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External Auditor's Industrial Specialization and Impact on the Quality Joint Audit Performance: A Field Study

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ABSTRACT

Examining how the external auditor's industrial specialization affects the quality of joint audit performance is the main goal of this study. The idea and significance of the external auditor's industry specialization, as well as its advantages and disadvantages, as well as its influence on the caliber of professional audit performance, were discussed in order to accomplish this goal. The concept, objectives, importance, positives, and negatives of joint auditing were also addressed, and the contribution of the external auditor's industrial specialization to improving the quality of joint audit performance was identified. A field study was also conducted to test the study's hypotheses. The study population consisted of external auditors in accounting and auditing firms in Egypt, with a sample size of 150 individuals, as well as academics in accounting departments at faculties of commerce at Egyptian universities, specifically those specializing in auditing, with a sample size of 50 individuals. Through the field study, the researchers concluded that the external auditor's industrial specialization leads to improved performance and efficiency during the joint audit process. It also contributes to enhancing the positives of joint auditing and reducing its negatives, from the perspective of the study sample. Additionally, it was confirmed that the two study sample groups' perspectives on the research hypothesis did not differ significantly.

Keywords: External auditor's, Industrial specialization, Joint audit, Audit quality, Quality joint audit performance.

Introduction

The auditing profession has faced significant challenges due to the collapse of several major corporations, including the corporation Enron, WorldCom, and others, as well as the collapse of one of the world's largest audit firms, Arthur Andersen.

Numerous banks and other financial institutions failed as a result of the 2008 global financial crisis. This all contributed to a shake-up of confidence in the auditing profession and raised doubts about the independence of external auditors. Therefore, in October 2010, the European Commission issued a Green Paper entitled "Audit Policy: Lessons from the Crisis," which proposed several mechanisms to address the problems revealed by the global financial crisis. Among these mechanisms is the need to use more than one external audit firm or office to review financial reports, known as a joint audit, whereby they jointly sign the audit report (European Commission, 2010).

The joint audit approach is implemented through different combinations. The first combination involves two or more external auditors belonging to the so-called Big 4 accounting and auditing firms, and this combination is called (Big

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4–Big 4). The second combination involves two external auditors, only one of whom belongs to the Big 4 accounting and auditing firms, and this combination is called (Big 4–Non Big 4). The final combination involves two external auditors who do not belong to the Big 4 accounting and auditing firms, and this combination is called (Non Big 4–Non Big 4) (Jeer, 2017).

Therefore, the external auditor's industrial specialization can be leveraged to improve the quality of joint audit performance. This can be achieved by contributing to the performance of the joint audit team, supporting and enhancing the positive aspects of the joint audit, and reducing its negative aspects.

Previous Literature

Numerous research addressed the industrial specialization of external auditors in various fields and produced remarkable outcomes in obtaining this support in those fields : (Kimberly, 2004; Kwon *et al*., 2007; Cahan *et al*., 2011; Chi & Chin, 2011; Chiang *et al*., 2021; Lopez *et al*., 2022; Ruiz-Barbadillo & Martínez-Ferrero, 2022; Arianpoor & Farzaneh , 2023). Several studies dealt with the Joint Audit Performance, and among these studies: (Marmousez, 2009; Zerni *et al*., 2012; Ratzinger-Sakel *et al*., 2013; Deng *et al*., 2014; Van der Zahn, 2023; Van der Zahn & Tebourbi, 2023; Almarzouq *et al*., 2025).

Based on the results of previous studies on joint auditing, the following points can be concluded:

- The majority of research, such as Sophie Marmousez (2009), Mikko Zerni *et al*. (2012), and Mingcherng Deng *et al*. (2014), has looked at how collaborative auditing might improve the quality of financial reports and the audit process.
- Some studies have examined joint auditing and its impact on audit quality, but these studies were conducted in a business environment different from that of the Arab Republic of Egypt. These include Sophie Marmousez (2009), Mikko Zerni *et al*. (2012), Ratzinger-Sakel *et al*. (2013), and Mingcherng Deng *et al*. (2014).
- There is a dearth of studies at the Arab level to date, to the best of the researchers' knowledge, that focus on improving the quality of joint audit performance by enhancing the performance and efficiency of auditors during the joint audit process to increase the efficiency and effectiveness of the audit process. Thus, the current study's significance stems from its analysis of how the external auditor's industrial specialization affects the quality of joint audit performance by enhancing auditor performance and efficiency during the joint audit process, as well as the beneficial effects that their combined application can have on the audit process.

