



**Audit(or) type and audit quality in emerging markets:  
Evidence from explicit vs. implicit restatements**

Journal:	<i>Review of Accounting and Finance</i>
Manuscript ID	RAF-02-2023-0046.R1
Manuscript Type:	Research Paper
Keywords:	Audit quality, Corporate governance, Emerging markets

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# Audit(or) type and audit quality in emerging markets: Evidence from explicit vs. implicit restatements

## Abstract

**Purpose:** This paper examines the link between audit(or) type and restatements in Egypt, a complex and multi-faceted auditing market. The usual Big 4 vs. non-Big 4 comparison is insufficient as Egypt has a unique mix of private audit firms, one governmental agency (ASA), and mandatory/non-mandatory audit services, including single, joint, and dual audits.

**Design/methodology/approach:** The study uses a sample of listed companies in Egypt and analyzes the impact of auditor type and audit type on explicit, implicit, and total restatements. The study uses logistic regression model to examine the underlying relationship.

**Results:** Results show no relationship between auditor type and audit quality, positive association between non-Big foreign CPA firms and total/implicit restatements, and mixed results for the impact of dual audits on audit quality. The study found no link between auditor type and audit quality in Egypt. Egyptian audit firms linked to non-Big 4 foreign CPA firms were positively linked to total and implicit restatements. Joint audits did not improve audit quality and were directly related to total and explicit restatements. Dual audits showed mixed results, positively associated with implicit restatements but inversely associated with explicit restatements.

**Originality/value:** The study provides valuable insights into the complexities of the auditing market in emerging markets and offers valuable insights for stakeholders in the financial statement users, audit firms, and governmental agencies.

**Keywords:** Big 4, Egyptian firms affiliated with foreign audit Firms, Egyptian firms affiliated with non-big foreign CPA Firms, ASA, Local audit firms, Joint audits, Dual audits, Explicit restatements, and Implicit restatements.

**JEL Classification:** M42

## 1. Introduction

Financial statement users rely on external auditors to provide an independent opinion on the fairness of accounting information, seeking the highest possible level of audit quality. However, audit quality is multi-dimensional and unobservable, and a single proxy cannot provide a complete picture (DeFond & Zhang, 2014). To overcome this limitation, researchers often combine measures of audit inputs and outputs. The most commonly used input measure is auditor size (Elmarzouky et al., 2023a; Stice et al., 2022; Francies et al., 2013), while output measures typically include accrual models and restatements (Aobdia, 2019). Despite its importance, limited research has been done on audit quality in emerging markets, particularly in Egypt. This study aims to address this gap in the literature and improve our understanding of audit quality in emerging markets, with a focus on Egypt. The audit market in Egypt is unique, with a complex mix of private audit firms, a governmental agency (Accountability State Authority), and different types of audits (single, joint, and dual audits) permitted by law. Thus, Egypt provides a rich context to investigate audit quality.

The audit market in Egypt presents a distinct and diverse landscape compared to other markets. Many audit firms in Egypt choose to affiliate with foreign Certified Public Accounting (CPA) firms to differentiate themselves, which results in two broad categorizations of Egyptian audit firms. The first group consists of all audit firms affiliated with foreign CPA firms, including the big 4, while the second group is comprised of local audit firms only. The Egyptian legislation (Act 144/1988) mandates certain corporations to appoint the Accountability State Authority (ASA), a governmental agency, as their auditor, which applies only to companies where the Egyptian state holds at least 25% ownership. The remaining companies are free to appoint their own auditor, resulting in the categorization of audit firms into private and governmental firms. However, the act does not prevent state-owned companies from engaging private auditors in addition to ASA, and many of these companies choose to do so. The philosophies of private audit firms and ASA differ significantly, leading to the emergence of dual audits, a rare practice worldwide. Additionally, the Companies Act (Act 159/1981) allows corporations to appoint one or more auditors to work together and provide a unified opinion on the financial statements, which has resulted in some corporations opting for joint audits.

The literature on audit quality in the Egyptian market is limited. Previous studies have employed accrual models to examine the levels of audit quality offered by big 4 audit firms, foreign affiliated CPA firms, the Accountability State Authority (ASA), and local auditors (El-

