

# ARE JOINT AUDITS ASSOCIATED WITH HIGHER AUDIT QUALITY?

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## Abstract

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This paper investigates and assesses whether a joint audit engagement results in higher audit quality compared to a single audit given audit firms' characteristics and complexity of their clients' activities. The research adopts a survey-based questionnaire sent to external auditors of five audit firms with international affiliation including two Big 4 firms to assess their perceptions about whether joint audit improves audit quality compared to a single audit. Also, interviews with audit partners and professors of auditing were made to check the reliability of the survey. Descriptive and inferential statistics are used to test the research hypotheses. The results reveal that joint audit enhances the quality of the audit as auditors in joint audits deliver high audit quality and ensure continuity with the client. The results also confirm the importance to perform joint audit engagements involving one of the Big 4 with one audit partner possessing industry specialization related to the audit engagement. However, no variation was found in audit quality in a joint audit compared to a single audit for listed companies compared to non-listed companies even when there are discrepancies in the joint audit partners' level of competence and experience. The study is among the first to survey the impact of joint audits compared to single audits on audit quality in an emerging economy. The study identifies valuable insights and provides recommendations to audit firms, professional and oversight bodies, and government to encourage the use of joint audits versus single audits to improve audit quality.

**Keywords:** Auditing, Joint Audit, Single Audit, Big 4, Client Complexity, Audit Tenure, Egypt

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## 1. INTRODUCTION

Financial and business scandals have raised concerns regarding the independence of external auditors and the quality of the audit they provide. Such issues have led regulators and other stakeholders to call for more regulations and governance to improve auditor independence, with the goal of restoring trust in the quality of financial reporting. The European Commission (EC, 2010)

responded to the alleged lack of market trust in auditor independence by issuing a green paper aimed at stimulating discussions on how to improve audit regulation to enhance audit quality and audit market competition. The Green Paper proposed several mechanisms to improve both the ability of the auditor to detect material misstatements and to create incentives to report these misstatements. These mechanisms were related to the concepts of joint audits, auditor(s) rotation, audit committees,

and restrictions on the provision of non-audit services (EC, 2010; Regulation (EU) No. 537/2014; Lobo, Paugam, Zhang, & Casta, 2013). Despite the conventional wisdom that *“Two heads are better than one”* or as the EC noted *“Four eyes are better than two”*, the need for joint audit has led to a substantial debate on whether it compromises the quality of the audit provided (Deng, Lu, Simunic, & Ye, 2014). Some researchers claimed that the main advantage of joint audit is the reduction in the market concentration currently presented by hiring only the Big 4 (Velte & Azibi, 2015). In Europe, France (Ratinzing-Sakel, Audousset-Coulier, Kettunen, & Lesage, 2012; Audousset-Coulier, 2012) currently requires mandatory joint audits, which have been called for since 1966 as well as Denmark (from 1930 until 2004) (Holm & Thinggaard, 2010). Similarly, South Africa also mandated joint audits in the financial services sector (Deng et al., 2014). Other countries allowing the practice of joint audits include Algeria, Morocco, Tunisia, India, Saudi Arabia, Kuwait, and the United Kingdom; all have proposed voluntary joint audits (Alanezi, Alfaraih, Alrashaid, & Albolushi, 2012; Alsadoun & Aljabr, 2014). In 2011, joint audits are not made obligatory but are encouraged by the EC and the European Parliament.

On the other hand, prior research attempting to compare the effect of joint and single audits on audit quality is limited. Aside from studies that examined the impact of joint audits on audit quality, audit costs, and audit market concentration, others have been conducted in joint audit contexts. These studies did not compare joint audits to single audits and therefore did not provide direct evidence about the benefits or drawbacks of joint versus single audits. However, they do provide interesting evidence about the specifics of joint audits. For example, Deng et al. (2014) discussed how joint audits do not give a complete picture of the costs and benefits of such audits. Joint audits, however, can enhance audit quality due to the prevention of auditor dependence and stricter and more relentless audits. Auditors are motivated in joint audits to diminish the risk of having their successor complains about the low audit performance in the previous auditor's engagement period. Another benefit of joint audits is their role in enhancing the auditor's independence (EC, 2010; Regulation (EU) No. 537/2014). First, the conventional wisdom suggests that it is more expensive for a company to “bribe” and “manipulate” two audit firms in joint audits than a single firm in a single audit (Zerni, Haapamäki, Järvinen, & Niemi, 2012). Second, a joint audit weakens the economic bonding between the auditor and the client because of fee sharing between the auditors (Mazars, 2010). Third, joint audits preserve the knowledge resulting from staggered auditors' appointments. Joint auditors usually rotate at different times, increasing the auditors' independence while ensuring continuity by preserving the auditors' knowledge of the auditee (Carcello & Nagy, 2004). Finally, advocates of joint audits also argue that joint audits benefit from complementarities of expertise and geographical coverage between the two auditors and enhance the dialogue among the audit teams of the two auditors leading to better solutions for

problems in which judgment needs to be exercised (Mazars, 2010).

Based on the above literature discussions, the current study investigates the association between joint versus single audits and the perception of audit quality taking into consideration some characteristics related to the audit firm including the audit partners' and audit team's competence and years of experience. The research also analyzes the effects of the different types of auditors to understand the audit quality implications of the joint audit engagements. It extends the literature for joint audit findings related to the characteristics of the audit firm and the complexities of the client's activities. The research study provides several important contributions to the auditing literature. First, the current research is among the first to study the impact of joint audits compared to single audits on the perception of audit quality in an emerging economy such as Egypt, identifying the challenges related to those two types of audits. Second, the results show the importance of having a joint audit engagement involving one of the Big 4 audit firms with one audit partner possessing industry specialization. Third, the study emphasizes the importance of the characteristics of the audit firm and its partners/teams compared to the client's complexities in a joint audit compared to a single audit. Finally, the study also provides valuable insights and recommendations for audit firms, monitoring oversight bodies, and professional bodies to encourage the use of joint audits versus single audits for business enterprises to enhance audit quality.

