

# Key Audit Matters and Auditing Quality in the Era of COVID-19 Pandemic: The Case of Jordan

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## Abstract

**Purpose** – This testimony aims to investigate the moderating effect of the Covid-19 epidemic on the relationship between key audit matter (KAM) and auditing quality.

**Design/methodology/approach** – We utilize the Ordinary Least Squares regression on data from 942 firm-year observations of Jordanian non-financial institutions across the period (2017–2022) to test our hypotheses. We use content analysis method to measure levels of KAM disclosure.

**Findings** – The investigation's findings highlight the importance of KAM disclosure in achieving audit quality in line with international standard on auditing no.701 (ISA-701) requirements. Covid-19 is also found to have a positive relationship with audit quality, further confirming the crisis's devastating impact on audit complexity and risks and providing evidence for the need for supplementary, high-quality audit services. Due to the correlation between KAM disclosure and increased auditor workload and responsibility, the analysis reveals that the Covid-19 factor strengthens the link between KAM disclosure and audit quality.

**Implication** – This study has the potential to be used as a basis for the creation of a new regulation or standard regarding the reporting of unfavourable events in financial filings. This study's findings provide standard-setters, regulators and policymakers with current empirical data on the effects of implementing ISA-701's mandate for external auditors to provide more information on KAM. The Covid-19 crisis offers a suitable setting in which to examine the value of precautionary disclosures in times of economic uncertainty, as well as the significance of confidence interval disclosures and the role of external auditing in calming investor fears. This analysis is helpful for stakeholders, regulatory agencies, standard-setters, and readers of audit reports who are curious about the current state of KAM disclosures and the implementation of ISA-701. The results may have ramifications for academia in the form of a call for more evidence expanding this data to other burgeoning fields to have a clear explanation of the real impact of reporting KAM on audit practices.

**Originality/value** – To the authors' awareness, this research is one of the few empirical studies on the effect of the Covid-19 crisis on auditing procedures, and more specifically, the effect of disclosures on KAM by external auditors on audit quality. This study's findings represent preliminary scientific evidence linking the pandemic to business performance. Minimal research has been done on how auditors in developing nations react to pandemic investor protection and how auditors' enlarged reporting responsibilities affect them. The vast majority of auditing studies have been conducted in a

highly regulated system, so this research contributes by examining audit behavior in a weak legal context.

**Keywords** Covid-19, audit quality, Key audit matters, IAS-701, Middle East, Jordan.

**Paper type** Research paper

## 1. Introduction

We use data from Jordan to examine whether the coronavirus acts as a moderator between Key Audit Matters (KAM) and audit quality (as defined by audit fees). Jordan's stock market correlation testing stands out for a number of reasons (Alharasis, 2023; Alkhwalid and Abdulmuhsin, 2022). To begin, Jordan was an early adopter of the so-called "International Accounting and Auditing Standards (IAAS)". Second, Jordan's open economy policy encourages participation in the country's capital market from both Arab and non-Arab nations (Al-Htaybat et al., 2011). In addition, Jordan's free market privatisation policy and international economic ties coincide with the "European Union (EU)" and the "World Trade Organisation (WTO)" (Tahat et al., 2018; Al-Okaily et al., 2022a), which both support extensive research into emerging countries. Finally, unlike in every other Arab nation, public companies in Jordan are required to disclose audit costs in their annual reports (Tahat et al., 2018). Most importantly, in the fifth place, Covid-19 destroyed the meagre Jordanian economy. According to a report from the Amman Stock Exchange (ASE) in 2020, the "World Bank (WB)" predicted that Jordan's GDP would decrease by 1.5% by the third quarter due to a drop in tourism (Kharabsheh et al., 2022). The next part of this examination looks at how the crisis influenced audit standards in Jordan. It reveals whether or not audits and financial data have been removed, and how independent auditors protect business accounting data during times of turbulence. Validating company operating performance through the KAM and audit fees provides stakeholders with the information they need to make well-informed financial choices.

Covid-19 extended from Wuhan, China, to the rest of the world in late 2019 and early 2020. The pandemic was one of the worst natural disasters in history, causing unprecedented devastation (Mehnaz et al., 2022). According to recent studies (Alharasis, 2023), the world economy was hit the most by the Covid-19 pandemic compared to previous pandemics (such as SARS, Ebola, and the Spanish Flu). GDP growth slowed across the board, inflation spiked, and unemployment rates skyrocketed in both industrialized and developing countries. As a result of the outbreak, investors became more wary and risk-averse as a result of the market's volatility (Barro et al., 2020). Since the Global Financial Crisis (GFC), Covid-19 has become the greatest challenge for accountancy, auditing, and their clients (Albitar et al., 2020). As a result of the crisis, there have been requests for improved financial reporting quality, audit efficiency, integrity, and transparency (Alharasis et al., 2022).

Covid-19's recent collapse exposed risk characteristics of audit customers, which increased the financial risk of clients and imposed significant expectations on accountants and auditors to find alternate ways to get financial data and complete the assignment. As a result of Covid-19, governments instituted social isolation, lockdowns, shutdowns, and quarantines, all of which had significant effects on audit costs, audit compensation for employees, audit procedures, and the ability to plan for future evaluations without jeopardizing audit quality (Albitar et al., 2020). External auditors tried to keep in touch with clients by working from home during the Covid-19 disaster. Companies that have spent a lot on things like network security, blockchain, artificial intelligence, and data function systems should be audited (Haṭegan et al., 2022).

In response to the crisis's impact on audit quality, the "International Auditing and Assurance Standards Board (IAASB)" updated the International Standards on Auditing (ISA) with new suggestions for auditors' duties. Since the end of 2018, a footnote explaining the impact of ISA 560 "Subsequent Events" on the financial statements has been needed. Users benefited from this transparency since it illuminated the true extent to which the crisis had affected their operations. The auditor is also expected to comment on how Covid-19 affects business operations as required by ISA 701, "Disclosure of Key Audit Issues in the Independent Auditor's Report," which was finalized in late 2016. (Hay et al., 2021). Following the crisis, the Covid-19 auditor's report identified critical audit matters (KAM) (CEAOB, 2020; Hategan et al., 2022). Finally, audit standards presume that auditors are responsible for identifying and recording in the financial statements any events that potentially have a material impact on the organization (Hategan et al., 2022).

To better communicate with stakeholders, auditors were obligated by ISA-701 to include KAM in their reports. Deliberation (Minutti-Meza, 2021) and the power of words as measured by an audit report's communicative value (Seebeck and Kaya, 2021; Barghathi et al., 2021; Hategan et al., 2022) have both been explored in auditing communication research. This research looks into how auditors learned about the effects of the COVID-19 outbreak on businesses' financial records and how the revelation of these critical aspects impacted the quality of audits.

According to auditing literature, during the COVID-19 pandemic, most theoretical research focused on the audit profession, including predicted effects and potential treatments. The effects of Covid-19 on auditors in the EU

were studied by Hategan et al. (2022). Albitar et al. (2020) assessed the potential theoretical impact of COVID-19 on “auditing quality”, while Hay et al. (2021) examined pandemic audit difficulties and offered solutions for New Zealand.

Research on KAM has primarily examined factors affecting the amount of reported cases (Pinto et al., 2020; Sierra-García et al., 2019; Rousseau & Zehms, 2020; Abdelfattah et al., 2020) and the expanded auditor reporting legal implications of (Kachelmeier et al., 2020; Gimbar et al., 2016; Asbahr & Ruhnke, 2019). The quality of financial reports and the audit procedure during the COVID-19 outbreak were studied as KAM determinants. Various studies (Asbahr & Ruhnke, 2019; Ratzinger-Sakel & Theis, 2019; Baatwah et al., 2022; Fera et al., 2022; Kitiwong & Sarapaivanich, 2020; Pinto & Morais, 2019; Suttipun, 2021; Hategan et al., 2022) have focused on the relationship between KAM and various factors such as audit lag, tenure, fees, quality, financial distress, and size. This analysis has focused predominantly on highly developed economies, including the USA and the UK, with a few exceptions., with some outliers (Segal, 2019; Duboisee de Ricquebourg & Maroun, 2022; Kend & Nguyen, 2020; Bédard et al., 2019). Different regulatory, economic, and legal environments between developed and developing economies necessitate additional research on auditors' expanded reporting requirements in developing economies, which have been largely neglected by the academic community.

Therefore, the current examination aims to bridge the gap in the existing auditing literature shedding light on the consequences of the recent Covid-19 crisis regarding posing additional requirements and responsibilities on the audit profession disclosing the KAM following the recent requirement of ISA-701 and the impact of such newborn circumstances and expectations on “auditing quality” for the first time. This work is built on the request of further research by Osama and Mardini (2022) who called for a future study; first, utilising the econometric model to overcome the subjectivity of the qualitative analyses of prior research data. Second, investigating the connection between KAM in audit reports and elements of corporate governance (here, audit fees). The academics emphasised the paucity of studies conducted in this field, particularly in the Middle East (ME). Third, piloting KAM tests with information from a single low-income nation like Jordan. The academics agreed that more study was needed, particularly in the ME region, because KAM disclosure has received a lot of attention in recent years.

Furthermore, Abdullatif et al., (2022) called for future research to examine the impact of KAM on audit practises employing long periods which could enable superior analyses of multiple periods and economic circumstances, easing comparability between steady and troubled times.

