refer to the idea of executing auditing procedures rapidly, the two researchers agree with the term "continuous audit" refers to an external audit that differs in timing and nature of evidence, and is carried out by an external auditor to confirm the information of financial statements published electronically and to issue reports immediately or within a short period of time after events occur, and to meet the needs of decision makers.

The study of (Woodroof and Searcy, 2001) indicated the conceptual model of a continuous audit: The following are the elements of the continuous audit model: (1) the various interconnected Web servers, including client, auditor, third party, and valuation sites; (2) the continuous audit environment; (3) the continuous audit agreement between the parties; (4) the qualities of a dependable system; (5) the qualities of a secure system; and (6) the evergreen reports.

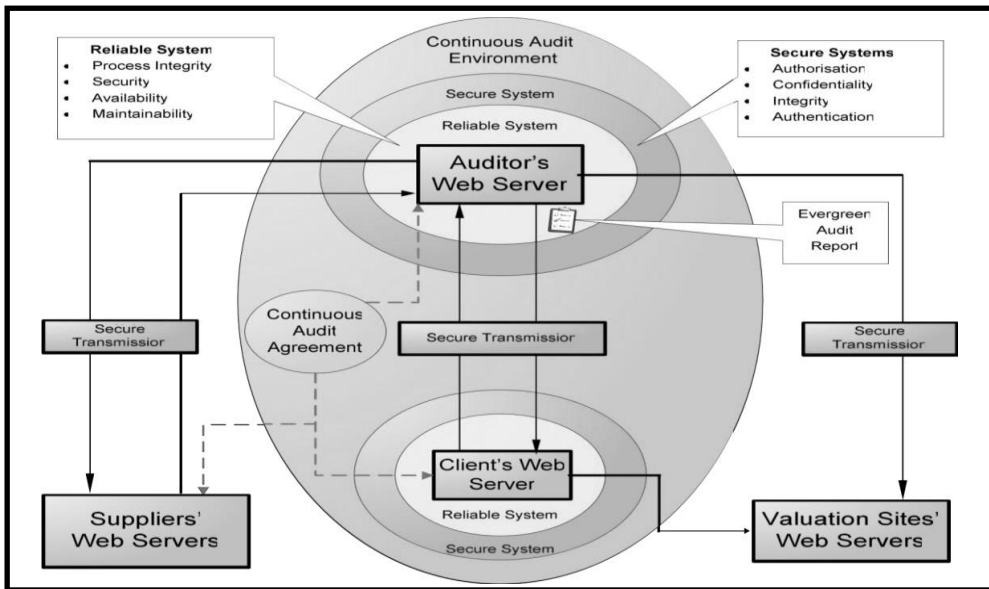


Figure 2: The process of a continuous audit

(Source: Woodroof and Searcy, 2001)

7-2-3 Advantages of applying continuous audit

Continuous auditing is a necessity at the present time, why?

CA can help auditors to better satisfy the needs of information users in a more timely and consistent manner (Amin and Ehab Mohamed, 2016). Continuous Auditing (CA) appears to have the potential to uncover financial reporting misstatements and frauds. CA is more timely, comprehensive, accurate, and less expensive than traditional financial statement audit (Alles, and Vasarhelyi, 2005). For real-time accounting systems, real-time assurances need to be provided one of the key advantages of CA is that it uses intelligent software tools to methodically and continuously test transactions (Floweday and Solms, 2005). The study of (Omoteso et al., 2008) presented an empirical investigation into the possible benefits and drawbacks of Continuous Online Auditing (COA) with a view to assessing its relevance to the future of both internal and external auditors, from external auditors view COA can lead to audit reports being issued on a regular basis (daily, weekly, or as soon as possible), internal auditors showed interest in CA, according to the IIA's empirical survey, even though they believed they lacked training, funds and skills to apply this technique.

The continuous auditing paradigm brings seven important elements of innovation to the standard auditing practice:

- 1- Audits that are carried out on a regular basis or on a more frequent basis.
- 2- Model of proactive auditing.
- 3- Audit procedures can be automated.
- 4- The Auditor's Work and Role Have Changed
- 5- Changes in auditing's nature, timeliness, and scope.
- 6- Monitoring and testing using data modelling and analytics.
- 7- The nature and timeliness of audit reporting have changed (Chan, D. and Vasarhelyi, M., 2011).

The auditor may make the audit process faster, cheaper, more efficient, and effective by employing continuous auditing (CA) approaches, reduce audit cycle

timeframes to offer risk and control assurance more quickly, increase audit coverage without having to add more people to your team, automate periodic audit testing and improve audit cycle times by conducting audits on a daily, monthly, or quarterly basis, instead of merely data samples, audit the entire data population, compare and recalculate the data population and improve both the quality and the speed of assurance (O'Reilly,2006). The move to a thorough audit of all customer operations, which results in a significantly higher level of confidence and reliability in financial reporting than traditional sample-based audits, CA is faster and more effective testing of financial data than manual tests requiring a computer audit by the auditor, it reduce the time and money the auditor must spend on monitoring account balances and performing manual process testing and improves the quality of the financial audit by assisting auditors in putting greater emphasis on comprehending the nature of the client's operation, and the internal control system's structure (Al-Azme, 2022).

Despite all the advantages that have been discussed for more than thirty years, the CA systems are still exceptional cases in practice because of technical and organizational barriers, many studies have discussed the limitations of the use of continuous auditing, illustrated by (Kiesowet al, 2016) Exclusive:

- Technical implementation.
- External auditors' independence.
- Adjustment of audit procedures.
- Auditor's education.
- Documentation of CA projects.
- Data Security and Privacy.

7-2-4 Stages or steps of continuous audit

CA has two applications as a modern auditing technique. It has both an ex-post (detective) and a preventive (preventive) approach (ex-ante). The first serves a similar goal to a traditional audit in that it examines 'historical' records and books of account to obtain audit evidence, whilst the second works as a deterrent to the occurrence of errors and frauds (Omoteso et al., 2008).

When using a continuous auditing form, the auditor loads or sets up the system on their site, connects it to the client's information system, which is connected to a client server system, and waits until the auditor tasks are executed in real time. This is how a continuous auditing form differs from a final auditing form (Nasr and Shehata Al-Sayed, 2004).

Stage 1: automation of audit operations, Stage 2: data modelling and benchmark building, Stage 3: data analytics, and Stage 4: reporting are the four steps of the continuous audit, the auditor establishes the criterion, and the process identifies abnormalities and exceptions, which require extra audit procedures. The auditor may issue a report based on the findings (Floweday and Solms, 2005), as a result, if the continuous audit system issues no exception reports while it is in operation, the financial and accounting data is accurate and devoid of fraud, errors, and other flaws. In the absence of significant exceptions, the fourth phase may therefore offer a clean report or provide a certain level of system confirmation (Chan and Vasarhelyi, 2011).

7-2-5 Continuous Auditing Techniques

The continuous auditing involves many technologies that are constantly working to meet the requirements of the audit of an instant information system that produces timely information for decision makers. Examples of such technologies include artificial intelligence software, expert systems and decision support systems through data mining and text mining. The auditors should be go from manual data collection to decision support systems and they should be trusted (Hunton and Rose, 2010; Lombardi et al, 2014).

Therefore, the two researchers point out that the continuous audit model is not the modern one, but rather the technological evolution of accounting information systems as a kind of reaction from the audit profession to the electronic information systems, through continuous auditing methods and procedures, always updated audit reports can be obtained with any changes in electronic financial reports.

7-3 The Theoretical Framework for the relationship between implementing continuous auditing and audit risks

The Egyptian Auditing Standard No. 315 of 2008, "Understanding the enterprise and its environment and assessing the risks of significant distortion", discusses the responsibility of the auditor in obtaining an understanding of the client and its environment, including its internal control system and the assessment of the risks of significant and effective distortion. The Egyptian Auditing Standard No. 330 of 2008, "Auditor's actions to address assessed risks", also discusses the responsibility of the auditor to design and perform additional audit procedures that enable the nature, timing and extent of significant and effective distortion risks assessed at the level of the financial statements, the higher the auditor's risk assessment, the stronger and more credible the investigation procedures are to get review evidence from those procedures. The acceptable level of detection risk has an inverse relationship to the assessment of the risk of material misstatement in relation to the level of assurance, the higher the auditor believes that there are material misstatements, the lower the detection risk that can be accepted.