The remainder of this paper is structured as follows. Section 2 reviews the literature showing the benefits associated with the concepts of joint versus single audit and the developed research hypotheses. Section 3 discusses the research methodology including data collection, sample size, interviews were undertaken, and the design of the survey. Section 4 reviews the results of the descriptive and inferential statistics. Conclusions, limitations, and recommendations for future research are presented in Section 5 of the paper.

## 2. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

### 2.1. Joint audit and audit quality

There is consensus among researchers regarding the definition of the joint audit (Zerni et al., 2012; Alanezi et al., 2012; Baldauf & Streckel, 2012; Paugam & Ramond, 2015). Shahrokhshahi and Blandon (2019) defined a joint audit as an audit associated with an audit task accomplished by two independent auditors in which both are responsible for the final report. In joint audits, the financial statements are audited by two or more independent auditors in two different audit firms in a form that allows coordination in audit planning, shared audit efforts, making periodic cross reviews, issuing, and signing a single audit report, and bearing joint liability in case of audit failure. Few research papers investigated and assessed the effect of joint versus single audits on audit quality and had mixed results

and findings. Some studies focused on whether joint audit improves or impairs audit quality, and some found a positive association between them (Francis, Richard, & Vanstraelen, 2009; Holm & Thinggaard, 2010; Lesage, Ratzinger-Sakel, & Kettunen, 2012, 2017; Zerni et al., 2012; Paugam & Casta, 2012; Chihi & Mhirsi, 2013; Lobo et al., 2013; Deng et al., 2014; Velte & Azibi, 2015). Other researchers found that the relationship between the joint audit and audit quality is contingent on the type of joint audit regime and the mix of joint auditors appointed (Lesage et al., 2012; Alsadoun and Aljabr, 2014; and André et al., 2016). In a case study conducted by Baldauf and Steckel (2012), they investigated whether a joint audit, opposed to a single audit improves the level of auditor's reporting consensus and accuracy as proxies of audit quality. They found that the audit reports issued by auditors in joint audits are more conservative and more accurate than those issued by an auditor in a single audit. Moreover, they found that the communication between auditors involved in the joint audit processes and the discussion of the audit findings enhance the rationalization and accuracy of the audit opinion expressed, thus improving the audit quality. Another study undertaken by Benali (2013) examined the effect of joint audit engagements on the level of the shareholders' confidence in the financial statements. The study found a positive significant impact on the shareholders' confidence in the financial statements.

Similarly, Pais (2014), using a sample of the largest European listed companies, investigated the impact of joint audits on the cost of debt as a proxy for audit quality. The study showed that the cost of debt in the companies audited by two auditors is lowered compared to companies audited by one single auditor. Furthermore, Zerni et al. (2012) found that Swedish firms that engaged in voluntary joint audit engagements experienced high levels of audit quality accompanied by higher degrees of conservatism, lower abnormal accruals, higher credit rating, and lower risk of forecasted earnings. Lesage et al. (2017) also found supporting results that increased monitoring due to voluntary joint audit led to higher audit quality. Other researchers found similar results of the implications of voluntary joint audits on audit quality (Benali, 2013; Ittonen & Trønnes, 2015). For example, Ittonen and Trønnes (2015), using a sample of Danish and Swedish listed companies, found that joint audit engagements are associated with lower abnormal accruals and timely recognition of economic losses as proxies of audit quality. However, they did not find any association between joint audits and total accruals and the probability of reporting profit. On the other hand, Lesage et al. (2012) found no significant difference in the level of abnormal accruals between companies listed in the Copenhagen stock market audited by two audit firms compared to companies audited by a single audit firm. They emphasized that a single audit is more effective in constraining earnings management than joint audits. Also, Velte and Azibi (2015) using a sample of 307 German and French listed companies found that joint audit engagements have no significant impact on the level of abnormal accruals or discretionary accruals in both countries. Opponents of the joint

audit (Holm & Thinggaard, 2010; Zerni et al., 2012; Deng et al., 2014; Alsadoun & Aljabr, 2014) continue to argue that the practice of joint audit impairs the audit quality for various reasons. Joint audits could result in an opinion shopping problem, because management may offer to purchase the audit opinion of small audit firms who may accept as big audit firms will bear the consequences and reputation cost alone. It could also result in free-riding problems because small audit firms have fewer resources than big audit firms when the latter performs most of the audit work and the small audit firm will take advantage of the hard work done by the other firm. Finally, the joint audit may lead to insufficient information exchange resulting in compromising audit quality, because auditors from competitive audit firms may not have an incentive whilst conducting the audit work. Accordingly, we present our first hypothesis as follows:

*H1: There are differences in the perceptions of the audit quality by auditors in joint versus single audit engagements.*

## 2.2. Joint audit and the type of the audit firm

There is an obvious interrelationship between the audit firm classification (big or small) and the level of technology efficiency in such firms. Deng et al. (2014) and Holm and Thinggaard (2016) presumed that all big audit firms have comparable technology efficiency, whereas small audit firms have comparable or lower technology efficiency relative to big audit firms. Similarly, Sirois and Simunic (2011) examined the relationship between audit quality and the audit firm size, the structure of the audit firm, and the market concentration in the audit industry. They concluded that there are crucial variations between Big 4 and non-Big 4 audit firms in relation to investment strategies in the audit technology. These variations explain why a non-big audit firm cannot replicate an audit conducted by a Big 4 as the latter control larger market shares and retain superior audit technologies, which allow them to perform high-quality audits at relatively lower costs (Samaha & Hegazy, 2010; Hegazy & Hegazy, 2018). In addition, other researchers (Marmousez, 2009; Audoussert-Coulier, 2012; Chihi & Mhirsi, 2013; Lobo et al., 2013; Beck, Gunn, & Hallman, 2019) found that companies audited by two Big 4 audit firms tend to have lower abnormal accruals. Similar results were found by Francis et al. (2009) who indicated that companies with less ownership structure concentration and lower rates of family ownership are more likely to appoint at least one Big 4 audit firm. Deng et al. (2014) claimed that joint audits that involve one Big 4 and one non-Big 4 audit firm may impair audit quality because, in such circumstances, joint audits would induce a free-riding problem between audit firms involved in the engagement that reduces audit evidence precision and consequently impairs audit quality. Big 4 audit firms operate in a decentralized organization structure, which enables their personnel to develop better knowledge of existing and potential clients in a location where the client belongs (Ferguson, Francis, & Stokes, 2003). Clients in turn earn more confidence in the expertise of the locally based audit firms whose

personnel have more “in-house” experience to perform the audit work.