Thus, unlike prior studies, our study adds to auditing knowledge in numerous ways. First, this research is the first to examine the impact of Covid-19 on the association among KAM disclosure and audit quality, and does so by investigating an emerging market economy, Jordan. Second, the current study objectively confirms the earlier presented models by evaluating a Jordanian sample over 18 years, from 2005 to 2022. This enables analyses of multiple periods and economic circumstances, easing comparability between steady and troubled times. Third, this study contains data from both the financial and non-financial industries, which provides unique information concerning the influence of COVID-19 on the audit profession across customers' portfolios.

This research uses the Ordinary Least Squares regression on data from 942 firm-year observations of Jordanian firms across the period (2017–2022) to test research hypotheses. It is confirmed that KAM disclosure plays a crucial role in improving “auditing quality” so that it can conform to ISA-70 standards. A positive association among Covid-19 and audit quality was discovered, validating the severe effects of the crisis on audit complexity and hazards and supporting the necessity of extra, high quality audit services. The analysis confirms that covid-19 factor strengthens the association among KAM disclosure and “auditing quality” as a result of the increase in KAM disclosure and auditor workload and responsibility. This analysis is helpful for stakeholders, regulatory agencies, standard-setters, and readers of audit reports who are curious about the current state of KAM disclosure and the implementation of ISA-701. The research results will be utilised to strengthen Jordan's auditing rules in the wake of Covid-19's devastation. Furthermore, the findings are generalizable to other ME countries.

The remainder of the study is structured as follows. The institutional setting is presented in Section 2. In Section 3, we look at the existing research and formulate some hypotheses. The research procedures and findings are detailed in Section 4. Part 5 shows the findings, Parts 6 and 7 include the additional analysis and robustness tests, and Part 8 offers a summary and final remarks.

## **2. Institutional Background**

### *2.1. ISA-701 development and importance*

The public's trust in the integrity and reliability of audited financial reports took a major hit during the recent financial crises, prompting a closer look at the auditor's report (Vanstraelen et al., 2012). As noted by Ecim et al. (2023), the auditor's report is used as a reliable reference by regulators and standard-setters in both developed and emerging nations. As a result, clients have started to question the value of audit findings that are based on the ISA. Numerous reviews and debates have been held about the conventional audit report. While there is some uniformity in the format of traditional audit reports, this does not make them any more useful to the reader (Carcello, 2012; Gold & Heilmann, 2019; IAASB, 2011). Due to the lack of detail in the typical auditor's report,

mistakes can be made in areas like as investment, resource allocation, litigation, and investor confidence in the audit process (Abdullatif & AIRahahleh, 2020). Additional disclosures regarding the audit and more details about the audit's conclusions, particularly about risk-related problems, are necessary for users of financial statements (Mock et al., 2013; Bédard et al., 2016). The focus of the audit report is on the auditing process itself rather than on the client (Abdullatif & AIRahahleh, 2020). Many have argued that the auditor's report needs to be significantly altered to address the knowledge contradictions between the traditional audit report and the details that stakeholders require in the accounting records (Gold & Heilmann, 2019).

The audit report and the audit opinion can now be trusted more than ever before thanks to a new reporting system developed by regulators and professional organisations. In response to the information gap between independent auditors and stakeholders, the "International Auditing and Assurance Standards Board (IAASB)" has introduced new auditing standards. The IAASB has issued many auditing standards to boost public confidence in the auditing industry. The new requirements for KAM were implemented in December 2016 under ISA-701. KAM defined by the IAASB as (IAASB, 2015):

*"those matters that, in the auditor's professional judgment, were of most significance in the audit of the financial statements of the current period."*

Incorporating these KAM allows the auditor to provide additional detail to stakeholders regarding matters they've identified as "important concerns, incidents, or hazards" or that require "professional judgements" (IAASB, 2015). Investors will be better able to focus on critical issues in financial statements as long as KAM is disclosed, which will increase the perceived value of the audit report (Sirois et al., 2018). Auditors are required to raise any problems they have with the financial statements' disclosures, according to ISA 701. The gap in expectations and "knowledge asymmetry" that contribute to the stakeholder "agency problem" may be reduced if KAM's activities are made public. Stakeholders in general may lack the experience and professional abilities to analyse financial statements, which is why ISA-701's primary purpose is to close the information gap by KAM disclosure. To that end, they're looking for an auditor to provide them with more actionable insights into key business issues.

In summary, the requirements of ISA-701 demonstrate that KAM was created with the intention of disclosing details about the nature of a KAM, the basis on which it is recognised as such, and the procedures followed by the audit firm in dealing with it that are relevant to both the business and the financial period. Significant issues that arose during an audit must be reported as KAM by audit firms, but this does not result in separate audit opinions on individual accounts or serve as a substitute for a qualified audit opinion where one is needed (IAASB, 2016). It is up to the audit firm to decide what issues to address and how many KAM to report, along with how much detail to convey regarding each KAM, in its report (Abdullatif et al., 2023), which gives the audit firm some flexibility when choosing what to mark as KAM and how to present the KAM information in accordance with the requirements of ISA 701.

## *2.2. Jordanian auditing environment and ISA-701 implementation*

Jordan has solid domestic and international ties. The World Bank reports that improvements in financial reporting and governance can be attributed to the country's culture and politics. Today's interconnected globe has resulted in an influx of international investment into Jordan. External audit reports are relied on by debtors, investors, and the Jordanian government. Financial records that have been audited are more trustworthy, which attracts more foreign investment and boosts economic growth. The government of Jordan has advocated for new regulations and laws to encourage foreign investment. "International Standards on Auditing (ISA)" are now required by all licensed Jordanian external auditors. Jordan's government has been working for years to strengthen the country's economy despite the country's lack of natural resources (Abdullatif & AIRahahleh, 2020). There were major shifts in the accounting industry after Jordan accepted IASC standards in 1988. The JACPA was established in 1989 as the professional organisation for certified public accountants in Jordan. The JACPA represents Jordan's auditing professionals. To prevent bias and maintain standards, JACPA sets a floor on how much can be charged by independent auditors. There is oversight of the external auditing industry by the "Anti-Corruption Commission (JACC)", the "Companies Control Department (CCD)", and the JSC. After consulting with IASC, JACPA implemented IAS in 1990. Audited financial statements are required for all companies that fall under the Companies Law (Tahat et al., 2018). The "Companies Law" of 1997 defined the rules for running a company in Jordan. The Jordan Securities Commission (JSC) mandates that all publicly traded firms comply with IFRS and ISA auditing criteria, as outlined in the "Securities Act No. 23" of 1998.

As of the 15th of December 2016, Jordanian audit companies were required to use ISA-701. Accordingly, the extended audit report required by ISA (including reporting on KAM) has been used in reporting on the audits of financial accounts of Jordanian public listed firms starting with the reports of audits produced in 2017 linked to financial statements with a December 31, 2016 year-end (Abdullatif & AIRahahleh, 2020). Similar to the IFRS framework, ISA-701 uses a principles-based approach to pinpointing KAM. collaborating with those accountable for governance is crucial for identifying the most important audit issues (IAASB, 2016).

The auditor looks at the risk of material misstatement, the presence of significant estimates and judgements, and any material incidents or activities that took place during the reporting period to determine if the matter reported to the governing body is also a KAM (IAASB, 2016). A separate part of the auditor's report details the discovered KAM for this procedure (IAASB, 2016). This should detail the steps taken to address each concern and why they were crucial to the audit's success (IAASB, 2016). There should be a clear statement in the audit report if there are no KAM to disclose (IAASB, 2016). The hazards assessment and response process is at the core of contemporary audit practise, and KAM is meant to direct users' attention to this process by highlighting its importance (IAASB, 2015). This strategy is put into action with the goal of giving customers easier access to reliable financial data (Tahat et al., 2018). Investors and other users will appreciate the massive improvement this represents in terms of access to valuable data. Users now have access to more than just the 'boilerplate' information formerly seen in auditor reports. Therefore, the standard was developed to boost confidence in the auditing procedure and the audit report's worth (Abdullatif & AlRahahleh, 2020).

Due to the generalizability of the results, Jordan is selected as a case study. Growth in accounting studies in the Middle East can be attributed to the region's commonalities in terms of history, government, language, and culture, as confirmed by (Tahat et al., 2018). Importantly, Jordan has been using IFRS/ISA for close to 30 years, so we can evaluate how Covid-19 modified the correlation between key auditing metrics and audit quality.

### **3. Theoretical background and the development of hypotheses**

#### *3.1. Theoretical framework*

This research investigates how Covid-19 moderates the association between KAM and audit quality using a triangulation of the agency, stakeholder, and signalling theories. Since there was so much uncertainty during the coronavirus outbreak, proponents of agency theory looked for reasons to clarify the anticipated "information asymmetry problem". Business was directly impacted by the massive precautionary measures taken in response to the Covid-19 epidemic, including factory closures, social isolation, border controls, and lockdowns (Amore et al., 2023). Society, investors, debtors, the local community, the banking sector, the state, and the workforce were all impacted by the subsequent economic instability. To accurately forecast the monetary implications of the epidemic and make appropriate decisions, all parties involved desire reliable disclosures (Shen et al., 2020). So, there have been decades of, and an increase in, calls to enlarge the audit report. Users have complained that the standard format for audit reports doesn't provide enough detail on the audited entity (Abdullatif & Al-Rahahleh, 2020; IAASB, 2015) and focuses too much on the auditors themselves rather than the auditees (Litjens et al., 2015).