According to Abu-Musa (2004), e-business introduces new risks that businesses may need to address. These risks include unauthorized access to systems and data, incomplete and inaccurate data, data confidentiality and privacy, service denial, and the intentional or unintentional manipulation and destruction of data. To ensure that only authorized users have access to IT resources and that safeguards are in place to prevent unauthorized alteration or destruction of data, software, and equipment, software security and physical security should be implemented. In this regard, Ahmed (2010) stressed that several factors contributed to an increase in audit risks when the external auditor reviewed e-commerce activities, including: (a) unauthorized employee attempts to access restricted data (b) a lack of effective internal audit (c) difficulty in detecting and tracking fraud as a result of using electronic computers (d) failure to disclose cases of fraud and manipulation. There has also been a need to assess and balance risks associated with unconventional practices such as remote working and/ or the phased return to work after extended periods of working from home

(Wronka, 2022). As many services move online due to the pandemic, COVID-19-themed cyber fraud is also growing.

According to Abdul Karim, et al., (2021) Fraud risks are considered one of the most important challenges facing the auditor in the time of the pandemic, due to the ease of availability of the fraud triangle during these circumstances, which include:

- 1- Existence of fraud motives, perhaps the most important of which is the managers' endeavor to maintain their positions and reduce the decrease in management rewards to a minimum.
- 2- The existence of huge opportunities for fraud, such as the restrictions imposed by the pandemic on the auditor in achieving his goal of examining and evaluating internal control, as well as the lack of implementation and commitment to control systems.
- 3- In the event of increasing motives and increasing opportunities and restrictions imposed by the pandemic on the movement of the review team, the administration can use many methods to try to hide and justify fraud, as the conditions for the spread of the virus and its negative effects have become common and possible, then everything is possible.

Nikolovski et al., (2016) indicate that the auditor adjusts the nature, timing, and scope of audit actions based on its own risk assessment. If it is determined that the risk is high, reliable evidence should be gathered. The primary goal is to reduce overall risk to a manageable level while also achieving the appropriate degree of confidence more effectively. These audit risks and their priorities have changed as a result of the challenges faced by companies considering the outbreak of the Corona virus.

Table 1: Changes in the risks of the electronic publishing environment for financial reports during the coronavirus pandemic

	Risks in the operating environment and electronic data dissemination	Risks in the Operating Environment and Electronic Data Dissemination during the Coronavirus Pandemic
Inherent Risks.	<ul style="list-style-type: none"> - Risks associated with elements of the electronic operating environment (physical and human elements). - A company's information subsystems' interconnect- edness, there is a higher chance of error. 	<ul style="list-style-type: none"> - Risks associated with financial mar- ket fluctuations: increased liquidity risks, credit risks, interest rate risks, and risks of fluctuation in exchange rates and foreign currencies. - Increase of credit risk. - The pandemic's impact on the fair value of the financial assets.
Control Risks	<ul style="list-style-type: none"> - Unauthorized access to systems and data. - Incomplete and inaccurate data. - The intentional or unin- tentional manipulation and destruction of data. - Data confidentiality and privacy - A lack of effective inter- nal audit. 	<ul style="list-style-type: none"> - Increased controls risk elements asso- ciated with the operation and elec- tronic dissemination of data. - Risks associated with unconventional practices such as remote working.
Detection Risks.	Risks of fraud and material distortion in financial statements.	Increased opportunities for fraud and material misrepresentation in the financial statements due to increased uncertainty associated with the pandemic, working remotely and failing to get strong evidence.

Source: The two researchers.

Accordingly, the first and second hypotheses could be formulated as follows:

- 1- External auditors in Egypt are aware that the risks of auditing have increased with the electronic publication of financial reports.
- 2- The perception of Egypt's external auditors about the increased risk of auditing with the electronic publication of financial reports is significantly different between the period before the coronavirus pandemic and during the coronavirus pandemic.

Under the systems of online processing and electronic publication of financial reports, the application of continuous auditing is necessary for the external auditor who seeks to achieve efficiency and effectiveness in the auditing, by enabling auditors to concentrate more on appropriate audit procedures for the electronic operating environment and electronic control systems, the auditor must plan thoroughly and rely on comprehensive detailed testing to minimize the risk of auditing.

According to Amin and Ehab, (2016) the majority of Egyptian auditors agree that the implementation of continuous audits can address the difficulties posed by the environment of online financial reporting. The findings also show that there are significant differences in the perceptions of the impact of continuous audits on some aspects of information timing between auditors working for the four major audit firms and those working for small local firms, and that neither the type of audit firm nor the experience of the auditor significantly affects how people perceive auditors. The four largest audit firms' auditors, however, are the only ones who recognize the positive effects of the continuous audit implementation on the suitability of the information reported in terms of delivering more precise and timely information.

When establishing a continuous auditing system, benefits that can be quantified in terms of money, including a decrease in staff costs, can be divided into two categories. Benefits of implementing the continuous auditing system that cannot be quantified in terms of money. Implementing a continuous auditing system, for instance, can lessen various forms of audit waste, increase the

efficacy and efficiency of the auditing process by supplying more accurate, timely, and relevant information, and lower audit risk (El-Sokhary, 2018).

The study of (Mousa, 2020) indicated that continuous audit has a statistically significant correlation with control risks, with the risk of discovery, the study came to a number of conclusions, including: the best option for electronic audit programs when looking for audit hazards. Enhancing the auditor's ability to perform in a professional manner by defending the audit systems from threats, the continuous audit investigates the audit risks.

The auditing process is impacted by CA in a number of ways: to assure the accuracy and applicability of electronic papers, records, and data, the auditor must first gain a deeper understanding of the client's business and industry, second in order to assure the correctness and dependability of information in a paperless, reel-time auditing system, the auditor must also better comprehend the flow of transactions and associated control activities, third, the auditor must employ a control risk-oriented audit approach that places less emphasis on substantive examinations of electronic documents and transactions and instead emphasizes the adequacy and efficacy of internal control activities of the reel-time auditing system (Rezaee et al., 2001) .

The idea of continuous auditing is based on the placement of small programs in the client's accounting system, so that these programs can identify the exceptional processes in the client's transactions in a timely manner, in order to allow the auditor to monitor and continuously follow up the client's systems. In this case, the auditor must ensure that access to these programs is limited to authorized persons (Helms and Mancino, 1998). Also, auditors must emphasize the effectiveness of control methods in the audit client systems through the presence of the auditor during the design of those systems, to ensure that there are features that facilitate auditing (Alles et al., 2002).

With continuous auditing, automated audit tools and methods that work with the flow of information can be used in the electronic data handling system (EDI), such as embedded audit models in the audit client's operating systems such software can extract, access and maintain critical audit data without affecting

system security or the integrity and transparency of the database, as well as the Qires Systems Inquiry Systems, through which continuous review can be performed using software for security and reliability components of the system, through questions that can be addressed using the software (Abdul Karim, 2002).

By changing the current audit paradigm from periodic inspections of a small number of accounting transactions to a continuous auditing of all transactions, continuous auditing has the potential to significantly improve risk management inside a company (Baksa and Murray, 2011).

Table 2: The role of continuous auditing and the potential improvement in risk management

Client real-time accounting system	Continuous auditing method	Audit activities	Expected impact on audit risks
Transactions and other economic events.	Audit planning	Acquiring details about the client's company and sector on a regular basis and evaluate the inherent risks according to the information obtained concerning the operations.	Good estimation of inherent risks.
On-line, real-time accounting information system and internal control structure	Valuation of internal control structure.	<ul style="list-style-type: none"> – Knowledge and awareness of the client's internal control system, including the environment and activities under control, are updated on a regular basis the application of the audit risk model and design of the audit strategy. – Apply compliance and basic tests simultaneously. – Frequent measurement of the effectiveness of the elements of the internal control system. 	Greatly expected control of control risks.
Processed transactions electronically.	Substantive tests of details of transactions.	<ul style="list-style-type: none"> – Selecting appropriate electronic audit tools and techniques. – Obtain competent and adequate audit evidence. 	Greatly expected minimizing the detection risk.