The research problem can be formulated through the following question: Does the external auditor's industrial specialization improve the performance and efficiency of auditors during the joint audit process?

Research Objective

This study's primary goal is to investigate how the industrial specialization of the external auditor affects the quality of joint audit performance. This goal can be broken down into the following sub-goals:

- To shed light on previous studies that addressed the topic of the external auditor's industrial specialization and joint auditing, and their findings, as a starting point for this research.
- To determine how the external auditor's industrial specialization contributes to improving the quality of joint audit performance.
- To conduct a field study to test the research hypothesis.

Research Hypothesis

To achieve the research objectives, the following hypothesis will be tested:

There is a positive impact of the external auditor's industrial specialization on improving the performance and efficiency of auditors during the joint audit process.

Materials and Methods

In this study, the researchers relies on both the deductive and inductive approaches to conduct two types of studies:

- Theoretical Study: This is accomplished by analyzing the contents of books and periodicals, both Arabic and foreign, as well as the contents of laws, legislation, and publications related to the profession, and any other sources of knowledge relevant to the research topic.
- Field Study: After arriving at a set of elements regarding the impact of the external auditor's industrial specialization on improving the quality of joint audit performance, a questionnaire is prepared to verify the validity (suitability) of these specific elements. The field study population consists of both external auditors in accounting and auditing firms in Egypt and academics in accounting departments at faculties of commerce at Egyptian universities, specifically those specializing in auditing.

The researchers will analyze the extent of consensus among the various opinions regarding the impact of the external auditor's industrial specialization on improving the quality of joint audit performance, and the impact this has on the acceptance or rejection of the research hypotheses, through appropriate statistical analysis of the data resulting from the study.

The Theoretical Framework of External Auditor Industrial Specialization and Its Contribution to Improving the Quality of Joint Audit Performance

The Concept of Industry Specialization of the External Auditor

Several definitions have been given regarding the concept of industry specialization of the external auditor. Some view industry-specialized auditors as auditors with extensive professional practice in specific sectors (Owhoso *et al*., 2002).

Moreover, industry-specialized auditors are defined as individuals appointed by audit firms to audit clients in a specific sector or industry, and who have received training or extensive experience in that sector or industry (Hammersley, 2006).

By analyzing the previous definitions, the researchers finds that they clarify the description of a specialized auditor as:

- Performs audit services for clients belonging to a single industrial sector.
- Possesses distinguished knowledge, experience, and practical expertise in the auditing process.
- It is associated with the existence of ongoing practice in specific sectors.

From the above, it becomes clear that the concept of industrial specialization is linked to specialized professional expertise, as the auditor performs audit services to clients belonging to a single industrial sector, and the auditor possesses professional knowledge and experience in a specific sector through learning or professional practice.

This demonstrates that the external auditor's industrial specialization helps them perform audit services with greater efficiency and increases the level of confidence in the auditor when performing the audit process, due to their sufficient familiarity with the client sector being audited. All of this benefits the profession and the auditors, and also helps improve the quality of joint audit performance, as performing joint audits through auditors specialized in the industry improves the quality of audit performance by leveraging the advantages of the external auditor's industrial specialization.

The Impact of the External Auditor's Industrial Specialization on the Quality of Professional Audit Performance

The importance of specialization in the auditing profession, i.e., the auditor's specialization in a specific sector of activity, such as the audit of banks, industrial or commercial companies, etc., stems from reducing audit costs. This is achieved by developing auditors' knowledge and experience in a particular economic activity, enabling them to address the problems they face. It also reduces industry-specific training costs across a large group of clients, which helps benefit from economies of scale. Furthermore, a client's selection of a specialized auditor benefits both the client and the auditor: the client requires less effort in informing the auditor of the nature of the activity, and the auditor achieves client satisfaction and improves audit quality (Mayhew & Wilkins, 2003).