Many organizations, including the "Public Company Accounting Oversight Board (PCAOB)" and the IAASB, have proposed revisions to the audit report that would require significantly more transparency to make it more relevant to consumers (Bédard et al., 2016). KAM's was a particularly important extra disclosure. This disclosure is unique in that the auditor has some liberty in how to phrase its contents to tailor the audit report to a certain organization. In conclusion, ISA-701 mandates that auditors, using their professional judgment, determine which matters conveyed to those responsible for governance are most material and pose the greatest risk to the audit (IAASB, 2016). By including such details, the audit report should be more useful for communicating the results of an audit and more transparent in general (Hegazy & Kamareldawla, 2021). Despite these advantages, some have raised concerns about the potential disadvantages of KAM reporting, including leaving too much to the auditor's judgement, diminishing the benefit gained through formulaic reporting, and raising the audit risk in terms of client confidentiality (Segal, 2019).

One of the most recent events is ISA-701, issued by the "International Auditing and Assurance Standards Board", which requires auditor reporting of KAM for fiscal years ending on or after December 15, 2016. During an audit of the current period's financial accounts, the auditor will provide special attention to the following areas: IAASB (2016) and Ecim et al. (2023) both back this up. KAM seeks to balance the playing field by disclosing more information to assist bridge the audit expectation gap (Segal, 2019). Users of financial statements benefit from knowing what problems were found and how they were fixed during an audit (Ozlanski, 2019; Kachelmeier et al., 2020; Christensen et al., 2014) because it helps them understand how audits are conducted and evaluate the risks associated with their investments.

Including KAM in an audit report improves its value, according to research by Bédard et al. (2016). Disclosure of KAMs reduces "information asymmetry", prevents conflicts of interest, and bridges the expectation gap; these benefits are consistent with agency and stakeholder theories. The agency believes that auditors should represent other stakeholders' interests in addition to the company's owners' (Hegazy & Kamareldawla, 2021). KAM disclosure allows auditors to offer information regarding management's actions in addition to the audit opinion on the financial accounts. More people have access to crucial data, and confidence in the system's dependability, thanks to the KAM discoveries. According to the stakeholder theory, companies can get into difficulty with different groups if they don't provide each of them the attention they need (Velte, 2020). Hill and Jones (1992) combined the agency-stakeholder theory with the behavioural agency theory to create a unified theory of agency.

The agency-stakeholder theory can be applied to understand how KAM reporting affects investment decisions (Suttipun, 2021) since KAM can reduce “information asymmetry” and settle clashes of interest between firms and their stakeholders. However, it is also obvious from the behavioural agency hypothesis that some interested parties may react negatively to learning about KAM. There are three primary considerations that make it crucial to identify the elements that influence the KAM total: To begin, increasing the range of KAM may increase the degree of complexity of the report of audit (Sirois et al., 2018). Second, KAM are visually appealing, but an abundance of them can be distracting (Li, 2017). Third, because KAM are more concise and reliable, users can rely on them when making financial choices (Christensen et al., 2014).

Based on the reviewed literature, it appears that KAM may help mitigate “information asymmetry” and shape investor behavior under specific circumstances (Ozlanski, 2019). In addition, KAM may bring to light extra risk concerns, limit the use of aggressive or unduly optimistic accounting assumptions, and boost the credibility of particular audit reports (Gold & Heilmann, 2019; Kachelmeier et al., 2020; Moroney et al., 2021; Reid et al., 2019).

KAM disclosure, in theory, improve audit process openness (Reid et al., 2019). Governance officials and other interested parties can benefit from this since they gain insight into the auditing process (ACCA, 2018). The use of KAM increases both the value and credibility of audits, especially for smaller auditing companies (Moroney et al., 2021). Management will be cognizant of material risk exposures and areas of financial reporting that call for discretion. Prudent decision-making, stronger implementation of financial controls, and more trustworthy investor reporting are all outcomes that should result from increased auditor monitoring (Asbahr & Ruhnke, 2019). Moreover, the auditor and those responsible for governance can have more fruitful conversations after KAM have been identified, which may improve “auditing quality” through a more methodical approach to detecting and responding to risks (Segal, 2019). Auditors should pay closer attention to making sure audit goals are effectively met and documented in light of the heightened stakeholder and public scrutiny of audit reports (Kachelmeier et al., 2020). As users of audit reports have a deeper comprehension of the audit process, the audit expectation gap may eventually narrow as a result (Ecim et al., 2023).

Furthermore, audit report literature suggests that disclosing KAM should enhance the integrity of the audit process in line with the interests of stakeholders (Ittonen & Peni, 2012; Mah'd & Mardini, 2022). The basic objective of an audit is to instil confidence in the financial accounts among users, as described by agency theory (Mah'd & Mardini, 2022). Official documents say that a better auditing standard can be achieved if the audit committee performs more monitoring and requires more comprehensive audit coverage (Schrader & Sun, 2019; Velte & Issa, 2019). The quality of stakeholders' own financial analysis and investment choices is enhanced when KAM is made public by auditors. In accordance with agency theory, “information asymmetry” can be reduced by improving the openness of financial reporting and auditing. According to agency and signaling theories, if the audit committee exercises more control and requires more thorough audit coverage, that will send a message that the audit is of a higher quality (Schrader & Sun, 2019). Because of this, it follows that increasing transparency in reporting should improve the quality of both financial reporting and audits.

Stakeholder theory and agency theory both analyze the tension between managers and shareholders (An et al., 2011). Stakeholder theory sums up the overarching purpose of more financial transparency, whereas signaling theory provides an excuse for making value judgments based on skewed accounting data during the crisis. Auditors are seen as a reliability device and monitoring instrument, which is supported by signaling theory. Agency theory is consistent with signaling theory and seeks to understand how shareholders are influenced by viewing asymmetric information (Alharasis, 2023). Such auditors, according to the signaling model, raise red flags regarding the integrity of the company's disclosure (Sangchan et al., 2020). To send positive signals to investors in the equity market, certain companies may decide to pay higher audit fees, as compensation for auditors' consumed time and effort doing the audit, to reach higher “auditing quality” (Huang et al., 2020). According to the stakeholder model, public statements made by businesses are a crucial tool for balancing the needs of various groups when making decisions on how to allocate resources. Stakeholder theory is an alternative to agency theory since it places managers under the responsibility of a wider range of stakeholders, rather than just the company itself. Stakeholder theory helps sharpen agency theory's focus in this way. As a result, top management should provide more comprehensive financial information to all interested parties so that everyone can make informed choices about how to allocate resources. As the latter does not rely on the concept of “information asymmetry”, the concepts of agency and stakeholders can be mixed (An et al., 2011).

To shed light on the significance of the recent audit requirements by the ISA and the importance of compliance with such requirements and close the gap in expectations between preparers and auditors, the current study aims to add new testimony to auditing literature by examining the impact of Covid-19 on KAM disclosure and audit quality. To better understand the consequences of the presence and reporting of KAM on “auditing quality” in one of the rising economies, Jordan. This analysis is the first to explore this topic in relation to the triangulation of the agency, stakeholder, and signaling theories.

### 3.2. Hypotheses development

The Covid-19 pandemic outbreak is a bad economic event because it precipitated a global economic recession (Alharasis, 2023). The Covid-19 outbreak has interrupted global economic activity, resulting in the closure of cities and nations. Governments in several countries have imposed limits on the mobility of their inhabitants, which has had a negative impact on corporate output and revenue. Covid-19 has a negative impact on business performance, as a result of which firm performance has suffered (Shen et al., 2020). This negative effect of the Covid-19 pandemic has altered the disclosure and reporting element. These procedures will be adjusted since a protracted stoppage of company activity will have an effect on the estimating and measurement processes of several financial statement components. In addition, numerous agreements and contracts created by commercial entities in the past will become questionable as a result of this detrimental effect. In light of these facts, there is a substantial amount of debate regarding the potential future reporting requirements for this Covid-19 disease outbreak period, during which there is a high probability of uncertainty regarding cumulative economic growth, commercial operations, future earnings, and numerous other factors directly related to financial statements. Professional accounting standard-setters and operating businesses have endeavored to give pertinent recommendations for financial reporting transparency in this uncertain era (KPMG, 2020). These guidelines guide financial statement preparers, auditors, and regulators (Al Lawati and Hussainey, 2022).

Users have alleged that during the crisis, auditors had a lot of issues to deal with, which could have compromised the quality of audits due to insufficient evidence, making it difficult to determine if a company was still in operation. After the crisis, the auditors' report on Covid-19 included KAM (CEAOB, 2020). Thus, the ISA had to provide fresh suggestions on auditors' responsibilities to combat the detrimental effects of the crisis on audit quality. Eventually, audit standards presume that auditors are responsible for identifying all events that potentially have a significant impact on a firm and including them in its financial statements (Hategan et al., 2022). Hence, the current study focuses for the first time on the influence of Covid-19 on "auditing quality" by assessing whether these new IAAS standards have contributed to a decrease or an increase in audit quality, and how external auditors in Jordan react to these new regulations during the uncertain Covid-19 era?