Client real-time accounting system	Continuous auditing method	Audit activities	Expected impact on audit risks
On-line general and subsidiary account balances ledger.	Substantive tests of account balances and analytical procedures.	<ul style="list-style-type: none"> - Gathering sufficient and competent audit evidence - Evaluating the timeliness and reliability of audit evidence. - Obtain and test exception reports. 	Greatly expected minimizing the detection risk.
On-line, real-time financial statements	Complete the audit and issue an audit report.	<ul style="list-style-type: none"> - Issuing audit report Improving continuous audit approach - Deciding whether to accept or continue a continuous audit engagement 	Greatly expected minimizing the overall audit risk.

Source: The two researchers with the help of an article (Rezaee et al., 2001).

Accordingly, the third and fourth hypotheses could be formulated as follows:

- 3- External auditors in Egypt are aware that applying the continuous auditing to online financial reports reduce the risks of auditing.
- 4- The perception of Egypt's external auditors about the role of continuous auditing in reducing the risks of auditing differs significantly between the period before the coronavirus pandemic and during the coronavirus pandemic.

One study offered evidence about how auditors view the use and significance of audit technology in a developing industry. It investigated the many audit technology tools in use and the variables that affect their application, particularly to evaluate risk. According to the study, those who work for Big 4 firms, have more knowledge in audit technology, and are in management roles regard audit technology as being used and important more frequently (Abou-El-Sood, et al., 2015). The highly automated continuous audit method collects, manipulates, stores, and continuously reports information pertaining to the audit issue. In order for continuous auditing to achieve its intended objectives, a set of conditions should be met (Groomer and Murthy, 2004; Ibrahim, 2009; Moussa and Sameh, 2022).

- 1- Data subject to continuous audits must be generated by automated, reliable systems, these systems must operate in an integrated manner and be subject to

effective oversight procedures so that the operations provided by these systems can be trusted to perform the ongoing audit portal and must be able to provide the audit requirements to the auditor on the spot.

- 2- Audit tools must be more integrated with client systems, and the auditor must have immediate access to any audit evidence generated by the automated ongoing audit procedures.
- 3- Professional competence of the auditor in the use of information technology (IT) and audited matters, the auditor must be familiar with all types of systems, applications and continuous audit programs and have the expertise to perform the audit.
- 4- Availability of computer hardware and software infrastructure in the audit office.

Although professional auditors should be given training and experience in IT, the two researchers believe this will not stand in the way of continuous auditing procedures, where a specialist in technology programs can be hired.

Accordingly, the fifth and sixth hypotheses could be formulated as follows:

- 5- External auditors in Egypt are aware that auditors' experience in dealing with information technology is an important determinant of the application of continuous auditing.
- 6- The awareness of Egypt's external auditors on the importance of the auditors' experience in information technology to apply continuous auditing efficiently differs significantly between the period before the coronavirus pandemic and during the coronavirus pandemic.

8- Experimental study and research hypothesis test

8-1 Experimental study design

The study aims to test the search hypothesis to achieve the objective of the research by designing practical two cases that include discussion of the opinions of the auditors in the Egyptian audit offices about their perceptions of the continuous auditing role in mitigating audit risks during the Corona pandemic,

all the trial participants receive the general basic data of the company that applies real time information system and publishes its financial reports on the internet through its website.

In details, the research in compiling the data necessary for the implementation of the study is based on two models of the experimental case have been formulated exactly the same, but the only difference is the year in which the external auditor reviews the published financial statements electronically. The first is supposed to be in the year 2019, before the appearance of the coronavirus, and the second is in the year 2021, during the Coronavirus pandemic.

8-2 Data Collection and Research variables

Based on the literature review and theoretical framework, the following hypotheses can be deduced:

- H1:** External auditors in Egypt are aware that the risks of auditing have increased with the electronic publication of financial reports.
- H2:** The perception of Egypt's external auditors about the increased risk of auditing with the electronic publication of financial reports is significantly different between the period before the coronavirus pandemic and during the coronavirus pandemic.
- H3:** External auditors in Egypt are aware that applying the continuous auditing to online financial reports reduce the risks of auditing.
- H4:** The perception of Egypt's external auditors about the role of continuous auditing in reducing the risks of auditing differs significantly between the period before the coronavirus pandemic and during the coronavirus pandemic.
- H5:** External auditors in Egypt are aware that auditors' experience in dealing with information technology is an important determinant of the application of continuous auditing.
- H6:** The awareness of Egypt's external auditors on the importance of the auditors' experience in information technology to apply continuous auditing

efficiently differs significantly between the period before the coronavirus pandemic and during the coronavirus pandemic.

The auditors participating in the experiment will be asked to give their assessment statements related to their awareness of the increasing risks of auditing due to the risks of electronic publication of financial statements, and expressions of their awareness of the importance of applying continuous auditing to reduce the risks of auditing and expressions of their awareness of the importance of technological qualification of applying continuous auditing. The responses to the five-Likert scale will be taken in two separate experiments: the first one before the coronavirus pandemic, the second during the coronavirus pandemic.

Appendix No. (1) includes experimental case design where the first section includes demographic questions exploring the background of the participating auditors. The following information was collected: job title – partner, manager, senior auditor or junior auditor; experience – less than 5 years, between 5 and 10 years, between 10 and 15 years or more than 15 years; qualifications – bachelor, masters or PhD.

The model of the form, which includes the questions of the case studies pilot, and The Likert Scale asks how much a person agrees or disagrees with a particular statement or question, it is usually made up of a 5 point rating scale ranging from one end to another with a neutral point in the middle as shown in Table 3.

Table 3: Likert Scale

Category	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Weight	1	2	3	4	5

Source: SPSS outputs

That will help to convert descriptive answers to quantitative data that can be analyzed statistically.

8-3 Study population and sample

The study population of this paper is external auditors working for the local audit firms operating in Egypt according to the latest update on the website of the Egyptian Financial Supervisory Authority 2022, who are responsible for auditing the majority of the listed companies in Egypt that are most likely to have web sites or working in the field of Electronic Commerce.

The members of the study sample were selected from the auditors working in the Egyptian local audit firms on the criteria easy to access because of the heterogeneity of the study population and the size of the sample was determined deliberately to allow it to perform the necessary statistical analyzes to test the hypothesis and to make it possible to disseminate the results obtained subsequently.

The study categories include audit office partners, auditing managers, senior auditors and junior auditors, where the target groups received the experimental status in two different models before the appearance of the Coronavirus and during the Coronavirus pandemic in the form of the questions in Appendix No. (1) via phone call and online transmission.

Table 4 represents the sample characteristics of the study community, the number of forms distributed and received, and the proportion of responses.

Table 4: characteristics of the study community

Initial sample	Number of forms received	questionnaires with missing data	Usable sample
178 (100%)	130 (73%)	4 (2.2 %)	126 (71%)

Source: SPSS outputs

The survey questions included the following topics:

- The statements that reflect Egyptian auditors' awareness of the high risk of auditing the electronic publication of financial reports, by (8) questions from X_{1-1} to X_{1-8} .

- The statements that reflect Egyptian auditors' awareness of the continuous audit role in reducing the various risks associated with the electronic publication of financial reports, by (6) questions from X_{1-9} to X_{1-14} .
- The statements that reflect Egyptian auditors' awareness of the importance of technological expertise and knowledge in electronic audit programs as a basis for continuous audit, by (7) questions from X_{1-15} to X_{1-21} .
- The statements that reflect Egyptian auditors' awareness of the high risk of auditing the electronic publication of financial reports especially in light of the coronavirus pandemic, by (8) questions from X_{2-1} to X_{2-8} .
- The statements that reflect Egyptian auditors' awareness of the continuous audit role in reducing the various risks associated with the electronic publication of financial reports in light of the coronavirus pandemic, by (6) questions from X_{2-9} to X_{2-14} .
- The statements that reflect Egyptian auditors' awareness of the importance of technological expertise and knowledge in electronic audit programs as a basis for continuous audit considering the coronavirus pandemic, by (7) questions from X_{2-15} to X_{2-21} .