Moreover, non-Big 4 audit firms still provide acceptable audit quality, but there exists a significant difference compared to Big 4 audit firms (Francis & Michas, 2013; Francis & Yu, 2009). Francis et al. (2009) identified two reasons for such differences. First, greater in-house networking/consultation opportunities and more experience in Big 4. Second, a better follow-up and monitoring of the audit procedures, better communication, and partner compensation contracts in Big 4 which would limit the variations. Thus, auditor size is viewed as a proxy for audit quality because lower economic reliance on any single client makes larger audit firms less likely to behave opportunistically to retain their client. Also, large Certified Public Accountant (CPA) firms are more reluctant on preserving and maintaining their good reputation (Lobo et al., 2013). The empirical audit literature supports this notion, and Big 4 audit firms obtain higher rates using various audit quality measures than non-Big 4 audit firms (Khurana & Raman, 2004; Behn, Choi, & Kang, 2008). Moreover, according to prior studies pairing two Big 4 auditors leads to better audit quality than pairing a Big 4 with a non-Big 4 even though having a non-Big 4 audit firm may lead to better audit quality due to highly motivated non-big audit firms to reach and exceed the standard of quality of the Big 4 audit firms. Given the above arguments, the following hypothesis is developed:

*H2: There are differences in the perceptions of the audit quality by auditors in joint versus single audit that involves one or more of the Big 4 audit firms.*

### **2.3. Joint audit and partners’ level of competence and experience**

Audit plays an important role in developing and enhancing global business economies. Auditors express an opinion on the fair presentation of the financial statements, which is crucial for the users to gain assurance about the information reported in those statements. Consequently, auditors should raise and improve their skills to increase the levels of reliance and credibility of the audit reports and the audited financial statements for the decision-makers (Carcello, Hermanson, & McGrath, 1992; Al-Khaddash, Al Nawas, & Ramadan, 2013). Effective and efficient joint audits could affect two components of audit quality (i.e., independence and competence). The advantages of joint auditors’ competence lie in the concept that four eyes are expected to have more detecting ability than two eyes. Also, auditors in joint audits will seek to dominate each other to protect their reputation and during auditors’ rotations, the remaining auditors will retain the acquired knowledge and expertise in the company. On the other hand, some of the disadvantages of joint audit’s competence are when two auditors co-audit several companies, their extensive knowledge of each other may result in cross review procedures, reducing their surveillance of the work. Also, auditors can prevent the exchange of adequate information with their co-auditor to retain their competitive capability (Shahrokhshahi &

Blandon, 2019). Collective human capital, in-house experience, and expertise when dealing with public companies were proved to be an important dimension of human capital. Big 4 audit firms have a wider clients base which provides them with better opportunities to interact with each other through members firms in different countries and with different clients and acquire more knowledge and expertise. In addition, big audit firms have a better local support network through peer reviews (Yu, 2007). Many research papers have found a positive association between audit quality and auditors’ qualifications, proficiency, and technical capabilities. The level of education, professional experience, and certifications held by the auditors are found to be associated with the auditor’s remuneration and the hourly fees rate (Beck et al., 2019). Continuous education and training provide auditors with the latest development in many sophisticated and specialized topics like accounting and auditing standards and audit methodologies, and quantitative and qualitative data gathering and analysis techniques.

Moreover, Deng et al. (2014) indicated that Big 4 audit firms have an advantage over smaller audit firms in terms of technology used in the audit work. Big 4 audit firms invest more resources in information technology and software, and they have in-house specialists to consult with during the audit process. Moreover, Holm and Thinggaard (2018) equated audit technological efficiency with cost efficiency, i.e., the lower marginal cost of audit evidence precision. They inferred that audit firms with inefficient technological efficiency will spend more time to complete the same audit job with the same level of evidence precision. Thus, low technological efficiencies may impair audit quality. Similarly, Andre, Broye, Pong, and Schatt (2016) found no differences in audit quality measured by different proxies for earnings management between French companies with joint audits with either two Big 4 or one Big 4 audit firm and the UK or Italian companies audited by a single Big 4 audit firm. Thus, it is also possible that the competence of a single Big 4 auditor is enough to ensure the requisite level of audit quality, and thus the difference in competence may not manifest in different audit qualities. So, the third hypothesis is formulated as follows:

*H3: There are differences in the perceptions of the audit quality by auditors in joint versus single audits where partners have different levels of competence and experience.*

### **2.4. Joint audit and client’s complexity**

We classify complex audit engagement (client’s complexity) based on the nature of the client’s structure, size, geographical dispersion, locally and internationally client’s subsidiaries (Hossain, Yazawa, & Monroe, 2017). Prior studies have investigated some characteristics of the client including its size and used the following indicators to measure it: client’s market value, number of employees, and sales. However, most researchers favored the value of total assets as the most used indicator of the client’s size (Abdelrazik, 2017). Arens, Elder, Beasley, and Hegazy (2013) concluded

that the problem with client complexity is that it cannot be observed directly and varies among studies (Hay, Knechel, & Wong, 2006). There are two main streams in the literature. Some researchers assumed that the client company structure can cause complexity. They used the number of subsidiaries that a firm locally and internationally owns as a proxy to represent it; a company with more subsidiaries has decentralized operations and consequently is more complex concerning the audit. Other researchers assumed that complexity can be categorized as industry characteristics, which implies that some industries are more complex to audit than others. They used the Standard Industrial Classification (SIC) codes. The American Institute of Certified Public Accountants (AICPA) periodically issues specified guidance to help auditors in handling complex audits across a variety of industries. Such guidance can be considered as the accounting profession's assessment of industries that increase the accounting complexities in the financial reporting and the need for auditors for guidance as a supplement to the current accounting standards (Bills, Jeter, & Stein, 2013).