#### 3.2.1. KAM and audit quality

Previous studies have provided explanations for the link among KAM and audit quality using a variety of proxies (such as audit fees) and a number of seemingly conflicting justifications. One line of evidence from the developed markets (Barghathi et al., 2021; Nguyen & Kend, 2021; Pinto & Morais, 2019; Suttipun, 2021; Zeng et al., 2021) confirms a positive correlation between KAM and audit quality, attributing it to increased client risks and complexity as a result of auditors' responsibilities being expanded to meet new regulations. Clients with high financial distress indicators are more likely to be charged more expensive audit fees to compensate auditors for the additional time and effort consumed during the auditing process compared to the traditional auditing ones, as has been argued by Fera et al. (2022), and Elmarzouky et al. (2022a). Baatwah et al. (2022) used evidence from Omani enterprises to show that the same thing happened in underdeveloped countries (Al Lawati and Hussainey, 2022). Researchers in this field argued that reporting KAM does require substantial additional audit work, particularly when large increases in audit sample size are required for items connected to KAM. Additional efforts are typically justified by the auditor's need to provide evidence in support of the assertions made in the KAM section regarding the auditor's actions taken to address the KAM. Consequently, based on the theoretical arguments presented previously, the first hypothesis is posited as follows:

*Hypothesis 1 (H1): There is a positive correlation among KAM and auditing quality in publicly traded Jordanian companies.*

#### 3.2.2. COVID-19 and auditing quality

Remote work is feasible thanks to digital technology, which also reduce audit risk and enhance audit procedures, as stated by Hategan et al. (2022). Concerns for the auditing profession include charging reasonable rates, employing competent people, and providing valid audit opinions. Researchers have hypothesised that the financial performance, risk and liquidity of customers are positively correlated with economic conditions (Alharasis et al., 2022; Albitar et al., 2020), which in turn affects audit fees. Companies can default on lending agreements during economic downturns. Audousset-Coulier et al. (2016) suggest that auditors need to utilise alternative audit procedures and spend a greater amount of time avoiding "information asymmetry" and transmit accurate signals to stakeholders by examining fundamental concerns and expectations in order to deal with the increasing complexity, risk, and lender anxiety. As a result, auditors need to utilise a wider range of analytical tools to assess a company's financial health. Albitar et al. (2020) found that COVID-19 had an impact on the quality of auditing in a number of ways. For instance, external audit fees, procedures, and auditor compensation were all affected by social distance (Hategan et al., 2022). As a result of the growing popularity of remote auditing, Castka et al. (2020) report that audit firms are now conducting virtual audits using expensive and complex cutting-edge technology to obtain financial evidence and provide expertise for more adaptable client communications.

Alharasis et al. (2022) state that auditors were expected to spend a longer period on their work and charge greater costs during financial crises. According to research by Harjoto and Laksmana (2022), global audit costs and latency rose as a result of Covid-19 lockdowns and hospital limitations. Covid-19 proved devastating to the little Jordanian economy. The "World Bank (WB)" predicted a 1.5% drop in Jordan's GDP by the third quarter of 2020 due to losses in the tourism industry, according to information provided by the Amman Stock Exchange (ASE) (Kharabsheh et al., 2022). Al-Qadasi et al.'s (2022) study supports this idea by showing that audit fees, both regular and irregular, increased significantly in developing nations after the outbreak. This is the key function of external auditors in keeping the trustworthiness of business financial data during economic downturns, and it is also the means through which audits and accounting numbers have been manipulated. Stakeholders benefit from the money spent on audits since they give independent verification of the company's operational outcomes and hence lead to better decisions overall. Consequently, based on the theoretical arguments presented previously, the second hypothesis is posited as follows:

*Hypothesis 2 (H2): There is a positive correlation among COVID-19 and auditing quality in publicly traded Jordanian companies.*

### **3.2.3. The moderating role of COVID-19**

The Covid-19 catastrophe had a substantial impact on financial data preparers, auditors, and regulators, forcing them to innovate new approaches to delivering high-quality audit services (Alharasis, 2023). The effects of Covid-19 on the sector were discussed in a number of auditing-related papers, with the most attention paid to accounting estimates and going concern analyses (Hay et al., 2021). Digital auditing, an alternative audit process established by external auditors in response to social distancing/lockdown limits, offered huge challenges (Hategan et al., 2022). Covid-19 caused an increase in fraud risk and uncertainty as a result of auditing difficulties caused by the difficulty of validating the accuracy of clients' financial statistics (Hay et al., 2021). As a result, auditors now need to keep an eye on things like legal and financial ramifications, analyse regulations for employee mobility, provide tailored training for employees, up security technology, and keep track of rising costs (KPMG, 2020).

Itonen and Peni (2012) and Velte and Issa (2019) cite prior auditing literature stating that ISA-701 required KAM disclosure to enhance audit quality in line with stakeholder interests. Agency theory (Mah'd & Mardini, 2022; Elmarzouky et al., 2023b) states that the major objective of an audit is to instill confidence in the financial statements among users. According to agency literature (Schrader & Sun, 2019), a better-quality audit can be achieved when external auditors exercise more control and demand better audit coverage. The quality of stakeholders' own financial analysis and investment choices is enhanced when KAM is made public by auditors. According to agency theory, "information asymmetry" can be reduced by improving the openness of financial reporting and auditing. According to agency theory, if the auditor keeps a close eye on things and insists on thorough coverage, the audit will turn out better but will also cost more money to complete (Schrader & Sun, 2019). The more data that is made available to the public, the better the quality of financial reports and audits should be. Users of financial statements can benefit from KAM disclosure (Hategan et al., 2022). According to Zeng et al. (2021), the number of KAM and the way they are presented (in terms of topic similarity, clarity, and length of paragraphs) represent auditors' concerns about the quality of client profitability, audit work, and the probability of issuing a modified opinion. Consequently, based on the theoretical arguments presented previously, the third hypothesis is posited as follows:

*Hypothesis 3 (H3): There is a positive effect of COVID-19 factor on the correlation among KAM and auditing quality in publicly traded Jordanian companies.*

Our theoretical frameworks assume that the onus of identifying "agency problem"-related accounting info breaches falls on external auditors. The effectiveness of an audit depends in part on the auditor's ability to spot such infractions (Alharasis, 2023). This is the first study to our knowledge to use econometric models to investigate the potential impact of the Covid-19 outbreak on the relationship between KAM and audit quality in both developed and developing economies. It does so by analyzing data from 2005 to 2020 in Jordan, providing a 16-year test case for the existing models. With this newfound flexibility, researchers may compare the effects of economic instability and stability across many time periods and under varying economic conditions with greater precision. Here, fresh data on how Covid-19 has affected auditing firms with varying customer bases is offered.

## **4. Sampling and Data Collection**

### **4.1. The collection of data**

We obtained the data during the period 2017 – 2022 annual reports of Jordanian public listed companies available on the Amman Stock Exchange (ASE) website. We begin our analysis in 2017 as this is the first year that Jordanian enterprises requested KAM disclosures from external auditors using ISA-70. In addition, the analysis concludes in 2022 due to a lack of data for the years following 2022. Table 1 shows that out of the original sample



of 235 public companies, 157 remained after being eliminated due to missing data (50) or inadequate KAM disclosure (36). This leaves a final sample size of 157 firms (942 firm-year observations).

**[Insert Table 1 here]**

## 4.2. Research Design and Variables Measurement

### 4.2.1. Research Design

For the first time, the Covid-19 and KAM auditing models are used as proxies for client risk and complexity. Quantitative assessments of Covid-19, KAM, and audit quality are part of the evaluation. To account for any shifts in audit quality over time, we use a time-varying fixed-effects OLS regression model (Alharasis, 2023; Elmarzouky et al., 2022a; Al Lawati and Hussainey, 2022; Elmarzouky et al., 2023b). Using the log of audit fees as a proxy for “auditing quality”, this serves to evaluate how Covid-19 affects the correlation between KAM and audit quality in developing countries. The following modified equations are used in the proposed research paradigm to test hypotheses:

- **Equation(1):**  $LnAFEES = \delta_0 + \delta_1KAM + \delta_2L\_ASSET + \delta_3SUB + \delta_4ROA + \delta_5LEV + \delta_6GROWTH + \delta_7QRATIO + \delta_8BIG4 + \delta_9CHANGE + \delta_{10}OPINION + FE + \epsilon$ .
- **Equation(2):**  $LnAFEES = \delta_0 + \delta_1COVID + \delta_2L\_ASSET + \delta_3SUB + \delta_4ROA + \delta_5LEV + \delta_6GROWTH + \delta_7QRATIO + \delta_8BIG4 + \delta_9CHANGE + \delta_{10}OPINION + FE + \epsilon$ .
- **Equation(3):**  $LnAFEES = \delta_0 + \delta_1KAM + \delta_2COVID + \delta_3COVID * KAM + \delta_4L\_ASSET + \delta_5SUB + \delta_6ROA + \delta_7LEV + \delta_8GROWTH + \delta_9QRATIO + \delta_{10}BIG4 + \delta_{11}CHANGE + \delta_{12}OPINION + FE + \epsilon$ .

Several control variables, including those cited in previous auditing literature, are taken into consideration. Following Badia, Duro et al. (2017) and Abernathy, Kubick et al. (2019), we consider a number of control factors, including those discovered in previous auditing research. This includes: *L\_ASSET*, *SUB*, *ROA*, *LEV*, *GROWTH*, *QRATIO*, *BIG4*, *CHANGE* and *OPINION* (each variable is described in Appendix A).