8-4 Data Analysis and Results

Cronbach's alpha was utilized as it is the most useful test to examine the scale's consistency and reliability to assure the validity and reliability of the survey instruments. Twenty-one of the survey items were examined in both cases before the Corona virus and during the virus, and the result of the reliability test, which appears in Table No. 3, showed that the test value is 0.964 in the first case while the test value was 0.945 in the second case, and therefore the value of Cronbach's Alpha was exceptionally highly efficient. This demonstrates that the survey's items are legitimate, reliable, and internally consistent.

Table 5: Validity and reliability test

	Cronbach's Alpha	N of Items
Before Corona Pandemic	.964	21
During Corona Pandemic	.945	21

Source: SPSS outputs

As shown in Table No. 5, the results of Cronbach's Alpha test for the sample of external auditors indicate that the sample responses can be trusted by 96%, in the first case before the emergence of the Corona virus, and this percentage reflects a good internal honesty level. The results of this test in the second case reach 95% after the emergence of the Corona virus, and therefore it is possible to rely on the survey list, and that there is a high degree of consistency between the set of variables used, which indicates a good selection of the study variables.

8-5 Statistical Methods

The Statistical Package for Social Sciences (SPSS, Version 23), which performs the essential statistical analyses and tests at a significant level of 5%, was used to examine the data for testing the research hypotheses. For the type of base data collected and analyzed, the researchers used various statistical tests that were sufficient. The descriptive statistics for each variable are shown in Table 6.

Table 6: Descriptive Statistics

variable symbol	Variable Items	Mean	Std. Deviation
X ₁₋₁	The gathering of information on the client, the nature of the client's activity, the type of industry and the understanding of its operations are important for assessing the inherent risks.	4.119	1.0323
X ₁₋₂	It is important to check the control measures in place to protect against malware that can steal customers' information or bank account numbers.	4.095	1.2739
X ₁₋₃	With e-commerce, new risks are emerging, such as the risk of relying on inaccurate software or data faulty operation, the risk of misuse of the information infrastructure by others, the risk of harmful access to the company's website, and the risk of data loss. These effects may increase the level of risk inherent.	3.786	1.1704
X ₁₋₄	The use of real-time information systems in the operation of financial statements results in a significant overlap of business transactions, and the high dependency of accounting information systems on each other may increase control risks.	3.429	1.0540

variable symbol	Variable Items	Mean	Std. Deviation
X ₁₋₅	Weak internal control structure leads to high audit risk assessment.	4.071	1.2078
X ₁₋₆	In order to be able to assess the control risk, the auditor must be familiar with general electronic censorship and application control of electronic systems.	4.024	1.1694
X ₁₋₇	It is not necessary for the auditor to understand the means of information safety and security, the means of documenting electronic commerce transactions, and the tools of internal control policies by protecting the company's website to judge internal control.	2.595	1.4039
X ₁₋₈	The use of real-time information systems in the operation of financial statements results in a significant overlap of business transactions, and the high dependency of accounting information systems on each other may increase control risks.	3.571	1.1623
X ₁₋₉	Weak internal control structure leads to high audit risk assessment.	3.714	1.1444
X ₁₋₁₀	To be able to assess the risks of censorship, the auditor must be familiar with general electronic censorship and application control of electronic systems.	2.762	1.2926
X ₁₋₁₁	The application of continuous audit reduces audit risks through comprehensive auditing and not relying on the sample.	3.810	1.1007
X ₁₋₁₂	The application of continuous audit does not affect the control risks in the event of gaps in the electronic control structure.	2.786	1.2303
X ₁₋₁₃	The application of continuous audit reduces the risk of electronic disclosure.	3.595	1.1184
X ₁₋₁₄	The application of continuous audit reduces the time between the occurrence of the event under review and its verification, which helps speed the detection of any deviations	3.929	1.1878
X ₁₋₁₅	It is necessary to train auditors in information technology and electronic software	4.000	1.1593
X ₁₋₁₆	auditors should be trained in the design and analysis of system flow maps and the detection of defect areas.	3.833	1.1781
X ₁₋₁₇	The importance of examining the effects of real-time information systems on the planning of the audit process.	3.881	1.0553
X ₁₋₁₈	The importance of studying the effects of instant information systems in the form of audit guides and how to obtain them.	3.881	1.0999
X ₁₋₁₉	The importance of studying the effects of real-time information systems on how to perform detailed tests of operations and assets.	3.857	1.0860
X ₁₋₂₀	The importance of auditors to programming languages in general.	3.691	1.1898
X ₁₋₂₁	The importance of identifying the various means of information control, their operating programs,	3.881	1.0999

variable symbol	Variable Items	Mean	Std. Deviation
	information protection systems and software maintenance.		
X ₂₋₁	Auditors need to assess and balance the risks associated with non-traditional operating patterns such as telecommuting during the coronavirus pandemic.	3.952	1.1789
X ₂₋₂	It is important to verify the control measures in place to protect against malware that can steal customers' information or bank account numbers, which have increased with the coronavirus pandemic.	4.095	1.0913
X ₂₋₃	High risks of electronic publication of financial lists during the coronavirus pandemic with the possibility of distorting and changing data.	3.619	1.1161
X ₂₋₄	Working remotely during the COVID-19 pandemic will not affect the control risks associated with information security risks.	3.214	1.2303
X ₂₋₅	The high of deduction risks in the context of the coronavirus pandemic due to the different procedures for obtaining evidence concerning elements of relative importance.	3.643	.9997
X ₂₋₆	There is no need to evaluate the company's disclosure of the effects of the coronavirus pandemic on the company's continuity, intangible asset values or accounting estimates.	2.452	1.2999
X ₂₋₇	It is not necessary to verify the disclosure of liquidity, credit risk, interest rate risk and risk of fluctuations in exchange rates and foreign currencies, despite their increase with the coronavirus pandemic.	2.595	1.4377
X ₂₋₈	During the COVID-19 pandemic, the evaluation of the risk management plan implemented by the management becomes important and necessary to reduce the control risk.	3.619	1.0723
X ₂₋₉	The application of continuous auditing of electronically published financial reports has become the safe way to reduce audit risks by controlling deduction risks.	3.881	1.03233
X ₂₋₁₀	The application of continuous auditing reduces inherent risks by reducing the risks of operation with new elements in the electronic data operation environment in the context of the coronavirus pandemic.	3.786	1.0852
X ₂₋₁₁	The application of continuous auditing reduces the risk of review during the COVID-19 pandemic through comprehensive auditing and non-reliance on the sample.	3.857	1.10789
X ₂₋₁₂	The implementation of the continuous auditing will reduce the control risks and suggest improvements in the event of gaps in the electronic control structure, especially in light of the coronavirus pandemic.	3.667	1.0198
X ₂₋₁₃	The application of continuous auditing does not affect the risks of electronic disclosure of increased information during the coronavirus pandemic.	3.119	1.3718

variable symbol	Variable Items	Mean	Std. Deviation
X ₂₋₁₄	The application of continuous auditing reduces the time between the occurrence of the event under audit and its verification, which helps speed the detection of any deviations in light of the coronavirus pandemic.	3.976	1.0390
X ₂₋₁₅	There has been increased interest in training auditors in information technology tools and electronic programs during the coronavirus pandemic.	3.952	1.1161
X ₂₋₁₆	Increased attention has been given to training auditors in the design and analysis of system flow maps and detection of defect areas during the coronavirus pandemic.	3.881	1.0088
X ₂₋₁₇	The importance of studying the effects of instant information systems on the planning of the audit process during the coronavirus pandemic.	3.833	1.0936
X ₂₋₁₈	Increase the importance of studying the effects of instant information systems in the form of audited evidence and how to obtain them during the coronavirus pandemic.	4.024	.9917
X ₂₋₁₉	To increase the importance of studying the effects of instant information systems on how to perform detailed tests of operations and stocks during the coronavirus pandemic.	3.952	.9786
X ₂₋₂₀	Increase the importance of auditor knowledge in programming languages in general during the COVID-19 pandemic.	3.881	1.0778
X ₂₋₂₁	Increase the importance of identifying the various means of information control, their operating programs, information protection systems and program maintenance during the coronavirus pandemic.	3.976	1.0156

Source: The two researchers

The results of the descriptive statistics test revealed that all the variables of the first case before the emergence of the Corona virus and the second case during the Corona virus of questions related to the arithmetic mean differ from the default mean of Likert scale, which is equal to (3) with a significant level of 95%, which indicates the agreement of the study sample from The external auditors stressed the importance of applying continuous auditing in reducing audit risks for companies that disclose online, especially after the emergence of the Corona virus, in addition to that the results showed the importance of increasing interest in training auditors on modern technology methods in auditing and information protection systems.