Moreover, Ittonen and Trønnes (2015) used a composite measure of client's audit complexity, which is a function of client size, industry, geographical dispersion at both the national level and the international level, and the client subsidiary complexity. The national and international geographical dispersion complexity was assessed based on the number of different cities within and outside the country in which the firm had its headquarters and its registered subsidiaries. They also measured subsidiary complexity as the number and the nature of the different subsidiaries. No research study did assess the client's complexities using the notion of listed versus non-listed companies. Thus, the following research hypothesis is formulated:

*H4: There are differences in the perceptions of audit quality by auditors between joint and single audits for the client's complexity.*

### 3. DATA COLLECTION AND ANALYSIS

The population of this research includes partners, managers, vice managers, senior auditors, and auditors in five audit firms with international affiliation including two of the Big 4 in Egypt given the busy schedule of partners and senior managers to perform their diversified audit duties. Interviews were conducted with 10 partners and 10 audit managers out of the five selected firms as well as two professors of auditing in early 2020 to assess the prototype questionnaire which consists of five sections, each section contains the data related to testing one of the four research hypotheses in addition to the introductory section. Participants were asked to indicate the extent of their agreement or disagreement using the five-point Likert scale. Two hundred and fifty (250) questionnaires were distributed during the second half of 2020 to the five audit firms (50 questionnaires to each audit firm) across upper and lower-level auditors. Contact was initially established through the five audit partners. One hundred and seventy-six (176) questionnaires were returned with a 70% response

rate. The demographic data includes gender, years of experience, and jobs as shown in Table 1. The tables presented in the results and discussion section include various sections of the questionnaire.

**Table 1.** Summary of the demographic data of the sample respondents

<i>Gender</i>	<i>Frequency</i>	<i>Percent</i>
Male	131	76.2
Female	41	23.8
<i>Years of experience</i>		
1-3 years	58	33.7
3-5 years	54	31.4
5-10 years	20	11.6
> 10 years	40	23.3
<i>Job</i>		
Partners	5	2.9
Audit managers	29	16.9
Vice audit managers	28	16.3
Senior auditors	60	34.8
Auditors	50	29.1
Total	172	100

## 4. RESULTS AND DISCUSSION

### 4.1. Descriptive and inferential statistical tests for the first hypothesis

To test the first hypothesis (*H1*), that there are significant variations in the quality of the audit performed in a joint audit compared to single audit engagements, we divided the questions of section one into two parts. Part 1 includes questions concerning the joint audit engagement: q1, q2, q3, q4, q9, q10, q11, q14, q15, q16, q17. Part 2 includes questions concerning single audit engagement: q5, q6, q7, q8, q12, q13. Table 2 includes the results of descriptive analysis and shows that most of the auditors surveyed agree that the joint audit outweighs the single audit in relation to achieving audit quality because of the following elements. First, a joint audit helps to keep the audit firms on their toes to ensure that each firm delivers high audit quality and ensures continuity with the client with a mean value of 4.19 (EC, 2010; Regulation (EU) No. 537/2014). Second, joint audit benefits from brainstorming among the auditors involved in the audit work with a mean value of 4.12, a matter which helps identify possible misstatements in the financial statements. This is consistent with the findings of Zerni et al. (2012) who stated that joint audits will make it more difficult for management to manipulate financial statements.

Moreover, if the audited client has complex transactions (i.e., degree of difficulty of the audit), the joint audit firms achieve a high level of inter-connectedness in the performance of the audit (EC, 2010; Regulation (EU) No. 537/2014; Francis et al., 2009). Third, the intense competition between the two joint auditors fulfilling the same audit work positively affects audit quality given that the collusion between management and audit firms becomes more difficult. This is consistent with Mazars' (2010), Zerni et al.'s (2012) and Alsadoun and Aljabr's (2014) findings. Fourth, a joint audit helps to mitigate the risk of over-familiarity with the client as the work among the joint auditors can always be rotated, resulting in a positive effect on the independence of the joint auditors (similar

results are found by Carcello and Nagy, 2004; Lobo et al., 2013; Deng et al., 2014). Fifth, because of multiple contacts with the auditee by more than one audit firm; the number of audited issues that one audit firm may not be able to cover increases. Finally, joint audit enhances audit quality given the usual situation that the two firms have previously worked together on the same audit engagement in the previous period (in line with Baldauf and Steckel, 2012; Pais, 2014). Due to the willingness of each participating office to obtain a business opportunity (provision of consulting work/non-audit services), a joint audit allows cross-review of each of the joint auditors' work. Based on the above discussion, we can conclude that the respondents supported the joint audit engagement with an overall mean of 3.87.

Such results are consistent with one partner's opinion who indicated, "Whenever I am responsible for a joint audit, I feel slightly pressured as I expect to raise my concentration to ensure that my firm outweighs the quality standards of the other audit firm". Another partner provided a surprise quotation

by indicating "whenever I am called for a joint audit, I first ask about the partner responsible from the other office and if he has a good reputation for quality then I really enjoy the audit and I feel confident that cost saving will be achieved due to less efforts and time". At the same time, one of the Big 4 partners indicated, "it does not make any difference whether we are providing a single or joint audit as we are required to apply our audit approach for the client to comply with the requirements of our international network". Another partner of a Big 4 highlighted the problems related to joint audit and raised the alarm that in several engagements, the audit team from the other audit firm relied on the work performed by his firm without undertaking significant audit tests. When he was asked how he got such evidence he said, "when we sat with the management of the client, I found that the partner and audit manager of the other were not aware of a substantial number of customers for the audit of the loan portfolio of such financial institution even though the account balance was material".