### 4.2.2. Measuring auditing quality

The quality of an audit is determined by its ability to identify and report instances of material misstatement. Alhababsah (2019) widened the notion of the quality of audits to include evidence of how accurately financial statements reflect a company's fundamental economics. It is challenging to evaluate audit quality in advance because the level of assurance provided by auditors is not always transparent. This method of auditing produces identical audit reports that all reach the same "clean" conclusion. This inquiry is motivated by the demand for superior auditing services. Audit fees were used as a proxy for audit quality in this study. Extensive research has used the magnitude of fees paid to an outside auditor as a stand-in for audit quality (He et al., 2017).

If all other variables are equal, a greater amount of Audit costs indicates a higher quality audit (Abernathy et al., 2019). This could be because more audit effort was expended (i.e., greater audit time were invoiced) or because the auditor was more skilled (i.e., higher invoicing rates were assessed). Since more comprehensive audit investigations necessitate more audit hours and/or the use of more excellent audit personnel, audit fees are a reliable indicator of audit quality. The Jordanian market evaluates audit quality based on audit fees (Alhababsah, 2019; Alharasis, 2023).

### 4.2.3. Measuring Covid-19

Following Alharasis (2023) and Al-Qadasi et al. (2022) and we evaluate the impact of Covid-19 using a dichotomous variable, where 1 represents the years 2020 – 2022 (when Covid-19 is in effect) and 0 represents the years prior to Covid-19 (2005 - 2019).

### 4.2.4. Measuring KAM

The data was collected and analysed using qualitative content analysis (Krippendorff, 2013). We examine each organization's audit report multiple times, paying special attention to the KAM sections. Each KAM was considered separately for this purpose. As a result, we were able to code 344 KAM into 50 distinct groups. Prior research emphasised the subcategories in accordance with the International Financial Reporting Standards (IFRS) requirements for recognition, measurement, presentation, and disclosure (Sierra-Garca et al., 2019; Segal, 2019; Kend & Nguyen, 2020). Company-by-company and year-by-year data were recorded. After classifying the fifty categories, each of the eighteen overarching themes was developed (Osama and Mardini 2022; Ecim et al. 2023). To determine how many KAM were included in Jordan's stated study, we refer to the checklist developed by earlier studies (Kend & Nguyen, 2020). Specifically, we counted how often each of 18 important KAM taken from ISA-701 appeared in the auditing report of Jordanian firms (IAASB, 2015; Mah'd & Mardini, 2022). It

follows that a value of one should be assigned if a KAM is mentioned in the auditors' report and zero otherwise. We used an unweighted method to create a checklist of KAM mentioned in each audit report. Checklist for KAM is shown in Table 1. Each report's score is calculated by dividing its KAM's real score by the overall amount of KAM on the checklist as follows:

$$KAM = \sum_{i=1}^k kdi/k$$

Where,  $kd = 1$  in case the item is posted in firm's annual report, and 0 otherwise, and  $k$  is the overall amount of KAM items.

[Insert Table 1 here]

## 5. Results and Discussion

### 5.1. Descriptive statistics and correlation

Table 2 shows the descriptive statistics. It shows that the dependent variable, audit fees factor ( $LnAFEES$ ) a mean (median) value of 9.373 (1.147). Regarding the variable of the key audit matters ( $KAM$ ), the mean (median) value is found 2.688 (1.457). The investigation showed that external auditors in Jordan confirmed 18% on average of KAM disclosers over the period after ISA-701 was implemented to improve audit transparency and reduce "information asymmetry" (Abdullatif et al., 2023). The moderating variable ( $COVID$ ) does have an average (median) value of 0.50 (0.50). To move forward with the analysis, the research data that spans the years 2017–2022 that will be utilised must fulfil all four requirements of the regression analysis test. A battery of tests, including normality, linearity, homoscedasticity, and multicollinearity checks, are performed on the data at hand to ensure that it satisfies the prerequisites for conducting a regression analysis (see Appendix B).

[Insert Table 2 here]

In Table 3, we can see matrices of Pearson correlations. The multicollinearity test looks for intercorrelations among the independent variables in a regression model. The coefficient of correlation demonstrates that there is no relationship between the independent variables. The mean VIF for each model is less than 2, hence the absence of collinearity is not shown by the unreported mean VIF test. To further reduce the impact of outliers, we winsorize all parameters annually at the 1% and 99% levels.

[Insert Table 3 here]

### 5.2. Univariate Analysis

The results of a parametric (i.e., independent t-test) are presented in Table 4. We utilised the analysis data over the period 2005 – 2022 to get more valuable comparisons of "auditing quality" and KAM disclosure over two different periods Covid-19 vs. non-Covid-19. The table compares the values of the KAM variable before and after the outbreak of Covid-19, and displays the significant difference, as measured by the t-value, that occurred in the mean of the KAM variable. The subsamples consist of 471 firm-year observations collected during the Covid-19 period and 2355 firm-year observations collected during the non-Covid-19 period. The statistics in Panel A demonstrate that the mean amount of KAM reported has changed from the non-Covid-19 period (0.053) to the Covid-19 period (2.71), with t-value = -33.45, indicating that the types of KAM that are being reported have developed. This can be inferred from the fact that the number of KAM reported has increased. The findings of Abdullatif et al. (2022) are validated by this research. They discovered that the increase in "going worry and impact of Covid-19" KAM in 2020 represents the worldwide economic implications of the travel prohibition caused by Covid-19 becoming obvious. This research verifies their findings. During the time period that is covered by these KAM, new accounting standards were established. Some of these new rules include the IFRS for leasing and revenue.

The average variance between audit fees paid prior to and during the Covid-19 outbreak, using the Covid-19 variable, is shown in Panel B of Table 4. This difference is 9.42 and 89.22, respectively. This necessitates separating the study population into two groups: those with and without Covid-19. The analysis found that the average audit fee during the Covid-19 period was statistically ( $t = 3.75$ ) higher than the average audit fee during the pre-Covid-19 period. Alharasis (2023) and Alharasis et al. (2023) have both undertaken studies in the context of Jordan that support this result. Due to the high risk and complexity of auditing during Covid-19, it is suggested that auditors earn more audit fees during this period than during others. This is because it is more difficult to build evidence proving that the financial figures prepared by clients resulted in high levels of fraud and uncertainty. This is due to the fact that it is hard to gather proof showing that elevated fraud and uncertainty risks resulted from the client-prepared financial statements. To ensure that management did not take advantage of the financial crisis

to mislead users of financial reports, auditors may have to put in more time and energy, and they may also have to justify asking for higher audit fees (Hategan et al., 2022).

**[Insert Table 4 here]**

### 5.3. Regression analysis and discussion

Table 5 below summarises the findings from the developed research models. Model 1 reflects the influence of KAM on audit fees; Model 2 indicates the effect of Covid-19 on audit quality; Model 3 shows the combined influence of KAM and Covid-19 on audit quality; and Model 4 demonstrates the moderating impact of Covid-19 on the correlation among KAM and audit quality. Models 1–3 all have considerable predictive power (i.e., R<sup>2</sup>) of around 72%, as evidenced by their extremely significant P-values at the 0.01 level. This is on par with other studies on audit costs in low-income countries. Consistent with the results of earlier research (Alharasis, 2023; Al Lawati and Hussainey, 2022), this is an encouraging discovery.

Model 1 results show a strong positive association between KAM and audit quality (Coeff. = 0.027, Rob. t = 1.840). This conclusion corresponds with the recent findings derived by (Barghathi et al., 2021; Fera et al., 2022; Nguyen & Kend, 2021; Pinto & Morais, 2019; Suttipun, 2021; Zeng et al., 2021; Elmarzouky et al., 2022a; Al Lawati and Hussainey, 2022; Elmarzouky, 2023b) in different settings. This result is also in line with the convergence of agency, signalling, and stakeholders' theories, since companies with a higher proportion of “agency problem” are more likely to have greater KAM disclosure as a means for external auditors to mitigate the risk of future undisclosed issues in their clients' financial statements. In addition, this result agrees with the conclusion reached by Baatwah et al. (2022). Increases in the size of audit samples for things connected to KAM can require a great deal more work from auditors. Additional efforts are typically justified by the auditor's need to provide evidence in support of the assertions made in the KAM section regarding the auditor's actions taken to address the KAM. Costly audit fees are typically paid to clients showing signs of financial hardship (Fera et al., 2022). This is to compensate auditors for the additional time and effort required to do the audit compared to a standard audit. Following the introduction of ISA-701, auditors were put under significant pressure to perform the roles mandated by the ISA in order to provide stakeholders with the information they needed, specifically for clients with a high degree of conflict of interest in their financial statements (Castka et al., 2020). Because of this, they are taking extra precautions to prevent future legal action and damage to their reputation. The results of the study support null hypothesis H<sub>0</sub> and indicate that there is a positive association between KAM and “auditing quality”, with more seasoned auditors indicating less agency conflict and better audit quality.