8-6 Hypothesis testing

For the researchers to test the hypotheses, it is necessary to determine the appropriate statistical methods for analyzing the opinions of the sample. This requires determining the type of the population from which the sample was drawn, so it was relied on the Kolmogorov-Smirnov test, which tests the null hypothesis that observations related to a specific variable follow a normal distribution, and the researchers conducted this test for the sample of auditors and it turned out that the P-Value for all sample items is less than the level of significance 0.05, which means rejecting the null hypothesis and the invalidity of relying on parametric tests, which imposes the use of statistical methods for non-parametric tests, which are tests where statistics tests do not depend on the parameters of the community.

The statistical tests that will be relied on are the t-test, due to the large sample size, which includes 126 items, to test the first, third and fifth hypotheses. While the Paired Samples Statistics test and the Wilcoxon signed ranks test will be used for the second, fourth, and sixth hypotheses.

8-6-1 The results of the first hypothesis test

To test the validity of the first hypothesis, an analysis of the external auditors' responses in Egypt is conducted based on their perceptions of whether audit risks increase with the electronic publication of financial reports. This hypothesis was formulated for statistical testing in the form of nihilistic hypothesis and alternative hypothesis as follows:

- (H₀): External auditors in Egypt are not aware that the risks of auditing have increased with the electronic publication of financial reports.
- (H₁): External auditors in Egypt are aware that the risks of auditing have increased with the electronic publication of financial reports.

The variables that test this hypothesis as represented in Table 6 are: The gathering of information on the client, the nature of the client's activity, the type of industry and the understanding of its operations are important for assessing the inherent risks (X_{1-1}), it is important to check the control measures in place to

protect against malware that can steal customers' information or bank account numbers (X_{1-2}), with e-commerce, new risks are emerging, such as the risk of relying on inaccurate software or data faulty operation (X_{1-3}), the high dependency of accounting information systems on each other may increase control risks (X_{1-4}), weak internal control structure leads to high audit risk assessment (X_{1-5}), In order to be able to assess the control risk, the auditor must be familiar with general electronic censorship and application control of electronic systems (X_{1-6}), It is not necessary for the auditor to understand the means of information safety and security to judge internal control (X_{1-7}), the use of real-time information systems in the operation of financial statements may increase control risks (X_{1-8}). The average of all these variables was found in variable A1 and a t-test was conducted. The results of the test are shown in Table 7.

Table 7: the first hypothesis test

One-Sample Statistics					
	N	Mean	Std. Deviation	Std. Error Mean	
A1	126	3.7113	.88720	.07904	

One-Sample Test					
Test Value = 3.4					
t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
				Lower	Upper
3.939	125	.000	.31131	.1549	.4677

Source: SPSS outputs

Table 7 shows that the average score of auditors who believe that the audit risk under the electronic publishing of companies increases has reached 3.711, The level of significance calculated for the sample of auditors is (Sig. = 0.000) which is less than the acceptable level of significance ($\alpha = 0.05$), which means that the sample rejects the null hypothesis and accepts the alternative hypothesis that the external auditors in Egypt are aware of the increase in audit risks with the electronic publication of data.

8-6-2 The results of the second hypothesis test

To test this hypothesis, the researchers will rely on a Paired Samples t Test, where the Paired Samples T-Test compares the means of two measurements

taken from the same individual, object, or related units. These "paired" measurements can represent things like: A measurement taken at two different times (e.g., pre-test and post-test score with an intervention administered between the two time points). The null hypothesis and the alternative hypothesis can be formulated as follows:

- (H₀): There is no significant difference in the perception of external auditors in Egypt about the increase in audit risks by electronic publication of financial reports between the period before the Corona Virus pandemic and during the Corona Virus pandemic.
- (H₂): There is a significant difference in the perception of external auditors in Egypt about the increase in audit risks by electronic publication of financial reports between the period before the Corona Virus pandemic and during the Corona Virus pandemic.

The variables that test this hypothesis are represented in two sets of variables, the first group includes the variables X₁₋₁, X₁₋₂, X₁₋₃, X₁₋₄, X₁₋₅, X₁₋₆, X₁₋₇, X₁₋₈ which are shown in table 6, and the arithmetic mean of them was found in the new variable A1, while the second group includes the variables X₂₋₁, X₂₋₂, X₂₋₃, X₂₋₄, X₂₋₅, X₂₋₆, X₂₋₇, X₂₋₈ which are shown in table 6, and the arithmetic mean was calculated for it in the new variable A4. The results of the statistical test are clear in table 8.

Table 8: the second hypothesis test

Paired Samples Correlations

	Mean	N	Std. Deviation	Std. Error Mean
A4	3.7113	126	.88720	.07904
A1	3.3988	126	.74410	.06629

Paired Samples Correlations

	N	Correlation	Sig.	Mean	Std. Deviation
Pair 1 A4 & A1	126	.695	.000	3.1250	.65053

Source: SPSS outputs

Table 8 shows the results of the Paired Samples T- Test used to find out the existence of substantial differences between the sample members before and during the outbreak of the Corona pandemic, the results indicate that the level of significance calculated for the sample of auditors is (Sig. = 0.000), which is less than the acceptable level of significance ($\alpha = 0.05$), which means that the study sample rejects the null hypothesis and supports the alternative hypothesis that there are fundamental differences regarding the increase in the degree of audit risk considering the electronic publication of data in light of the outbreak of the Corona pandemic. Wilcoxon Signed Ranks Test can also be used to compare two related samples, matched samples, or to conduct a paired difference test of repeated measurements on a single sample to assess whether their population mean ranks differ. The result of this test according to the opinion of the participants in the study sample is shown in Table 9.

Table 9: Wilcoxon Signed Ranks Test

		N	Mean Rank	Std. Deviation	Sum of Ranks
A1- A4	Negative Ranks	24 ^a	43.44	.74410	1042.50
	Positive Ranks	75 ^b	52.10	.88720	3907.50
	Ties	27 ^c			
	Total	126			

Asymp. Sig. (2-tailed) = .000 Z= -5.006^b

Source: SPSS outputs

Table 9 shows the results of Wilcoxon Signed Ranks Test, the results indicate that the mean in the first case before corona is equal to 52.10 with a standard deviation .88720, and the mean in the second case during corona is equal to 43.44 with a standard deviation .88720, and it also shows that the positive ranks are 75 cases, while the negative ranks are 24 cases and the relationships in which are equal opinions between the pre-test and the post-test are 27 cases. The results of the Wilcoxon Signed Ranks Test agree with the Paired Samples T-Test in that the level of significance (Sig. = 0.000), is less than the acceptable level of significance ($\alpha = 0.05$), and therefore we reject the null hypothesis and accept the alternative hypothesis that states the difference in the opinion of the sample

regarding the risk auditing in light of electronic publishing during the Corona pandemic.