**Table 2.** Descriptive analysis for questions concerning the joint audit engagement

Variables	Mean	Std. Deviation	Coeff. of variation	Degree of agreement	Rank
X1_01: The joint audit increases the quality of the audit through brainstorming among auditors involved in the performance of the audit work.	4.12	0.79	19.1	Agree	2
X1_02: The joint audit increases the quality of the audit due to intense competition between the joint auditors fulfilling the same audit work.	3.91	0.96	24.6	Agree	5
X1_03: The joint audit increases the quality of the audit due to the willingness of each participating audit firm to obtain consulting and non-audit services.	3.58	1.11	30.9	Agree	11
X1_04: The joint audit increases the quality of the audit as it helps to keep the audit firms on their toes to ensure that each firm delivers high audit quality and ensures continuity with the client.	4.19	0.87	20.8	Agree	1
X1_09: The Joint audit increases the quality of the audit because of multiple contacts with the auditee -by more than one audit firm; thereby increasing the number of audited issues that one audit firm may not be able to undertake.	3.85	0.97	25.3	Agree	9
X1_10: The joint audit increases the quality of audit as it helps to mitigate the risk of over-familiarity with the client as the work among the joint auditors can always be rotated.	3.90	1.04	26.6	Agree	6
X1_11: The joint audit increases the quality of the audit as collusion between the management of the client and the audit firms becomes more difficult.	3.90	0.97	24.8	Agree	7
X1_14: The joint audit increases the quality of the audit as it allows cross review of each of the joint auditors' work.	3.48	1.33	38.3	Agree	12
X1_15: The joint audit increases the quality of the audit if the two firms have previously worked together or worked together on the same audit engagement in the previous period.	3.72	0.89	23.8	Agree	10
X1_16: The Joint audit increases the quality of the audit compared to a single audit when the two audit firms have a high level of inter-connectedness in the performance of the audit.	3.95	0.97	24.4	Agree	3
X1_17: The joint audit increases the quality of the audit compared to a single audit if the audited client has complex transactions (i.e., degree of difficulty of the audit).	3.94	0.91	23.1	Agree	4
X1_A: (Overall mean)	3.87	0.58	14.9	Agree	8

On the other hand, Table 3 shows that auditors were neutral and did not support the view that a single audit enhances audit quality compared to the joint audit engagement. Auditors confirmed that the joint audit may impair audit quality in case of coordination problems occur among joint auditors. For example, the joint audit may extend the length of the audit period because of each audit firm performing its own audit procedures and the quality of the audit work could be impaired due to overreliance on the counterpart auditor. One partner

of a Big 4 indicated, "When we are assigned a joint engagement I am always worried about the cost, time and efforts provided in the engagement as the client expects the high quality of services because we are two auditors". He added that sometimes the other auditor "act unethically in relation to the engagement by saving cost due to his reliance on our firm and its reputation". Similarly, one partner in a non-Big 4 audit firm referred to the problem of the inability of the Big 4 to provide an adequate number of staff for the engagement due to the need to cut costs

of the audit and the pressure resulting from the provision of the audit services to many clients at the same time. However, a joint audit may impair the quality of the audit compared to a single audit if the audited clients select evidence and rely on the opinion of the auditor who supports their point of view (Deng et al., 2014; Velte & Azibi, 2015). In a single audit, the auditor takes full responsibility for the audit work resulting in more effective

supervision of the audit team to perform the audit procedures appropriately. We conducted Kolmogorov-Smirnov and Shapiro-Wilk to test the normality of data and assess whether we can use parametric tests if the data follows a normal distribution or use non-parametric tests. The results show that the data distribution is not normal (for all hypotheses tested), therefore we will apply Wilcoxon signed-rank test.

**Table 3.** Descriptive analysis for questions concerning a single audit engagement

Variables	Mean	Std. Deviation	Coeff. of variation	Degree of agreement	Rank
X1_05: The quality of the audit is increased in a single audit as there is only one audit firm responsible for performing the audit compared to the joint audit in which more than one audit firms share the responsibility (and related liability) of performing the audit work.	3.63	0.99	27.3	Agree	2
X1_06: The quality of the audit work is impaired or reduced in the joint audit due to overreliance on the counterpart auditor.	2.99	1.04	34.9	Neutral	6
X1_07: The joint audit may extend the length of the audit period because of each audit firm performing its own audit procedures.	3.17	0.98	30.9	Neutral	5
X1_08: In a single audit, the quality of the audit is increased because there is one auditor responsible for the audit and thus more effective supervision of the audit team to perform the audit procedures appropriately.	3.62	1.02	28.1	Agree	3
X1_12: The joint audit may impair audit quality in case coordination problems occur among joint auditors which may compromise the quality of the audit.	3.30	1.20	36.2	Neutral	4
X1_13: The joint audit may impair the quality of the audit if the audited client selects evidence and rely on the opinion of the auditor who supports their point of view.	3.65	1.05	28.6	Agree	1
X1_B: (Overall mean).	3.39	0.66	19.5	Neutral	

#### Wilcoxon signed-rank test

Table 4 revealed statistically significant differences in the quality of audit work performed in a joint audit compared to single audit engagements ( $Z = -4.18$ ,  $p < 0.001$ ). Such differences are in favor of joint audit engagements since the median score is ( $Md = 3.86$ ) while the median score of single audits is ( $Md = 3.33$ ). Therefore, we accept  $H1$ . This is consistent with the results obtained from the descriptive analysis.

**Table 4.** Wilcoxon signed-ranks/sign test between joint and single audit engagement

Variables	Median	Z	Sig.	Effect size
X1_A: The joint audit engagement	3.86	-8.619	0.000	0.465
X1_B: The single audit engagement	3.33			

#### 4.2. Descriptive and inferential statistical tests for the second hypothesis

To test the second hypothesis ( $H2$ ), which states that there are variations in the quality of audit between joint audit and single audit that involve one or more of the Big 4 audit firms, we divided the questions of section two into two parts. Part 1 includes questions concerning the joint audit engagement: q1, q2, q3, q4, q5, q6, q9. Part 2 includes questions concerning single audit engagement: q7, q8, q10, q11, q12, q13. Table 5 includes the results of descriptive analysis and shows that the mean responses of the sample tend to "Strongly agree" that the audit quality is

enhanced when the joint audit involves one of the Big 4 audit firms. Such results are consistent with the findings of previous research (Sirois & Simunic, 2011; Deng et al., 2014; Hegazy, Al Sabagh, & Hamdy, 2015; Holm & Thinggaard, 2016). At the same time, auditors agree with a mean value of 4.19 that the concern of the Big 4 to maintain their reputation worldwide in a joint audit result in the provision of a high-quality audit given the extensive expertise and qualification levels of their staff. These results are consistent with the findings obtained by Mazars (2010), Benali (2013), Velte and Azibi (2015), and Hegazy and Hegazy (2018) of the significant impact of Big 4 audit firms on shareholders' confidence in the financial statements and the benefits of geographical coverage.