Model 2 results showed that the Covid-19 variable was positively correlated with audit quality (Coeff. = 0.181, Rob. t = 2.44) as hypothesised. This result is in line with findings by Al-Qadasi et al. (2022) and Harjoto and Laksmana (2022), who shown that Covid-19 has a substantial impact on “auditing quality” in the United States, the European Union, and Oman. The analysis supports Albitar et al.'s (2020) assertion that auditing during the Covid-19 pandemic differs significantly from normal economic conditions and necessitates costly mechanisms, procedures, and sophisticated technology, skills, and expertise in working from home. To satisfy stakeholder expectations, auditors in this situation must fulfil a number of roles required by the ISA, including generating supplementary reports attesting to the effect of the pandemic on enterprises' financial information (Castka et al., 2020; Arianpoor and Farzaneh, 2023). A significant auditing risk related to preserving reputation, lawsuit risk, and client retention may emerge from conducting audits under uncertain economic situations. Increased confidence in companies' financial numbers necessitated higher standards of audit quality during the Covid-19 crisis. It is common practise for auditors working on high-risk, complex cases to work towards improving audit quality services in order to reduce the asymmetric information problem brought on by agency conflict (Hategan et al., 2022). Managers can provide signals to stakeholders to vouch for the accuracy of financial reports and lessen the impact of “information asymmetry” in order to boost capital-maximizing investments (Sangchan et al., 2020). According to an unpublished univariate analysis, the mean difference of the LOSS variable was determined to be significantly different from zero at the 0.01 level (t-value = -2.350), indicating that the rate of financial insolvency and loss was much higher during the crisis era compared to the pre-crisis era. Therefore, H<sub>2</sub> is confirmed by the data. In addition, the regression results from Model 3 corroborate the favourable, highly significant effect of the combined effects of KAM and Covid-19 on audit quality found in Models 1 and 2.

Covid-19 had a substantial positive moderating effect on the association between KAM and audit quality (Coeff. = 0.542, Rob. t = 2.18), as shown by the results of Model 4. As the data shows, there is a robust connection between KAM disclosure and audit quality when the covid-19 component is included. In light of the fact that auditors are expected to take on additional duties such as monitoring legal and financial repercussions, evaluating staff mobility rules, providing specialised training to staff, enhancing technological security, and monitoring added expenditures during a covid-19 pandemic, this result is consistent with this theory (Hategan et al., 2022; KPMG, 2020). As a result, auditors had numerous challenges, which could have affected the quality of audits due to insufficient evidence. Previous studies have found a correlation between KAM disclosure and improved audit

quality, which benefits stakeholders (Ittonen, 2012; Velte & Issa, 2019; Hategan et al., 2022; Elmarzouky et al., 2022b). According to agency theory, greater transparency will decrease “information asymmetry” and improve the credibility of financial reports. The result is more work for the auditing team. According to agency theory (Schrader & Sun, 2019), a better audit will occur if the auditors exercise more oversight and insist on more thorough coverage. As a result, the cost of auditing should rise as more information is made public in an effort to eliminate “information asymmetry” and improve the quality of financial reporting and auditing. Auditors can help stakeholders improve their financial analysis and investment decisions by disclosing KAM so that they can perform their own assessments. Therefore, H3 is confirmed by the data.

**[Insert Table 5 here]**

## **6. Additional analysis and testing for robustness**

### *6.1. KAM alternative measure as a dummy variable*

In Table 6, we re-ran the analysis using different proxy for the KAM variable which is *KAM\_DUM*, a dummy variable coded 1 for the years following the application of ISA-701 (2017-2022), 0 otherwise (2005-2016). The results are not relatively different from those reported in the main analysis.

**[Insert Table 6 here]**

### *6.2. Endogeneity test relative to auditor type*

According to Sangchan et al. (2020), the Big4 appear to be the clients' natural preference. Because of the potential for self-selection bias on the part of the Big4, a "Heckman two-stage" estimator is used in the most often used models of auditing costs. In step one, probit regression was utilised to create a new variable called Inverse Mills Ratio (INMILLS), which was then used to update the preexisting models. Results from the secondary estimating stage agree with those of the original analysis (see Appendix C).

### *6.3. Exclusion of firms operating in the Banking industry*

The analysis was re-evaluated by removing observations from the banking industry (96 firm-year observations), which helps to compensate for the possibility that the findings of the regression were impacted by the distinctive characteristics of the banking industry. The results are in line with the preliminary examination. The results are not presented in this section, although they can be provided on demand (see Appendix D).

### *6.3. An alternate measure for determining audit fees*

The study was repeated using alternative measures of the dependent variable. The present study utilised an alternate measure of audit fees, namely the audit fees deflated by total assets, in order to conduct a robustness analysis. The findings from the analysis of both alternative measures align with the results obtained in the main analysis, hence confirming the robustness and validity of the main analysis findings. Results are not reported but are available upon request.

### *6.5. Alternative measure of audit quality: audit opinion*

We re-ran the analysis using different proxy for the dependent variable “auditing quality” which is audit opinion. The results are not relatively different from those reported in the main analysis. Results are not reported but are available upon request.

### *6.6. Excluding companies that belong to industries with fewer than five firms*

The hypotheses were revisited after the elimination of 18 enterprises operating in industries with fewer than five competitors, as recommended by Hegazy et al. (2015). The replications' findings correspond with the initial study's findings. The results are not published, although they are available upon request.

## **8. Conclusion**

This study examined for the first time the consequences of Covid-19 pandemic on “auditing quality” in relation to the new/further audit responsibilities emphasising the necessity disclosures on KAM by external auditors. Data from 1376 firm-year observations of Jordanian financial institutions across the period (2017–2022) are utilised to assess the constructed hypotheses. This research may serve as a benchmark for issuing a distinct policy or standard for disclosing any type of adverse occurrence under financial reporting and disclosure processes. Based on the results of the investigation, it is clear that KAM disclosure plays a crucial role in improving “auditing quality” so that it can conform to ISA-70 standards. Moreover, a positive correlation among Covid-19 and “auditing quality” was discovered, validating the severe effects of the Covid-19 on audit complexity and hazards and supporting the necessity of extra, high-quality audit services. The analysis confirms that covid-19 factor strengthens the association between KAM disclosure and “auditing quality” as a result of the increase in KAM disclosure and auditor workload and responsibility. The supplementary analysis that covers the years 2005–2022 supports the large beneficial influence that KAM has had on the “auditing quality”.

The results of this research give policymakers and standard-setters up-to-date empirical information about the ramifications of implementing the ISA-701 requiring additional disclosures on the KAM by external auditors. The Covid-19 epidemic offers a good context for investigating the importance of disclosures regarding confidence interval and the significance of external auditing in alleviating worries, as well as the resulting concerns about the usefulness of KAM disclosure during times of economic instability. Therefore, this examination is beneficial for stakeholders, regulatory authorities, standard-setters and users of audit reports interested in the status of KAM disclosure and how ISA-701 is being applied in developing nations. As a result, the findings are more likely to have academic consequences in the form of encouraging additional evidence and expanding this data to other emerging economies for the purpose of acquiring a clear explanation of the true influence of reporting KAM on audit practices. In the present period of economic and healthcare crises, relatively current customers' threat qualities are the Covid-19 effects, increasing customers' financial risk. To the authors' knowledge, this examination is one of the very few empirical studies undertaken to investigate the consequence of Covid-19 pandemic on audit practices emphasising the impact of disclosures on KAM by external auditors on audit quality. The conclusions drawn by this study are among the earliest scientific evidence of the relationship between the pandemic and corporate effectiveness. Little attention has been devoted to how auditors respond to investor protection during the pandemic time period and how auditors' expanded reporting requirements in developing economies. This research adds to the auditing research by investigating audit behaviour under a weak legal context, as opposed to the vast majority of studies done in a highly regulated setting. The sample size and time range may limit the utility of the results, future research should broaden this approach to include other contexts and can expand this analysis to include data from 2023. In addition, the findings of the study offer up new avenues for future research, such as investigating the impact of Covid-19 on various auditing aspects, such as internal assurance, going concern, and the function of business governance legislation.

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**Table 1: Ranking of type of KAM issued**

<b>Type of KAM issued</b>	<b>Frequency</b>	<b>Percentage</b>
Revenue recognition	205	0.218
Inventory	90	0.096
Accounts receivable	28	0.030
Financial assets	98	0.104
Provisions	651	0.691
Taxation	40	0.042
Insurance	33	0.035
Property, plant, and equipment	91	0.097
Investments	190	0.202
Pensions	17	0.018
Impairments	248	0.263
IFRS 9	192	0.204
Biological Assets	6	0.006
Acquisitions	25	0.027
Goodwill	34	0.036
Complex estimates of fair value accounting	290	0.308
IT systems and controls over financial reporting	14	0.015
Going concern issues and COVID impact	47	0.050
<b>Total</b>	<b>2229</b>	<b>100.00%</b>

**Table 2: Sample choice technique**

	<b>Total firms</b>
Preliminary sample	235
(-) Firms with missing financial data and/or quit the market because of Covid-19 effect	(50)
(-) Firms with missing KAM data	(36)
<b><i>Total sample</i></b>	<b>157</b>