8-6-3 The results of the third hypothesis test

To test the validity of the third hypothesis, an analysis of the responses of the external auditors in Egypt was conducted based on their perceptions of whether applying continuous auditing to online financial reports reduces audit risk. This hypothesis was formulated for statistical testing in the form of nihilistic hypothesis and alternative hypothesis as follows:

- (H₀): External auditors in Egypt are not aware that applying the continuous auditing to online financial reports reduce the risks of auditing.
- (H₃): External auditors in Egypt are aware that applying the continuous auditing to online financial reports reduce the risks of auditing.

The variables that test this hypothesis as represented in Table 6 are: Weak internal control structure leads to high audit risk assessment (X₁₋₉), to be able to assess the risks of censorship, the auditor must be familiar with general electronic censorship and application control of electronic systems (X₁₋₁₀), The application of continuous audit reduces audit risks through comprehensive auditing and not relying on the sample (X₁₋₁₁), The application of continuous audit does not affect the control risks in the event of gaps in the electronic control structure (X₁₋₁₂), The application of continuous audit reduces the risk of electronic disclosure (X₁₋₁₃), The application of continuous audit reduces the time between the occurrence of the event under review and its verification, which helps speed the detection of any deviations (X₁₋₁₄). The average of all these variables was found in variable A2 and a t-test was conducted. The results of the test are shown in Table 10.

Table 10: the third hypothesis test

	N	One-Sample Statistics		Std. Error Mean
		Mean	Std. Deviation	
A2	126	3.4325	.82951	.07390

One-Sample Test					
Test Value = 3.4					
t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
				Lower	Upper
2.266	125	.025	.16746	.0212	.3137

Source: SPSS outputs

Table 10 shows that the average score of auditors who believe that the applying of continuous auditing to online financial reports reduce the risk auditing has reached 3.432, The level of significance calculated for the sample of auditors is (Sig. = 0.025) which is less than the acceptable level of significance ($\alpha = 0.05$), which means that the sample rejects the null hypothesis and accepts the alternative hypothesis that the external auditors in Egypt are aware that applying the continuous auditing to online financial reports reduce the risks of auditing.

8-6-4 The results of the fourth hypothesis test

The researchers will rely on a Paired Samples T- Test, to test the validity of the fourth hypothesis. The null hypothesis and the alternative hypothesis can be formulated as follows:

- (H₀): There is no significant difference in the perception of external auditors in Egypt about the role of continuous auditing in reducing the risks of auditing between the period before the coronavirus pandemic and during the coronavirus pandemic.
- (H₄): There is a significant difference in the perception of external auditors in Egypt about the role of continuous auditing in reducing the risks of auditing between the period before the coronavirus pandemic and during the coronavirus pandemic.

The variables that test this hypothesis are represented in two sets of variables, the first group includes the variables X_{1-9} , X_{1-10} , X_{1-11} , X_{1-12} , X_{1-13} , X_{1-14} which are shown in table 6, and the arithmetic mean of them was found in the new variable A2, while the second group includes the variables X_{2-9} , X_{2-10} , X_{2-11} , X_{2-12} , X_{2-13} , X_{2-14} which are shown in table 6, and the arithmetic mean was calculated for it in the new variable A5. The results of the statistical test are clear in table 11.

Table 11: the fourth hypothesis test

Paired Samples Correlations						
		Mean	N	Std. Deviation	Std. Error Mean	
A5		3.7113	126	.88720	.07904	
A2		3.3988	126	.74410	.06629	

Paired Samples Correlations						
		N	Correlation	Sig.	Mean	Std. Deviation
Pair 1	A5 & A2	126	.695	.000	3.1250	.65053

Source: SPSS outputs

Table 11 shows the results of the Paired Samples T- Test used to find out the existence of substantial differences between the sample members before and during the outbreak of the Corona pandemic. The level of significance calculated for the sample of auditors is (Sig. = 0.000), which is less than the acceptable level of significance ($\alpha = 0.05$), which means that the study sample rejects the null hypothesis and supports the alternative hypothesis that there are fundamental differences regarding the role of continuous auditing in reducing the risks of auditing between the period before the coronavirus pandemic and during the coronavirus pandemic. Wilcoxon Signed Ranks Test can also be used and the result of this test according to the opinion of the participants in the study sample is shown in Table 12.

Table 12: Wilcoxon Signed Ranks Test

	N	Mean Rank	Std. Deviation	Sum of Ranks
A2 – A5 Negative Ranks	33 ^a	42.64	.82951	1407.00
Positive Ranks	72 ^b	57.75	.83449	4158.00
Ties	21 ^c			
Total	126			

Asymp. Sig. (2-tailed) = .000 Z = -4.411^b

Source: SPSS outputs

Table 12 shows the results of Wilcoxon Signed Ranks Test, the results indicate that the mean in the first case before corona is equal to 42.64 with a standard deviation .82951, and the mean in the second case during corona is equal to 57.75 with a standard deviation .83449, and it also shows that the positive ranks are 72 cases, while the negative ranks are 33 cases and the relationships in which are equal opinions between the pre-test and the post-test are 21 cases. The results of the Wilcoxon Signed Ranks Test agree with the Paired Samples t Test in that the level of significance (Sig. = 0.000), is less than the acceptable level of significance ($\alpha = 0.05$), and therefore the study sample reject the null hypothesis and accept the alternative hypothesis that states the difference in the opinion of the sample regarding the role of continuous auditing in reducing the risk auditing in light of electronic publishing during the Corona pandemic.

8-6-5 The results of the fifth hypothesis test

To test the validity of the fifth hypothesis, the responses of the external auditors in Egypt were analyzed about the extent to which they perceive that their experience in dealing with information technology is one of the important determinants of the application of continuous auditing. This hypothesis was formulated for statistical testing in the form of nihilistic hypothesis and alternative hypothesis as follows:

- (Ho): External auditors in Egypt are not aware that auditors' experience in dealing with information technology is an important determinant of the application of continuous auditing.

- (H₅): External auditors in Egypt are aware that auditors' experience in dealing with information technology is an important determinant of the application of continuous auditing.

The variables that test this hypothesis as represented in Table 6 are: It is necessary to train auditors in information technology and electronic software (X₁₋₁₅), auditors should be trained in the design and analysis of system flow maps and the detection of defect areas (X₁₋₁₆), The importance of examining the effects of real-time information systems on the planning of the audit process (X₁₋₁₇), The importance of studying the effects of instant information systems in the form of audit guides and how to obtain them (X₁₋₁₈), The importance of studying the effects of real-time information systems on how to perform detailed tests of operations and assets. (X₁₋₁₉), The importance of auditors to programming languages in general (X₁₋₂₀), The importance of identifying the various means of information control, their operating programs, information protection systems and software maintenance (X₁₋₂₁). The average of all these variables was found in variable A3 and a t-test was conducted. The results of the test are shown in Table 13.

Table 13: the fifth hypothesis test

One-Sample Statistics				
	N	Mean	Std. Deviation	Std. Error Mean
A3	126	3.8605	1.05466	.09396

One-Sample Test					
Test Value = 3.4					
t	df	Sig. (2-tailed)	Mean Dif- ference	95% Confidence Interval of the Difference	
				Lower	Upper
2.773	125	.006	.26054	.0746	.4465

Source: SPSS outputs

Table 13 shows that the average number of auditors who realize the importance of information technology experience when applying the continuous auditing has reached 3.8605, and the level of significance was (Sig. = 0.006),

which is less than the acceptable level of significance ($\alpha = 0.05$), which means that the sample rejects the null hypothesis and accepts the alternative hypothesis that the external auditors in Egypt are aware about the experience and knowledge of information technology and it is necessary to implement continuous auditing when auditing financial reports online.

8-6-6 The results of the sixth hypothesis test

The researchers will rely on a Paired Samples T- Test, to test the validity of the sixth hypothesis. The null hypothesis and the alternative hypothesis can be formulated as follows:

- (H₀): There is no significant difference in the perception of external auditors in Egypt about the importance of the auditors' experience in information technology to apply continuous auditing efficiently between the period before the coronavirus pandemic and during the coronavirus pandemic.
- (H₆): There is a significant difference in the perception of external auditors in Egypt about the importance of the auditors' experience in information technology to apply continuous auditing efficiently between the period before the coronavirus pandemic and during the coronavirus pandemic.