Several research studies have used industrial specialization as an alternative measure of the quality of an auditor's professional performance. The results of these studies generally indicate that audit quality is positively related to the auditor's industrial specialization. The auditor's industrial specialization was considered a distinguishing factor in the recognition of audit quality by clients and society at large. These studies provided results consistent with the notion that there are additional benefits to auditing operations resulting from auditor specialization, and consequently, higher quality of audit results when working with a specialized auditor. Accordingly, the results of these studies support the current trend in audit firms toward industrial specialization (Awad, 2006).

The researchers agrees with the previous results and what they confirm about the positive relationship between the quality of the audit process in general and the auditor's specialization in a particular sector and measuring that with the quality of professional performance of audit services, as the extent of the direct relationship between academic qualifications, practical experience, and the auditor's familiarity with the generally accepted auditing standards, the size, reputation, and fame of the audit office, the independence of the auditor and the estimation of his fees, the procedures for planning and implementing the audit process, and the strength and integrity of the client's internal control system and the quality of professional performance of audit services becomes clear.

The Role of the External Auditor's Industrial Specialization in Improving the Quality of Joint Audit Performance

Since audit quality is defined as the auditor's probability of finding and disclosing material misstatements in the financial statements as well as shortcomings in the client's accounting system, the external auditor's competence determines whether they can find material misstatements in the financial statements, and their independence determines whether they can report material misstatements in the financial statements. When compared to the individual audit approach, it is anticipated that the use of collaborative auditing will improve the external auditor's independence and competency, which will in turn improve the external audit's quality (Mandour, 2016).

The Concept of Joint Audit

Joint auditing has been defined as the appointment of two independent auditors to jointly plan and perform the audit, interpret the results, and issue a consolidated report. (Abdel Hamid, 2014) Another definition of joint auditing is that it refers to an audit conducted by two or more audit firms, who coordinate to distribute audit-related tasks and issue a joint report. They are jointly responsible for the audit results (Saleh, 2015). It has also been defined as the performance of the audit by two audit firms under two different contracts, working together to prepare a single audit report (Saleh, 2016).

This demonstrates that a joint audit is simply a collaboration between two auditors who participate in the audit of a particular entity under two contracts. The goal is to divide the audit procedures and work between them based on joint planning for the audit process, ultimately helping them reach a unified opinion in a unified report.

Accordingly, the most important characteristics of a joint audit can be identified, based on the previous definition: a joint audit is conducted by two or more independent audit firms. A joint audit also requires coordination between the auditors involved in the audit process. It also includes the issuance of a unified, joint audit report, with the auditors being jointly responsible for the audit results (Duraimurugan *et al*., 2022; Anushree *et al*., 2023; Malinga & Laing, 2024).

Several studies have distinguished between a joint audit, which involves joint planning of the audit process and the division of audit work and procedures between the two auditors to ensure that audit tasks are not duplicated by the auditors. A joint audit report is issued, and a double audit, which involves conducting audits twice by different auditors. A dual audit, in which each auditor reviews a portion of the financial information and issues two separate reports on the procedures reviewed by each auditor, is also distinguished (Metwally, 2013).

Contribution of the External Auditor's Industrial Specialization to Improving the Performance and Efficiency of Auditors During the Joint Audit Process

The external auditor's industrial specialization helps improve the performance and efficiency of auditors during the joint audit process through the following elements:

- Increasing the efficiency and effectiveness of the audit. Auditors with a deeper understanding of a particular industry will be able to address critical issues more effectively, thus providing audit services at a higher level of efficiency.
- The auditor's knowledge of specialized information in each activity contributes to reducing the risks of the audit process.
- Technical knowledge of each activity affects the organization internal procedures and helps the specialized auditor in planning and implement the audit process.
- The professional ability of an external auditor specialized in the client's activity to adapt and modify the planned procedures for the audit process increases compared to non-specialized auditors.
- Repeating the audit process for the same activity gives auditors experience and knowledge of weaknesses.
- Improving the professional competence of the external auditor in detecting fraud, financial deception, and earnings management methods (Alsubeie, 2023; Dobrzynski *et al*., 2024; Makakova *et al*., 2024; Zafeiraki *et al*., 2024).
- Increase the auditor's confidence in his assessment of inherent risk, whether at the accounts level or at the level of the financial statements as a whole, and increase the accuracy of assessments regarding the risks inherent in the audit process.
- The auditor's industrial specialization increases the efficiency of the audit process compared to an auditor who is not an industry specialist.
- A specialized auditor requires less time than the target and fewer audit tests.
- Developing the knowledge and experience of auditors involved in a specific economic activity, enabling them to address the problems they face (Al-Khotani *et al*., 2022; Daivasigamani *et al*., 2022; Mohandas *et al*., 2022; Mubayrik *et al*., 2022; Broers *et al*., 2023; Hackenberg *et al*., 2023).

The Field Study

Study Community and Sample

The field study community comprises external auditors in accounting and auditing firms in Egypt and academics in accounting departments at faculties of commerce at Egyptian universities, specifically those specializing in auditing (Kulkarni *et al*., 2023; Makhoahle *et al*., 2023; Tabassum *et al*., 2023; Ismikhanov *et al*., 2024).

The researcher drew a judgmental sample of 150individuals for external auditors in accounting and auditing firms in Egypt, and 50individuals for academics in accounting departments at faculties of commerce at Egyptian universities. After collecting the questionnaire lists, the researcher reviewed them to ensure their completeness and suitability for data entry and statistical analysis. Lists that did not meet the necessary conditions were excluded. **Table 1** shows the number of distributed, received, excluded, and valid lists for statistical analysis:

Table 1. The number of distributed, received, excluded, and valid lists for statistical analysis

Sample Categories	Distributed Lists	Received Lists	Excluded Lists	Lists Valid for Statistical Analysis	Response Rate for Questionnaires Valid for Analysis
External Auditors	150	128	7	121	80.67%
Academics	50	44	3	41	82.00%
Total	200	172	10	162	81.00%

The response rates of 80.67% for the external reviewers, 82% for the academics, and 81% overall are considered good survey responses, sufficient to use the data as a basis for analyzing participants' opinions (Enwa *et al*., 2022; Liu *et al*., 2022; Zhang *et al*., 2022; İlaslan *et al*., 2023).

Before entering the data into the statistical program used, the elements and data were coded and then transcribed by computer. **Table 2** shows the elements and codes used:

Table 2. The elements and codes used

N	Elements	Symbols
1	Increasing the efficiency and effectiveness of the audit. Auditors with a deeper understanding of a particular industry will be able to address critical issues more effectively, thus providing audit services at a higher level of efficiency.	A1
2	The auditor's knowledge of specialized information in each activity contributes to reducing the risks of the audit process.	A2
3	Technical knowledge of each activity affects the organization internal procedures and helps the specialized auditor in planning and implement the audit process.	A3
4	The professional ability of an external auditor specializing in the client's activity to adapt and modify the planned procedures for the audit process increases compared to non-specialized auditors.	A4
5	Repeating the audit process for the same activity gives auditors experience and knowledge of weaknesses.	A5
6	Improving the professional competence of the external auditor in detecting fraud, financial deception, and earnings management methods.	A6
7	Increase the auditor's confidence in his assessment of inherent risk, whether at the accounts level or at the level of the financial statements as a whole, and increase the accuracy of the assessments regarding the risks inherent in the audit process.	A7
8	The auditor's industrial specialization increases the efficiency of the audit process compared to an auditor who is not an industry specialist.	A8
9	A specialized auditor requires less time than the target and fewer review tests.	A9
10	Developing the knowledge and experience of auditors involved in a specific economic activity, enabling them to address the problems they face.	A10

Testing the Reliability and Validity of the Study Tool

Cronbach's alpha variance method was used, which relies on the variances of the test questions. It requires that the test items measure only one characteristic of each dimension. The closer the alpha coefficient value is to one, the stronger the reliability. The closer it is to zero, the lower the reliability. **Table 3** shows the results of the reliability and validity coefficients for the questionnaire questions.