Source: Created by authors

**Table 3: Descriptive Statistics**

<b>Variable</b>	<b>Mean</b>	<b>Median</b>	<b>Std. Dev.</b>	<b>Min</b>	<b>Max</b>
<i>LnAFEES</i>	9.373	1.147	9.306	6.908	12.848
<i>Total KAM</i>	2.688	1.457	3.000	0.000	8.000
<i>COVID-19</i>	0.500	0.500	0.500	0.000	1.000
<i>LN_ASSET</i>	17.380	1.844	17.240	13.629	22.682
<i>SUB</i>	2.370	3.507	1.000	0.000	18.000
<i>ROA</i>	980.270	578.579	947.500	25.000	2134.000
<i>LEV</i>	1297.979	738.269	1327.000	29.000	2513.000
<i>GROWTH</i>	1.344	2.252	1.013	-2.739	19.830
<i>QRATIO</i>	2.980	6.806	1.016	-0.504	49.364
<i>BIG4</i>	0.432	0.496	0.000	0.000	1.000
<i>TENURE</i>	0.732	0.443	1.000	0.000	1.000
<i>OPINION</i>	0.859	0.348	1.000	0.000	1.000
<b><i>N</i></b>	<b>942</b>				
<i>All variables are defined in Appendix A.</i>					

Source: Created by authors

**Table 4: Correlation Matrix**

	Variables	1.	2.	3.	4.	5.	6.	7.	8.	9.	.10	11.	12.
1.	<i>LnAFEES</i>	1.000											
2.	<i>KAM</i>	0.172***	1.000										
3.	<i>COVID-19</i>	0.0742*	0.021	1.000									
4.	<i>LN_ASSET</i>	0.793***	0.166***	0.031	1.000								
5.	<i>SUB</i>	0.238***	0.0683*	0.018	0.284***	1.000							
6.	<i>ROI</i>	0.207***	0.0930**	-0.024	0.128***	-0.106**	1.000						
7.	<i>LEV</i>	0.437***	0.182***	0.001	0.471***	0.025	-0.032	1.000					
8.	<i>GROWTH</i>	-0.0719*	-0.027	0.058	-0.102**	0.017	0.018	-0.019	1.000				
9.	<i>QRATIO</i>	-0.126***	-0.176***	-0.017	-0.174***	0.008	-0.059	-0.271***	-0.013	1.000			
10.	<i>BIG4</i>	0.578***	0.0896**	-0.001	0.486***	0.111***	0.211***	0.194***	-0.062	-0.042	1.000		
11.	<i>TENURE</i>	-0.0814*	-0.063	0.0712*	-0.0817*	0.025	0.016	-0.035	0.033	-0.006	-0.0860**	1.000	
12.	<i>OPINION</i>	0.044	-0.027	0.032	0.027	-0.0889**	0.158***	-0.028	-0.003	0.0782*	0.052	0.0837*	1.000

*This table summarizes the Pearson correlation matrix statistics for the outcome and explanatory variables, respectively.  
\*\* and \* correlations indicate statistical significance at the 0.05 and 0.01 levels, respectively (2-tailed).*

Source: Created by authors

**Table 5: Univariate Analysis**

Variable	Mean		t – value(sig)
<i>Panel A: KAM by COVID-19 vs. non-COVID-19 period</i>			
	<i>COVID-19 period</i> (KAM=1)	<i>Pre- COVID-19 period</i> (KAM=0)	
	N = 471 Obs	N = 2355 Obs	
<i>LnAFEES</i>	2.71	.053	(-33.4469)***
<i>Panel B: Audit fees by COVID-19 vs. non-COVID-19 period</i>			
	<i>COVID-19 period</i> (COVID-19 =1)	<i>Pre- COVID-19 period</i> (COVID-19 =0)	
	N = 471 Obs	N = 2355 Obs	
<i>LnAFEES</i>	9.42	9.22	(-3.7458)***

\*, \*\*, and \*\*\* indicate statistical significance at the 0.10, 0.05, and 0.01 levels, respectively.

Source: Created by authors

**Table 6: Regression results**

DV = <i>LnAFEES</i>	Expected sign (H1/2/3)	Model (1) KAM single effect	Model (2) Covid-19 single effect	Model (3) Joined effect	Model (3) Covid-19 interaction
<i>Intercept</i>		<b>2.043</b> (7.56)***	<b>2.082</b> (7.75)***	<b>2.043</b> (7.56)***	<b>2.062</b> (7.70)***
<i>KAM</i>	(+)	0.027 (1.840)*		0.027 (1.840)*	-0.315 (-2.23)**
<i>COVID</i>	(+)		0.181 (2.44)**	0.177 (2.39)**	0.161 (2.18)**
<i>KAM* COVID</i>	(+)				0.542 (2.18)**
<i>L_ASSET</i>		0.379 (22.63)***	0.380 (22.91)***	0.379 (22.63)***	0.382 (23.22)***
<i>SUB</i>		0.014 (2.16)**	0.015 (2.29)**	0.014 (2.16)**	0.015 (2.40)**
<i>ROA</i>		0.000 (6.99)***	0.000 (7.07)***	0.000 (6.99)***	0.000 (7.16)***
<i>LEV</i>		0.000 (4.14)***	0.000 (4.38)***	0.000 (4.14)***	0.000 (4.33)***
<i>GROWTH</i>		-0.004 (-0.560)	-0.005 (-0.600)	-0.004 (-0.560)	-0.004 (-0.590)
<i>QRATIO</i>		0.001 (0.330)	0.001 (0.140)	0.001 (0.330)	0.000 (0.130)
<i>BIG4</i>		0.537 (10.94)***	0.539 (10.98)***	0.537 (10.94)***	0.532 (10.85)***
<i>CHANGE</i>		-0.001 (-0.030)	-0.008 (-0.170)	-0.001 (-0.030)	-0.001 (-0.020)
<i>OPINION</i>		-0.007 (-0.100)	-0.009 (-0.130)	-0.007 (-0.100)	-0.020 (-0.300)
<i>Robust</i>		Yes	Yes	Yes	Yes
<i>Fixed effects</i>		Year & SUBINDS	Year & SUBINDS	Year & SUBINDS	Year & SUBINDS
<i>N</i>		942	942	942	942
<i>F - Test</i>		(17)***	(16)***	(17)***	(18)***
<i>R<sup>2</sup></i>		72%	72%	72%	72%
<i>Mean VIF</i>		1.37	1.47	1.46	1.54

Significant results at the 0.01, 0.05, and 0.10 levels of a two-tailed test are denoted by \*\*\*, \*\*, and \*, respectively.

Note: This table displays the outcomes of an ordinary least squares (OLS) regression of KAM on auditing quality (*Lnfees*) and the moderating COVID factor. Included here Robust t – statistics and standard errors adjusted for year cluster effects.

Source: Created by authors

**Table 7: Regression results: KAM Dummy var**

<b>DV = LnAFEES</b>	<b>Model (1)</b>
<b>Variables</b>	<b>KAM single effect</b>
<i>Intercept</i>	<b>2.895</b> <b>(14.78)***</b>
<i>KAM</i>	0.224 (2.06)**
<i>L_ASSET</i>	0.342 (29.25)***
<i>SUB</i>	0.021 (5.24)***
<i>ROA</i>	0.000 (5.10)***
<i>LEV</i>	0.000 (8.39)***
<i>GROWTH</i>	-0.015 (-2.73)***
<i>QRATIO</i>	-0.003 (-1.460)
<i>BIG4</i>	0.461 (16.08)***
<i>CHANGE</i>	0.040 (1.410)
<i>OPINION</i>	-0.051 (-1.440)
<i>Robust</i>	<i>Yes</i>
<i>Fixed effects</i>	<i>Year &amp; SUBINDS</i>
<i>N</i>	<b>2802</b>
<i>F - Test</i>	<b>(25)***</b>
<i>R<sup>2</sup></i>	<b>66%</b>
<i>Mean VIF</i>	<b>2.54</b>
<p><i>Significant results at the 0.01, 0.05, and 0.10 levels of a two-tailed test are denoted by ***, **, and *, respectively. Note: This table displays the outcomes of an ordinary least squares (OLS) regression of KAM_DUM on auditing quality and the moderating COVID factor. Included here Robust t – statistics and standard errors adjusted for year cluster effects.</i></p>	

Source: Created by authors

## Appendix A

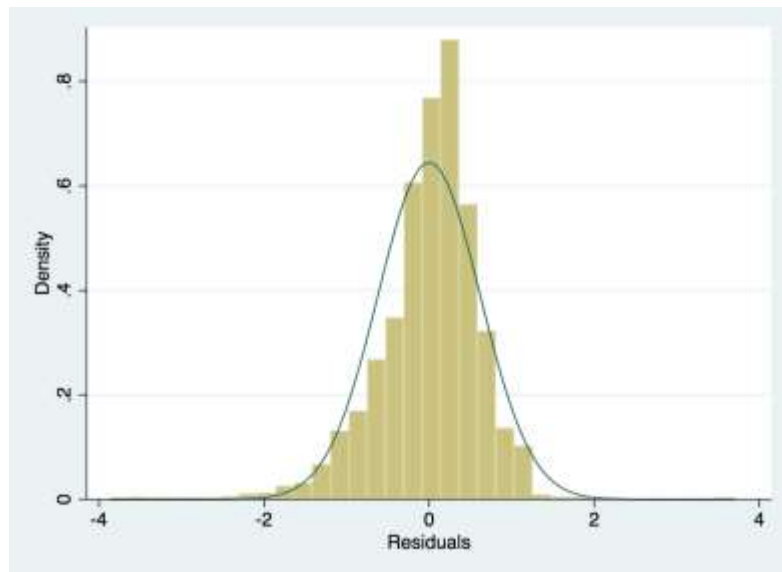
### Variables definition and measurement