Also, some of the partners interviewed other than those at the Big 4 indicated that whenever a Big 4 firm joins the audit engagement "we feel relaxed concerning the quality of the audit as Big 4 tend to exercise great efforts to show their leadership in the engagement". One partner of an international audit firm showed an exception as "when the audit is assigned to a branch of the Big 4 in a small or distant governorate, the quality of the audit is usually not as that undertaken by the Big 4 firm located in the capital or other main governorates due to less resources, technology and competent staff allocated to engagements in such locations". On the other hand, factors with less importance but still in support for joint audit to involve one of the Big 4 matters or critical accounting issues with a mean value of 3.84. Based on the above results, we can accept  $H2$ .

**Table 5.** Descriptive statistics for audit quality when joint audit involves one of the Big 4 CPA firms

Variables	Mean	Std. Deviation	Coeff. of variation	Degree of agreement	Rank
X2_01: In general, the quality of the audit increases when the joint audit involves one of the Big 4 audit firms because of the efficiency and effectiveness of the audit performed by the Big 4 audit firms worldwide.	4.31	0.69	16.0	Strongly agree	1
X2_02: The quality of the audit increases in a joint audit involving one of the Big 4 as they are more concerned to maintain their reputation worldwide and thus deliver audit service with high quality.	4.19	0.87	20.8	Agree	5
X2_03: The Joint audit involving one of the big four increases the quality of the audit since the Big 4 team members possess high levels of experience and professional qualifications that are not available to other audit firms.	4.30	0.78	18.2	Strongly agree	3
X2_04: The quality of the joint audit involving one of the Big 4 is increased due to the availability of resources needed to increase the size, scope, and extent of the required audit tests.	4.31	0.77	17.8	Strongly agree	2
X2_05: The joint audit involving one of the Big 4 increases the quality of the audit due to the technical support provided by their international networks worldwide.	4.26	0.87	20.4	Strongly agree	4
X2_06: The joint audit involving one of the Big 4 may increase the quality of the audit compared with a single audit as they will minimize differing views or interpretations on any key audit matter or a critical accounting issue.	3.84	0.93	24.2	Agree	7
X2_09: The quality of the audit increases in the joint audit involving two of the Big 4 due to the availability of extensive expertise and qualification levels for their staff.	3.88	0.87	22.4	Agree	6
X2_A: (Overall mean).	4.16	0.58	14.0	Agree	

Similarly, Table 6 shows that the attitude of the sample tends to “Strongly agree” that the quality of the single audit increases if it is carried out by one of the Big 4 audit firms due to the availability and sufficiency of the resources needed to increase the volume, scope and the extent of the required

audit tests, the availability of extensive expertise and qualification levels for its employees and the good assessment of the elements that should be disclosed as key audit matters (Hegazy & Kamareldawla, 2021).

**Table 6.** Descriptive analysis for audit quality when a single audit is conducted by one of the Big 4

Variables	Mean	Std. Deviation	Coeff. of variation	Degree of existence	Rank
X2_07: The quality of the single audit increases when the audit is conducted by one of the Big 4 due to the efficiency and effectiveness of the audit work carried out by the Big 4 audit firms worldwide.	3.56	0.89	24.9	Strongly agree	4
X2_08: The quality of the single audit increases if the audit is conducted by one of the Big 4 who is required to maintain its good reputation.	3.83	0.85	22.1	Strongly agree	3
X2_10: The quality of the single audit increases if the audit is carried out by one of the Big 4 because of the availability of extensive expertise and qualification levels for its employees.	3.85	0.91	23.7	Strongly agree	2
X2_11: The quality of the single audit increases if the audit is carried out in one of the Big 4 due to the availability and sufficiency of the resources needed to help the firm increases the volume, scope, and extent of the required audit tests.	3.86	0.88	22.8	Strongly agree	1
X2_12: The quality of the single audit increases if the audit is conducted by one of the Big 4 because of the optimal use of the resources of the audit office, and the effort and time in the implementation of the assignment.	3.37	0.94	27.8	Agree	6
X2_13: The quality of the single audit increases if the audit is conducted by one of the Big 4 because there is a good assessment of the elements that should be disclosed as key audit matters.	3.56	0.89	24.9	Strongly agree	5
X2_B: (Overall mean).	3.67	0.71	19.3	Strongly agree	

#### Wilcoxon signed-rank test

Table 7 revealed statistically significant differences between the quality of the audit in a joint audit with one of the Big 4 audit firms compared to single audit engagements ( $Z = -9.93$ ,  $p < 0.001$ ) with a large effect size ( $r = 0.54$ ). Such differences are in favor of joint audit engagements with one Big 4 firm since the median score is  $Md = 3.86$  while the median score of single audits with one Big 4 is  $Md = 3.17$ . Therefore, we accept  $H_2$ . This is consistent with the results obtained from the descriptive analysis.

**Table 7.** Wilcoxon signed-ranks test of audit quality when joint and single audit involves one of the Big 4

Variables	Median	Z	Sig.	Effect size
X2_A: Joint audit involving one of the Big 4 audit firms.	3.86	-9.926	0.000	0.535
X2_B: Single audit with one of the Big 4 audit firm.	3.17			



### 4.3. Descriptive and inferential statistical tests for the third hypothesis

To test the third hypothesis (*H3*), which states that there are variations in the quality of the audit between joint and single audits where partners have different levels of experience, competence, and qualifications, we divided the questions of section three into two parts. Part 1 includes questions concerning the joint audit engagement: q1, q2, q3, q4, q5, q6, q7. Part 2 includes questions concerning single audit engagement: q8, q10, q11, q12, q13, q14. Table 8 includes the results of descriptive analysis and shows that auditors tend to “Strongly agree” that the quality of the joint audit increases even if there are differences in the level of experience of the partners responsible for carrying out the audit work (mean = 3.88, SD = 0.87). Moreover, the attitude of the auditors tends to “agree” with that the quality of the joint audit increases even if there are differences in the size of the audit clients, the qualifications, competence, industry specialization, and the number of years of experience of the audit team (mean from 3.88 to 2.88). These results are consistent with other research findings which found a positive effect on audit quality when audit firms have audit technology efficiency (Holm & Thinggaard, 2018), and competence of audit staff whether in small or Big 4 audit firms (Deng et al., 2014; Lesage et al., 2017; Hegazy & Hegazy, 2018). Based on the above results, we accept *H3*.