The variables that test this hypothesis are represented in two sets of variables, the first group includes the variables X_{1-15} , X_{1-16} , X_{1-17} , X_{1-18} , X_{1-19} , X_{1-20} , X_{1-21} which are shown in table 6, and the arithmetic mean of them was found in the new variable A3, while the second group includes the variables X_{2-15} , X_{2-16} , X_{2-17} , X_{2-18} , X_{2-19} , X_{2-20} , X_{2-21} which are shown in table 6, and the arithmetic mean was calculated for it in the new variable A6. The results of the statistical test are clear in table 14.

Table 14: the sixth hypothesis test

Paired Samples Correlations						
		Mean	N	Std. Deviation	Std. Error Mean	
A6		3.9286	126	.96227	.08573	
A3		3.3988	126	1.05466	.09396	

Paired Samples Correlations						
		N	Correlation	Sig.	Mean	Std. Deviation
Pair 1	A6& A3	126	.833	.000	.06803	.58991

Source: SPSS outputs

Table 14 shows the results of the Paired Samples T- Test used to find out the existence of substantial differences between the sample members before and during the outbreak of the Corona pandemic, the level of significance was (Sig. = 0.000), which is less than the acceptable level of significance ($\alpha = 0.05$), which means that the study sample rejects the null hypothesis and supports the alternative hypothesis that there are fundamental differences regarding the importance of the auditors' experience in information technology to apply continuous auditing efficiently between the period before the coronavirus pandemic and during the coronavirus pandemic. Wilcoxon Signed Ranks Test can also be used and the result of this test according to the opinion of the participants in the study sample is shown in Table 15.

Table 15: Wilcoxon Signed Ranks Test

		N	Mean Rank	Std. Deviation	Sum of Ranks
A3 – A6	Negative Ranks	39 ^a	36.73	1.05466	1432.50
	Positive Ranks	42 ^b	44.96	.96227	1888.50
	Ties	45 ^c			
	Total	126			

Asymp. Sig. (2-tailed) = .281

Z = -1.078^b

Source: SPSS outputs

Table 15 shows the results of Wilcoxon Signed Ranks Test, the results indicate that the mean in the first case before corona is equal to 36.73 with a standard deviation 1.05466, and the mean in the second case during corona is equal to 44.96 with a standard deviation .96227, and it also shows that the positive ranks are 42 cases, while the negative ranks are 39 cases and the

relationships in which are equal opinions between the pre-test and the post-test are 45 cases. The results of the Wilcoxon Signed Ranks Test disagree with the Paired Samples T- Test where the level of significance (Sig. = 0.281), is great than the acceptable level of significance ($\alpha = 0.05$), and therefore the study sample accept the null hypothesis and reject the alternative hypothesis that states the difference in the opinion of the sample regarding the importance of the auditors' experience in information technology to apply continuous auditing efficiently between the period before the coronavirus pandemic and during the coronavirus pandemic. This difference between the results of the two tests may be due to the large sample size.

9- Conclusions and Recommendations

9-1 Conclusion

From those results it can be concluded that:

- The acceptance of the three hypotheses 1, 3 and 5 covers the period before the Coronavirus pandemic, as it has been confirmed that external auditors in Egypt are aware of the high risk of auditing arising from the electronic publication of financial reports, and the importance of applying continuous auditing in this type of client to reduce the risks of auditing. Also, one of the determinants of the success of the application of the continuous auditing is the degree of training and experience of the auditor in dealing with information technology.
- The acceptance of the three hypotheses 2, 4 and 6 covers the period during the coronavirus pandemic, as it has been proved that there is a fundamental difference in the awareness of external auditors in Egypt regarding the risks of auditing arising from the electronic publication of financial reports, and the importance of applying continuous auditing in this type of client to reduce the risks of auditing, and also in considering the degree of training and experience of the auditor in dealing with information technology as one of the determinants of the success of the application of continuous auditing, as their awareness have increased with the increasing risks arising from the pandemic.

- The determinants of universalization of the results of the study are related to the determinants of the empirical study, therefore any variables not included in the study may affect the generalizability of the results and this study was conducted in a single country.
- The experience and ability of the external auditor to deal with information technology is not the only factor in the success of the continuous auditing application, which requires an integrated system of linking the client information system to the audit system in the audit office. The lack of technological expertise among auditors does not prevent the application of continuous audit, as the audit process can be supported by experts in this field to be part of an auditing team.

9-2 Recommendations

- Increasing the use of continuous auditing by both corporate management through the internal audit department (IIA) or using it in audit offices is primarily to review electronically published financial reports as they have multiple advantages in increasing reliability of electronically published reports and thus reducing audit risks.
- Education and continuing training for auditors in Egypt on information technology so that the external auditor is qualified scientifically in both accounting and auditing as well as information technology.
- Introduce cutting-edge audit methods and work on their performance to address different types of audit risks, especially those linked to the coronavirus pandemic.

10- Areas of future research

In light of the research findings reached, the two researchers suggest that the research be continued in the following areas:

- The impact of applying continuous auditing for risk management in Egyptian banks.

- Challenges facing the application of continuous auditing in the Egyptian environment, either through internal audit or external auditing.
- Supporting the credibility of financial statements by applying continuous auditing by internal auditing.

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Appendix No.(1)

Experimental Study

We request your views on the questions contained in the Experimental Study **"Auditors' perceptions of the continuous auditing role in mitigating audit risks in Egypt during the Corona pandemic –An Experimental Investigation."**

Your Excellency's views will only be used for scientific research purposes in this study and will be fully confidential.

Important definitions

–What is continuous auditing?

A methodology whereby an independent auditor can provide written assurance on a matter using a series of reports issued simultaneously, or within a short period of time after the main events relating to the matter have taken place. This means an external audit of the auditor's ability to confirm the information contained in the financial statements and to issue reports directly or shortly after the events have taken place, on a continuous basis, to meet the needs of the decision-users, by publishing such reports via the Internet.

What distinguishes continuous auditing from traditional auditing is that it helps reduce the cost of performing audits by enabling the auditor to use a large sample of transactions and data in a more efficient and faster way than other auditing methods. However, the accepted auditing standards are still binding on the auditor at all stages and continuous auditing procedures, as is the case with traditional auditing. Continuous review enables the auditor to gather the best evidence in the absence of a review process, and helps develop the control systems by clarifying their weaknesses and making suggestions to management to amend them.

–Risks of electronic publication of financial reports:

Electronic publishing of financial reports on a company website is often associated with numerous threats or risks related to the integrity of published information or the possibility of it being altered or manipulated by unauthorized

individuals, the link between reviewed and other unaudited information, or the republication of updated without audit information.

First: General data

1- Scientific qualification:

Bachelor's degree ()

Postgraduate:

Diploma () Master () PhD () Other ()

2. Current Job: Partner in the Audit Office () Audit Manager () First Auditor ()

Under Training Auditor () another

3- Practical career experience:

Less than 3 years () 3 to 5 years ()

5 to 10 years () More than 10 years ()

4- Have you received specialized courses in the use of computer software (information technology): Yes () No ()

Second, the survey questions

The first case (before the Corona pandemic)

One company (X), a joint stock company in the electronic commerce of computer equipment, requested a contract with your office in 2019 for the purpose of expressing professional opinion on the accuracy and fairness of its financial statements, which are published electronically, and it relies on an online information system that is characterized by the disappearance of ordinary paper documents and books, and the data files are updated automatically with each new financial operation.

General Company Information:

Established three years ago with no physical headquarters to operate through its website, its shares in the Egyptian capital market began to circulate one year after its inception. A former reviewer reviewed its financial lists, and its review reports contained a clean opinion that does not include any reservations.