Variable	Label	sign	Measurement
Audit fees	<i>LnAFEES</i>		The natural log of total audit fees.
Number of Key Audit Matters	<i>KAM</i>	(+)	Total of KAM reported in the audit report, measured by the following equation: $KAM = \sum_{i=1}^k kdi/k$ Where, $k_d = 1$ if the item is disclosed, and 0 otherwise, and $k$ is the total number of KAM.
Covid-19 pandemic	<i>COVID-19</i>	(+)	Dummy variable coded 1 for the years affected by COVID-19 which are the years of (2020 - 2022), while 0 stands for the pre-COVID-19 period (2017 – 2019).
Client size	<i>SIZE</i>	(+)	The natural Log of a firm's total assets.
Number of subsidiaries	<i>SUBS</i>	(+)	The number of firm's subsidiaries/branches.
Return on assets	<i>ROA</i>	(+)	The net income by total assets.
Growth ratio	<i>GROWTH</i>	(+)	The current year revenues to last year revenues.
Quick Ratio	<i>QRATIO</i>	(+)	Total firm's current assets minus inventory by total liabilities
Big4	<i>BIG4</i>	(+)	Is a dichotomous variable that is set to 1 if the auditor company is among the largest Big-4 auditing firms (PwC, KPMG, Deloitte or E&Y) and to 0 otherwise
Auditor tenure	<i>TENURE</i>	(-)	Auditor tenure of three years, coded 1 if the audit firm did not change, 0 otherwise.
Unqualified opinion	<i>OPINION</i>	(-)	Dummy variable coded 1 if the firm receives an unqualified opinion, 0 otherwise.

Source: Created by authors

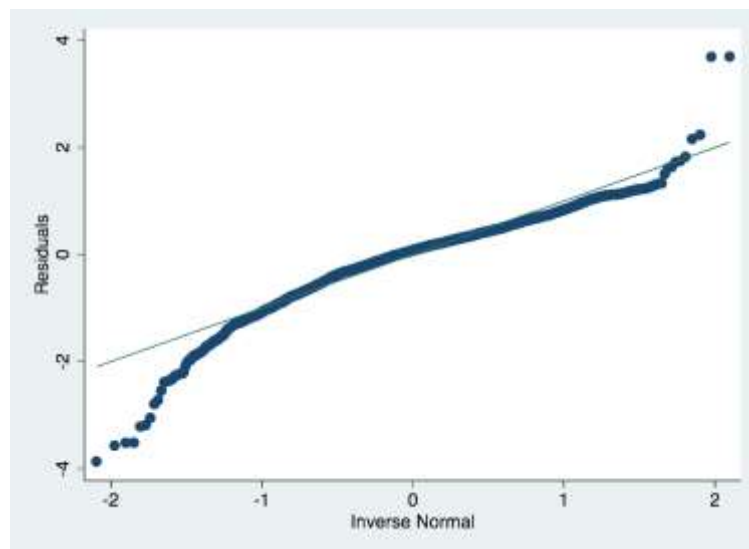
## Appendix B

**Figure B1: Histogram with Normal Curve of Residuals**



Source: Created by author

**Figure B2: Probability Plot of Residuals**



Source: Created by author

## Appendix C

### Heckman test

DV = LnAFEES	Model (1)	Model (2)	Model (3)	Model (3)
Variables	KAM single effect	Covid-19 single effect	Joined effect	Covid-19 interaction
<i>Intercept</i>	<b>-6.607</b> (-6.06)***	<b>-6.142</b> (-5.81)***	<b>-6.607</b> (-6.06)***	<b>-6.124</b> (-5.81)***
<i>KAM</i>	0.041 (2.96)***		0.041 (2.96)***	-0.262 (-2.05)**
<i>COVID</i>		0.179 (2.46)**	0.173 (2.39)**	0.160 (2.21)**
<i>KAM* COVID</i>				0.524 (2.15)**
<i>L_ASSET</i>	0.767 (15.74)***	0.750 (15.74)***	0.767 (15.74)***	0.751 (15.86)***
<i>SUB</i>	0.014 (2.20)**	0.015 (2.42)**	0.014 (2.20)**	0.015 (2.48)**
<i>ROA</i>	0.001 (10.42)***	0.001 (10.35)***	0.001 (10.42)***	0.001 (10.35)***
<i>LEV</i>	0.000 (2.15)**	0.000 (2.61)***	0.000 (2.15)**	0.000 (2.53)**
<i>GROWTH</i>	-0.023 (-2.80)***	-0.023 (-2.79)***	-0.023 (2.80)***	-0.023 (-2.76)***
<i>QRATIO</i>	0.016 (3.97)***	0.014 (3.58)***	0.016 (3.97)***	0.014 (3.54)***
<i>BIG4</i>	0.527 (10.85)***	0.530 (10.91)***	0.527 (10.85)***	0.523 (10.79)***
<i>CHANGE</i>	0.025 (0.590)	0.014 (0.330)	0.025 (0.590)	0.021 (0.490)
<i>OPINION</i>	-0.052 (-0.780)	-0.053 (-0.780)	-0.052 (-0.780)	-0.062 (-0.920)
<i>INVMILLS</i>	1.502 (7.75)***	1.431 (7.57)***	1.502 (7.75)***	1.424 (7.54)***
<i>Robust</i>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>
<i>Fixed effects</i>	<b>Year &amp; SUBINDS</b>	<b>Year &amp; SUBINDS</b>	<b>Year &amp; SUBINDS</b>	<b>Year &amp; SUBINDS</b>
<i>N</i>	<b>942</b>	<b>942</b>	<b>942</b>	<b>942</b>
<i>F - Test</i>	<b>(18)***</b>	<b>(17)***</b>	<b>(18)***</b>	<b>(19)***</b>
<i>R<sup>2</sup></i>	<b>74%</b>	<b>73%</b>	<b>74%</b>	<b>74%</b>
<i>Mean VIF</i>	<b>1.37</b>	<b>1.47</b>	<b>1.46</b>	<b>1.54</b>

Significant results at the 0.01, 0.05, and 0.10 levels of a two-tailed test are denoted by \*\*\*, \*\*, and \*, respectively.  
 Note: This table displays the outcomes of an ordinary least squares (OLS) regression of KAM on auditing quality (Lnfees) and the moderating COVID factor. Included here Robust t – statistics and standard errors adjusted for year cluster effects.

Source: Created by authors



## Appendix D

### Excluding banking industry

DV = LnAFEES	Model (1)	Model (2)	Model (3)	Model (3)
Variables	KAM single effect	Covid-19 single effect	Joined effect	Covid-19 interaction
<i>Intercept</i>	<b>3.908</b>	<b>3.951</b>		<b>3.919</b>
	<b>(11.44)***</b>	<b>(11.66)***</b>		<b>(11.56)***</b>
<i>KAM</i>	0.030		0.030	-0.216
	(2.04)**		(2.04)**	(-1.540)
<i>COVID</i>		0.206	0.203	0.188
		(2.68)***	(2.65)***	(2.46)**
<i>KAM* COVID</i>				0.483
				(1.890)*
<i>L_ASSET</i>	0.263	0.264	0.263	0.267
	(12.15)***	(12.35)***	(12.15)***	(12.51)***
<i>SUB</i>	0.022	0.023	0.022	0.022
	(3.16)***	(3.34)***	(3.16)***	(3.34)***
<i>ROA</i>	0.000	0.000	0.000	0.000
	(8.17)***	(8.29)***	(8.17)***	(8.32)***
<i>LEV</i>	0.000	0.000	0.000	0.000
	(3.38)***	(3.63)***	(3.38)***	(3.54)***
<i>GROWTH</i>	-0.008	-0.008	-0.008	-0.008
	(-1.030)	(-1.080)	(-1.030)	(-1.040)
<i>QRATIO</i>	0.001	0.000	0.001	0.000
	(0.150)	(0.070)	(0.150)	(0.080)
<i>BIG4</i>	0.538	0.539	0.538	0.534
	(11.57)***	(11.59)***	(11.57)***	(11.45)***
<i>CHANGE</i>	0.040	0.031	0.040	0.036
	(0.890)	(0.680)	(0.890)	(0.810)
<i>OPINION</i>	-0.081	-0.082	-0.081	-0.089
	(-1.200)	(-1.210)	(-1.200)	(-1.320)
<i>Robust</i>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>
<i>Fixed effects</i>	<b>Year &amp; SUBINDS</b>	<b>Year &amp; SUBINDS</b>	<b>Year &amp; SUBINDS</b>	<b>Year &amp; SUBINDS</b>
<i>N</i>	<b>846</b>	<b>846</b>	<b>846</b>	<b>846</b>
<i>F - Test</i>	<b>(17)***</b>	<b>(16)***</b>	<b>(17)***</b>	<b>(18)***</b>
<i>R<sup>2</sup></i>	<b>54%</b>	<b>54%</b>	<b>54%</b>	<b>54%</b>
<i>Mean VIF</i>	<b>1.34</b>	<b>1.44</b>	<b>1.42</b>	<b>1.54</b>

Significant results at the 0.01, 0.05, and 0.10 levels of a two-tailed test are denoted by \*\*\*, \*\*, and \*, respectively.  
Note: This table displays the outcomes of an ordinary least squares (OLS) regression of KAM on auditing quality (Lnfees) and the moderating COVID factor. Included here Robust t – statistics and standard errors adjusted for year cluster effects.

Source: Created by authors