However, some audit managers of international audit firms other than the Big 4 complained due to the excessive ego of the managers and partners of the Big 4 in a joint audit “Whenever I participate in a joint audit with one of the Big 4 especially in financial institutions and insurance companies I put a lot of efforts and time in understanding the recent requirements of both IFRS and ISA so that I can have deep discussions with the manager and partners of the Big 4, thus maintaining my professional respect in front of the client”. Another remark from a partner in one of the Big 4 audit firm “whenever we are providing our services in a joint audit with smaller audit firms, we extend the scope of our audit tests to compensate for any lack of qualifications, experience and industry specialization of the partner and manager of the other audit firm to safeguard the quality of our audit”.

In addition, Table 9 shows that auditors agreed that the quality of the audit increases when it is performed by a single qualified and experienced audit firm represented in the partner(s) in charge and the audit team (mean = 2.98, SD = 0.79). The results also confirm that auditors “agree” that the quality of the single audit increases if the partner in charge of the engagement has many audited clients and has industry specialization related to the audit clients. Thus, auditors agreed that the quality of the audit increases if the single audit is performed by a qualified and experienced audit firm (mean = 2.98, SD = 0.79).

**Table 8.** Descriptive analysis of audit quality with differences in the level of experience in the joint audit

Variables	Mean	Std. Deviation	Coeff. of variation	Degree of existence	Rank
X3_01: The quality of the joint audit increases even if there is a disparity in the level of qualifications of the partners responsible for carrying out the audit work.	3.35	0.71	21.1	Agree	3
X3_02: The quality of the joint audit increases even if there is a disparity in the level of experience of the partners responsible for carrying out the audit work.	3.88	0.87	22.4	Strongly agree	1
X3_03: The quality of the joint audit increases even if there is a disparity in the level of competence of the partners responsible for carrying out the audit work.	3.35	0.72	21.6	Agree	4
X3_04: The quality of the joint audit increases even if there is a discrepancy in the number of years of the partners responsible for carrying out the audit work.	3.37	0.71	21.0	Agree	2
X3_05: The quality of the joint audit increases even if there is a discrepancy in the size of the clients being audited.	3.32	0.78	23.4	Agree	5
X3_06: The quality of the joint audit increases in the event of a disparity in the level of competence, experience, and qualifications of the managers and members of the audit teams given similar experience and qualifications of the partners responsible for the engagements	2.88	0.83	28.8	Agree	7
X3_07: The quality of the joint audit increases if there is a discrepancy between the audit firms in relation to the industry experience of the clients under audit.	2.98	0.73	24.6	Agree	6
X3_A: (Overall mean).	3.31	0.51	15.4	Agree	

**Table 9.** Descriptive analysis for the audit with a single qualified and experienced audit firm (Part 1)

Variables	Mean	Std. Deviation	Coeff. of variation	Degree of existence	Rank
X3_08: The quality of the single audit increases if the audit partner responsible for the engagement has the necessary and required qualifications for the audit.	3.13	0.99	31.6	Agree	1
X3_09: The quality of the single audit increases if the audit partner responsible for the engagement has the necessary and required experience for the audit.	2.96	0.95	31.9	Agree	5
X3_10: The quality of the single audit increases if the audit partner responsible for the engagement possesses the competence required for the audit.	3.08	0.98	31.8	Agree	2

**Table 9.** Descriptive analysis for the audit with a single qualified and experienced audit firm (Part 2)

Variables	Mean	Std. Deviation	Coeff. of variation	Degree of existence	Rank
X3_11: The quality of the single audit increases if the audit partner responsible for the engagement has the necessary number of years of supervision of the audit work for the client under audit.	2.96	0.94	31.7	Agree	4
X3_12: The quality of the single audit increases if the audit partner in charge of the engagement has many audited clients.	3.01	0.94	31.3	Agree	3
X3_13: The quality of the single audit increases if there is an appropriate level of competence, expertise, and qualifications of the audit managers and other members of the audit team responsible for the audit.	2.88	0.94	32.8	Agree	6
X3_14: The quality of the single audit increases if there are an industrial specialization of the activities and practices of the client under audit.	2.85	0.97	34.0	Agree	7
X3_B: (Overall mean).	2.98	0.79	26.4	Agree	

*Wilcoxon signed-rank test*

Table 10 revealed statistically significant differences between the level of experience of the joint audit and the single audit since  $Z = -5.277$ ,  $p < 0.001$ , with a small effect size ( $r = 0.29$ ). Such differences are in favor of joint audit engagements with the level of experience since the median score is  $Md = 3.29$  while the median score of single audits with the level of experience is  $Md = 3.00$ . Therefore, we accept  $H3$ . This is consistent with the results obtained from the descriptive analysis.

**Table 10.** Wilcoxon signed ranks tests of audit quality: Level of experience of auditors in joint vs. single audit

Variables	Median	Z	Sig.	Effect size
X3_A: Differences in the level of experience of joint auditor involved in the audit work.	3.29	-5.277	0.000	0.285
X3_B: The case of a single qualified and experienced audit firm.	3.00			

**4.4. Descriptive and inferential statistical tests for the fourth hypothesis**

To test the fourth hypothesis ( $H4$ ), which states that there are variations in the quality of the audit between joint and single audits for the client's complexity proxied by listed versus unlisted companies. We divided the questions of section four into two parts. Part 1 includes questions concerning the joint audit engagement; q1, q3, q5. Part 2 includes questions concerning single audit engagement; q2, q4, q6. Table 11 shows that auditors agree that the quality of audit increases in listed companies with an overall mean of 2.93. This is confirmed when assessing the likelihood of listed companies being audited by one or more offices including one Big 4 firm or facing differences in the level of experience and qualifications of the partners responsible for the engagement. Similarly, Table 12 shows that auditors agree that the quality of the audit in non-listed companies also increases whether they are executed by one or more audit firms, including one of the Big 4, or if there are differences in the level of experience and qualifications of the partners responsible for the engagement with an overall mean of 2.93.