Table 3. Results of the reliability and validity coefficients for the questionnaire questions

N of Items	Alpha reliability coefficient		Validity coefficient	
	External Auditors	Academics	External Auditors	Academics
10	0.992	0.966	0.996	0.983

Table 3 shows that the Cronbach's alpha coefficient for the study content reached (0.992) for all question elements for external reviewers, and the Cronbach's alpha coefficient for the study content reached (0.966) for all question elements for academics, which had an impact on self-honesty, as the honesty coefficient reached (0.996) for all question elements for external reviewers, and the honesty coefficient reached (0.983) for all question elements for academics, which indicates the high reliability of measuring the content stability of the study variables at the level of the research sample.

Testing the Research Hypothesis

The questionnaire questions aimed to verify that the industrial specialization of the external auditor leads to improved auditor performance and efficiency during the joint audit process. **Table 4** displays the results of the descriptive statistics, using the arithmetic mean, standard deviation, and rank order for the first hypothesis for the two study sample categories (external auditors and academics).

Table 4. results of the descriptive statistics

N	Elements	External Auditors			Academics		
		Mean	Standard Deviation	Ranking	Mean	Standard Deviation	Ranking
1	A1	4.5702	0.51359	1	4.5610	0.50243	5
2	A2	4.5455	0.56273	4	4.4878	0.50606	9
3	A3	4.5207	0.57878	7	4.5122	0.55326	8
4	A4	4.5289	0.57842	6	4.5878	0.55326	4
5	A5	4.5537	0.54697	3	4.6098	0.49386	3
6	A6	4.5124	0.59324	8	4.4390	0.59367	10
7	A7	4.5620	0.53061	2	4.5610	0.54994	6
8	A8	4.4959	0.59335	10	4.5366	0.50485	7
9	A9	4.5372	0.54835	5	4.6585	0.48009	1
10	A10	4.5041	0.56456	9	4.6341	0.58121	2

Table 4 shows that the average of all the elements is greater than 4, which indicates that the industrial specialization of the external auditor leads to an improvement in the performance and efficiency of auditors during the joint review process from the point of view of the study sample. It is also noted that the standard deviation of all the elements is less than one, which indicates a decrease in the dispersion in the study sample's responses to these elements and thus the presence of consistency and convergence in the answers of the sample's components.

And It is clear from the trends of the external auditors' sample items and the academic sample showed a general trend towards agreeing that the external auditor's industrial specialization leads to improving the performance and efficiency of auditors during the joint audit process, with different orders of importance of the elements.

The researchers believes that since there are two independent samples, a statistical test must be conducted to verify the extent of statistically significant differences between the average opinions of the study sample regarding the agreement that the external auditor's industrial specialization leads to improved auditor performance and efficiency during the joint audit process. To determine this, normality tests must first be performed using both the Kolmogorov-Smirnov test and the Shapiro-Wilk test to determine whether the study sample data follows a normal distribution.

The results of the normality tests using both the Kolmogorov-Smirnov test and the Shapiro-Wilk test is shown in **Table 5**:

Table 5. results of the normality tests using both the Kolmogorov-Smirnov test and the Shapiro-Wilk test

Tests of Normality						
	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
A1	.379	162	.000	.650	162	.000
A2	.361	162	.000	.693	162	.000
A3	.356	162	.000	.700	162	.000
A4	.383	162	.000	.676	162	.000
A5	.378	162	.000	.670	162	.000

A6	.347	162	.000	.713	162	.000
A7	.374	162	.000	.673	162	.000
A8	.350	162	.000	.704	162	.000
A9	.378	162	.000	.670	162	.000
A10	.366	162	.000	.693	162	.000

a. Lilliefors Significance Correction

The results of the **Table 5** show that the significance level for both the Kolmogorov-Smirnov test and the Shapiro-Wilk test is less than 0.05, which indicates that the data do not follow a normal distribution and thus the possibility of using nonparametric statistics in testing hypotheses. Therefore, the Mann-Whitney test will be used to test the difference between two means, which is a nonparametric test to test the extent of the existence of differences between the opinions of the two study sample categories.