The credibility of the preparation of the annual financial statements is a management responsibility and depends on the reliability of the IT system, which is able to operate without physical error or disruption during a specific period. To this end, it has adopted an internal control system, which includes policies and procedures for the protection of the security and integrity of the information and its immediate operating system, helps in the production and dissemination of financial information and immediate financial exception reports free from material distortions, and safeguards the privacy of the company's customers.

There is an internal audit section under the board of directors in the company's organizational structure, which issues periodic reports to the audit committee and the board of directors and adopts a flexible and continuous plan in managing risks and improving the company's operations.

The company's management allows the external auditor to take all measures he deems appropriate to collect electronic evidence in a timely manner. The internal audit department also provides the required audit reports on oversight and risk management. The five-member review committee is responsible for coordination between the external auditor and the internal audit department.

yes or no Questions to answer:

- 1- Refusal to contract company S due to the lack of auditors trained to use computer software for continuous review. Yes (), No ().
- 2- Accept the contract with company X despite the lack of auditors trained to use software in conducting continuous review with the help of experts capable of designing and running continuous review programs. Yes (), No ().
- 3- Acceptance of the contract with company X, despite the lack of auditors trained in the use of computer software and the application of final electronic audit with ready-made audit programs. Yes (), No ().

	Strongly agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)
1- The gathering of information on the client, the nature of the client's activity, the type of industry and the understanding of its operations are important for assessing the inherent risks.					
2- It is important to check the control measures in place to protect against malware that can steal customers' information or bank account numbers.					
3- With e-commerce, new risks are emerging, such as the risk of relying on inaccurate software or data faulty operation, the risk of misuse of the information infrastructure by others, the risk of harmful access to the company's website, and the risk of data loss. These effects may increase the level of risk inherent.					
4- The use of real-time information systems in the operation of financial statements results in a significant overlap of business transactions, and the high dependency of accounting information systems on each other may increase control risks.					
5- Weak internal control structure leads to high audit risk assessment.					
6- In order to be able to assess the control risk, the auditor must be familiar with general elec-					

<p>tronic censorship and application control of electronic systems.</p> <p>7- It is not necessary for the auditor to understand the means of information safety and security, the means of documenting electroniccommerce transactions, and the tools of internal control policies by protecting the company's website to judge internal control.</p> <p>8- The use of real-time information systems in the operation of financial statements results in a significant overlap of business transactions, and the high dependency of accounting information systems on each other may increase control risks.</p> <p>9- Weak internal control structure leads to high audit risk assessment.</p> <p>10-To be able to assess the risks of censorship, the auditor must be familiar with general electronic censorship and application control of electronic systems.</p> <p>11-The application of continuous audit reduces audit risks through comprehensive auditing and not relying on the sample.</p> <p>12-The application of continuous audit does not affect the control risks in the event of gaps in the electronic control structure.</p>					
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<p>13-The application of continuous audit reduces the risk of electronic disclosure</p> <p>14-The application of continuous audit reduces the time between the occurrence of the event under review and its verification, which helps speed the detection of any deviations.</p> <p>15-It is necessary to train auditors in information technology and electronic software.</p> <p>16- auditors should be trained in the design and analysis of system flow maps and the detection of defect areas.</p> <p>17- The importance of examining the effects of real-time information systems on the planning of the audit process.</p> <p>18- The importance of studying the effects of instant information systems in the form of audit guides and how to obtain them.</p> <p>19- The importance of studying the effects of real-time information systems on how to perform detailed tests of operations and assets.</p> <p>20- The importance of auditors to programming languages in general.</p> <p>21- The importance of identifying the various means of information control, their operating programs, information protection systems and software maintenance.</p>					
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The second case (during the Corona pandemic)

The company (X), a joint stock company in the electronic commerce of computer equipment, requested a contract with your office in 2021 for the purpose of expressing professional opinion on the accuracy and fairness of its financial statements, which are published electronically, and it relies on an online information system that is characterized by the disappearance of ordinary paper documents and books, and the data files are updated automatically with each new financial operation.

General Company Information:

Established three years ago with no physical headquarters to operate through its website, its shares in the Egyptian capital market began to circulate one year after its inception. A former reviewer reviewed its financial lists, and its review reports contained a clean opinion that does not include any reservations.

The credibility of the preparation of the annual financial statements is a management responsibility and depends on the reliability of the IT system, which is able to operate without physical error or disruption during a specific period. To this end, it has adopted an internal control system, which includes policies and procedures for the protection of the security and integrity of the information and its immediate operating system, helps in the production and dissemination of financial information and immediate financial exception reports free from material distortions, and safeguards the privacy of the company's customers.

There is an internal audit section under the board of directors in the company's organizational structure, which issues periodic reports to the audit committee and the board of directors and adopts a flexible and continuous plan in managing risks and improving the company's operations.

The company's management allows the external auditor to take all measures he deems appropriate to collect electronic evidence in a timely manner. The internal audit department also provides the required audit reports on oversight and risk management. The five-member review committee is responsible for coordination between the external auditor and the internal audit department.

Questions to answer yes or no:

1. Refusal to contract company S due to the high risk of review in the context of the coronavirus pandemic. Yes (), No ()
2. Accept the contract with company X with the application of the continuous review, through which the risks of review under the coronavirus pandemic can be reduced to an acceptable level. Yes (), No ()

	Strongly agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)
1. Auditors need to assess and balance the risks associated with non-traditional operating patterns such as telecommuting during the coronavirus pandemic.					
2. It is important to verify the control measures in place to protect against malware that can steal customers' information or bank account numbers, which have increased with the coronavirus pandemic.					
3. High risks of electronic publication of financial lists during the coronavirus pandemic with the possibility of distorting and changing data.					
4. Working remotely during the COVID-19 pandemic will not affect the control risks associated with information security risks.					
5. The high of deduction risks in the context of the coronavirus pandemic due to the different procedures for obtaining evidence concerning elements of relative importance.					

<p>6. There is no need to evaluate the company's disclosure of the effects of the coronavirus pandemic on the company's continuity, intangible asset values or accounting estimates.</p> <p>7. It is not necessary to verify the disclosure of liquidity, credit risk, interest rate risk and risk of fluctuations in exchange rates and foreign currencies, despite their increase with the coronavirus pandemic.</p> <p>8. During the COVID-19 pandemic, the evaluation of the risk management plan implemented by the management becomes important and necessary to reduce the control risk.</p> <p>9. The application of continuous auditing of electronically published financial reports has become the safe way to reduce audit risks by controlling deduction risks.</p> <p>10. The application of continuous auditing reduces inherent risks by reducing the risks of operation with new elements in the electronic data operation environment in the context of the coronavirus pandemic.</p> <p>11. The application of continuous auditing reduces the risk of review during the COVID-19 pandemic through comprehensive auditing and non-reliance on the sample.</p> <p>12. The implementation of the continuous auditing will reduce the control risks and suggest improvements</p>					
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<p>in the event of gaps in the electronic control structure, especially in light of the coronavirus pandemic.</p> <p>13. The application of continuous auditing does not affect the risks of electronic disclosure of increased information during the coronavirus pandemic.</p> <p>14. The application of continuous auditing reduces the time between the occurrence of the event under audit and its verification, which helps speed the detection of any deviations in light of the coronavirus pandemic.</p> <p>15. There has been increased interest in training auditors in information technology tools and electronic programs during the coronavirus pandemic.</p> <p>16. Increased attention has been given to training auditors in the design and analysis of system flow maps and detection of defect areas during the coronavirus pandemic.</p> <p>17. The importance of studying the effects of instant information systems on the planning of the audit process during the coronavirus pandemic.</p> <p>18. Increase the importance of studying the effects of instant information systems in the form of audited evidence and how to obtain them during the coronavirus pandemic.</p> <p>19. To increase the importance of studying the effects of</p>					
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<p>instant information systems on how to perform detailed tests of operations and stocks during the coronavirus pandemic.</p>					
<p>20. Increase the importance of auditor knowledge in programming languages in general during the COVID-19 pandemic.</p>					
<p>21. Increase the importance of identifying the various means of information control, their operating programs, information protection systems and program maintenance during the coronavirus pandemic</p>					