**Table 11.** Descriptive analysis for the quality of audit work in listed companies

Variables	Mean	Std. Deviation	Coeff. of variation	Degree of existence	Rank
X4_01: The quality of the audit of listed companies increases in case they are executed by one or more of the audit firms.	2.95	0.95	32.3	Agree	1
X4_03: The quality of the audit of listed companies increases in case they are executed by one or more of the audit firms, including one of the Big 4.	2.95	0.95	32.1	Agree	2
X4_05: The quality of the audit work of listed companies increases in case they are carried out by one or more of the audit firms, even if there is a disparity in the level of experience and qualification of the partners.	2.87	0.95	33.2	Agree	3
X4_A: (Overall mean)	2.93	0.83	28.3	Agree	

**Table 12.** Descriptive analysis for the quality of audit work in non-listed companies

Variables	Mean	Std. Deviation	Coeff. of variation	Degree of existence	Rank
X4_02: The quality of the audit of non-listed companies increases in case they are executed by one or more audit firms.	3.07	0.98	32.0	Agree	1
X4_04: The quality of the audit of non-listed companies increases in case they are executed by one or more audit firms including one of the Big 4 firms.	3.00	0.95	31.6	Agree	2
X4_06: The quality of the audit of non-listed companies increases in case they are carried out by one or more audit firms, even if there is a disparity in the level of experience and qualification of the partners.	2.84	0.97	34.2	Agree	3
X4_B: (overall mean).	3.09	0.70	22.6	Agree	

*Wilcoxon signed-rank test*

Table 13 revealed non-statistically significant differences between the quality of the audit work in listed versus non-listed companies in the Egyptian Stock Exchange since  $Z$  is equal to  $-1.282$ , with  $p$  equal  $0.200$ . So we can reject  $H_4$ . A possible interpretation for such a result is that the efforts, time, and cost provided by auditors for listed compared to non-listed companies are the same given that there are no severe penalties for violation of laws and regulations for listed compared to non-listed companies in an emerging market. Thus, auditors tend to provide the same quality of audit for both types of companies. Also, the role of the oversight board in Egypt is still weak compared to the monitoring role achieved in the US and other European countries.

**Table 13.** Wilcoxon signed-ranks test of differences of the quality of audit work in listed versus non-listed companies

Variables	Median	Z	Sig.	Effect size
X4.A: The quality of audit work in companies listed on the Egyptian Stock Exchange.	3.00	-1.282	0.200	0.069
X4.B: The quality of audit work in companies non-listed on the Egyptian Stock Exchange.	3.00			

## 5. CONCLUSION

The current research investigates the association between the use of joint or single audits and the auditors' perceptions of the quality of the audit. There are mixed results in the literature on whether joint audits would result in a positive or negative effect on audit quality compared to a single audit. Most of the studies undertaken in both developed and developing countries assessed the effect of joint audits on the quality of audit using proxies such as audit fees, the accuracy of the audit opinion, abnormal accruals, higher credit rating without real comparison with a single audit engagement. The results of the current research study indicate the acceptance of  $H_1$  confirming that a joint audit does enhance the quality of the audit compared to a single audit. Brainstorming among auditors in joint audit engagements result in close inter-connectedness in the performance of the audit, thus achieving the required results of the audit. Also, competition among auditors motivates them to achieve accuracy and precision in their audit tasks. The independence of the auditors in a joint audit would be enhanced compared to a single audit due to less probability of collusion between the management of the client and the audit firms and mitigation of familiarity with the client as the work among the joint auditors can always be rotated. Finally, joint audit engagements allow cross-review of each of the joint auditors' work. Similarly, the results of testing  $H_2$  confirmed the positive effects of the Big 4 in a joint audit engagement on audit quality. Big 4 audit firms with reputable status possess high levels of "in-house" experience,

knowledge, and professional qualifications that are not available to other audit firms in addition to the highly technical and financial support provided by their international networks worldwide (Lin, Lin, & Yen, 2014). They have a wider client base which gives them an opportunity to acquire greater knowledge and expertise and more peers to consult with and hence have a better local support network. Moreover, they have continuous training programs, standardized audit programs, and firm-wide knowledge-sharing practices supported by information technology. As to whether there are significant variations in the quality of audit when there is a difference in the level of competence and experience possessed by the audit partners (and teams) in the audit firms participating in the joint audit compared to a single audit ( $H_3$ ), the results reveal audit quality increases in joint audit with partners and teams possessing competence and several years of experience. On the other hand,  $H_4$  was rejected as the statistical tests show no variation in the audit quality in a joint audit compared with a single audit for listed companies compared to non-listed. This is due to the discrepancies in the joint audit partners' level of experience and professional qualifications relevant to the audit engagements and the ineffective monitoring by oversight boards of the audit work in emerging markets.

The current research provides several important contributions to the auditing literature related to joint audit engagements. First, it is among the first to study the impact of joint audits compared with single audits on the perceptions of the audit quality in an emerging economy such as Egypt. Second, the research identifies the difficulties related to those two types of audit represented in diversified auditors' opinions related to the benefits of joint audit compared to single audit. Third, the results confirm the importance and necessity to perform joint audit engagements involving one of the Big 4 audit firms with one audit partner possessing industry specialization related to the audit assignment. Fourth, the findings of the research show that the staff of joint audit must maintain a high level of professionalism and have years of experience in the activities and practices of the audited clients. The study provides valuable insights and recommendations for audit firms, monitoring oversight bodies, and other professional bodies to encourage the use of joint audits versus single audits for business enterprises to enhance audit quality. The research also recommends that members of single or joint audit firms obtain relevant professional and specialized training courses in the client's industry as well as specialized technical support in the field of laws and regulations that are relevant to/and govern the industry specialization. The research study has some limitations. The research methodology relied on data collected from only five audit firms including two of the Big 4 given the difficulty to communicate with partners and senior managers in audit firms due to their usual busy schedules to perform their diversified audit tasks. Also, only a limited number of interviews with both professors, audit partners, and other auditors were undertaken.

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