Table 6 shows the results of the Mann-Whitney test for the research hypothesis for the two study sample categories (external auditors and academics):

Table 6. Results of the Mann-Whitney test for the research hypothesis for the two study sample categories (external auditors and academics):

N	Elements	Sample group	Number	Mean rank	Level of significance	Type of difference
1	A1	External Auditors	121	81.29	.909	Insignificant
		Academics	41	82.12		
		Total	162			
2	A2	External Auditors	121	82.74	.506	Insignificant
		Academics	41	77.84		
		Total	162			
3	A3	External Auditors	121	81.85	.853	Insignificant
		Academics	41	80.48		
		Total	162			
4	A4	External Auditors	121	78.44	.095	Insignificant
		Academics	41	90.52		
		Total	162			
5	A5	External Auditors	121	80.66	.649	Insignificant
		Academics	41	83.98		
		Total	162			
6	A6	External Auditors	121	82.94	.446	Insignificant
		Academics	41	77.26		
		Total	162			
7	A7	External Auditors	121	81.43	.970	Insignificant
		Academics	41	81.71		
		Total	162			
8	A8	External Auditors	121	81.21	.878	Insignificant

		Academics	41	82.35		
		Total	162			
9	A9	External Auditors	121	79.35	.242	Insignificant
		Academics	41	87.85		
		Total	162			
10	A10	External Auditors	121	78.76	.141	Insignificant
		Academics	41	89.59		
		Total	162			

The results of the Mann-Whitney test in light of the **Table 6**. show that the significance level for all items is greater than 0.05, which indicates that there are no statistically significant differences between the average opinions of the sample for all items regarding the fact that the industrial specialization of the external auditor leads to improving the performance and efficiency of auditors during the joint audit process, which indicates the validity of the research Hypothesis, which states that: "There is a positive impact of the external auditor's industrial specialization on improving the performance and efficiency of auditors during the joint audit process".

Conclusion

The trends of the sample of external auditors and academics showed a general trend towards agreeing that the industrial specialization of the external auditor leads to improving the performance and efficiency of auditors during the joint audit process. By using the Mann-Whitney test as a non-parametric test to test the extent of differences between the opinions of the two categories of the study sample, the results of this test showed that the level of significance for all elements was greater than 0.05, which indicates the absence of statistically significant differences between the average opinions of the sample for all elements regarding the industrial specialization of the external auditor leading to improving the performance and efficiency of auditors during the joint audit process, which indicates the validity of the research hypothesis, which states that: "There is a positive impact of the external auditor's industrial specialization on improving the performance and efficiency of auditors during the joint audit process".

Recommendations

- The Financial Regulatory Authority, the Egyptian Stock Exchange, the Egyptian Society of Accountants and Auditors, and every entity directly or indirectly involved in the auditing profession in Egypt must work to raise awareness among listed companies of the importance of joint auditing.
- The bodies regulating the auditing profession in Egypt must prepare a set of programs, training courses, and workshops for their members, as well as for external auditors, related to the auditor's industrial specialization and joint auditing, given their impact on improving the quality of the audit process and financial reporting.
- Incorporating both the auditor's industrial specialization and joint auditing into the auditing curriculum taught in faculties of commerce at Egyptian universities and Egyptian institutes where the auditing course is taught.
- Audit firms in Egypt must prepare a set of training programs for their external auditors related to the auditor's industrial specialization and joint auditing, to develop their capabilities and prepare them practically in line with the requirements of the external auditor's industrial specialization and joint auditing.

Future Research Directions

- Testing the impact of the external auditor's industrial specialization, using brainstorming sessions, on improving the quality of joint audit performance.
- Benefiting from the integration between the external auditor's industrial specialization and joint audit, and their impact on improving the quality of audit performance.

- Testing the impact of the external auditor's industrial specialization, using brainstorming sessions, on the quality of financial reports.

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