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3 Dyasty and Elamer, 2022b, 2021; Abdallah, 2018). These studies indicate that audit firms  
4 affiliated with foreign auditors, including the big 4, are positively associated with higher audit  
5 quality. However, surprisingly, the results showed that big 4 audit firms themselves did not  
6 necessarily provide a higher level of audit quality. In fact, Abdallah (2018) reported an inverse  
7 association between big 4 audit firms and audit quality. El-Dyasty and Elamer (2022a) studied  
8 the relationship between joint audits and dual audits with accruals as proxies of audit quality.  
9 The results showed that dual audits were directly linked to abnormal accruals, whereas joint  
10 audits were not associated with audit quality. Nevertheless, accrual models have limitations in  
11 measuring audit quality (Velte, 2022; McNichols and Stubben, 2018; DeFond and Zhang,  
12 2014), and thus further research is required. Additionally, the heterogeneous classification of  
13 industries imposed by the Egyptian Stock Exchange (EGX) may negatively impact the  
14 credibility of the research results.  
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25 The previous studies have established that restatements serve as a decisive and  
26 significant indication of audit quality (Khurana et al., 2021; Elemen and Chen, 2020; DeFond  
27 and Zhang, 2014; Knechel et al., 2013). Accordingly, the current study aims to examine the  
28 relationship between restatements and auditor type and audit type in an emerging market, an  
29 area that has not yet been explored. The sample of financial statements in Egypt was scrutinized  
30 manually to detect restatements. Remarkably, two forms of misstatements were identified;  
31 explicit restatements and implicit restatements. Explicit restatements are those declared by the  
32 company in the subsequent year or through revisions made by the company's shareholders  
33 during the approval of the financial statements. Implicit restatements arise when the financial  
34 statements from the previous year do not match the same statements restated in the following  
35 year as required by EGX for comparison purposes. The company does not make any declaration  
36 in this regard. The presence of implicit restatements highlights the heightened vulnerability of  
37 emerging markets to financial report manipulation and subsequent restatements (Jiang et al.,  
38 2015). Implicit restatements provide a unique window to comprehend audit quality both in  
39 general and in emerging markets.  
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52 This study examines the relationship between audit(or) type and restatements in Egypt,  
53 an issue that has yet to be explored. A sample of 1494 company-year observations was used,  
54 collected from 217 companies over the period of 2011-2021. The results indicate an  
55 insignificant association between the four auditor types and total restatements. However, audit  
56 firms in Egypt affiliated with non-big foreign CPA firms were found to be positively related to  
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total and implicit restatements. The findings did not support the notion of the Egyptian's Financial Regulatory Authority (FRA) regarding the relationship between joint audits and audit quality, as joint audits were found to be positively related to total and explicit restatements, but showed an insignificant association with implicit restatements. In regards to dual audits, the results were mixed. While no significant relationship was found between dual audits and total restatements, dual audits were positively related to implicit restatements, but inversely associated with explicit restatements.

The results of this study will contribute to the understanding of audit quality in emerging markets and provide valuable insights for stakeholders in the financial statement users, audit firms, and governmental agencies. Firstly, the high frequency of implicit restatements in listed companies suggests a need for reform and increased scrutiny by the Egyptian Stock Exchange (EGX) to prevent such occurrences. Secondly, the results show that the five types of auditors in Egypt are not providing a high level of audit quality, with a positive association between audit quality and affiliation with non-big foreign CPA firms. The Financial Regulatory Authority (FRA) may need to implement restrictive guidelines to improve audit services in the market, rather than relying solely on a foreign affiliation. Thirdly, the results contradict FRA's recommendation regarding the benefits of joint audits and provide evidence that joint audits are not leading to higher audit quality, particularly in terms of restatements. Finally, the results regarding dual audits are mixed, with an insignificant association with total restatements, but a positive relationship with implicit restatements and an inverse relationship with explicit restatements.

The structure of the paper is outlined as follows: Section 2 presents the development of the study's hypotheses. The sample and research design are described in Section 3. The empirical results are presented in Section 4, followed by additional analyses in Section 5. The paper concludes with a summary and final thoughts in Section 6.

## **2. Literature Review and Hypotheses Development**

### **2.1 Restatements as a proxy of audit quality**

The restatement of financial statements often signals a lack of transparency and raises potential audit quality concerns (Ege & Stuber, 2023). While Aobdia's (2019) analysis of confidential data concerning audit firms' internal evaluations and PCAOB inspections offers an insight, it fails to address the broader, contextual factors that might influence restatements.

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3 As a measure of audit quality, restatements have indeed become a prevalent indicator in  
4 academia, regulatory bodies, and among stakeholders (Willekens et al., 2023; Chang et al.,  
5 2021). However, the perception of restatements as a proxy for audit quality could potentially  
6 oversimplify the complexities of audit quality measurement.  
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11 Regulatory mandates often compel companies to restate their financial statements upon  
12 discovery of material misstatements. For instance, the SEC in the USA requires companies to  
13 file a Form 8-K if previously issued financial statements contain significant misstatements and  
14 are no longer considered reliable (SEC, 2004). This type of restatement is referred to as a Big-R  
15 restatement (Hogan & Reid, 2022; Hogan & Jonas, 2016). On the contrary, Little-r restatements  
16 occur when immaterial misstatements accumulate to a material amount in a given year, without  
17 necessitating the use of Form 8-K (Tan & Young, 2015). Nevertheless, this dichotomy fails to  
18 recognize the continuum of the materiality of misstatements and their associated impact on  
19 perceived audit quality.  
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28 In the Egyptian context, explicit restatements occur under two circumstances. The first  
29 instance relates to the issuance of financial statements post-audit and after the signing of the  
30 auditor's report. Under Act 159/1981, the company's general assembly of stockholders must  
31 approve the financial statements. The two-step process mandated by the FRA and EGX for the  
32 acceptance of financial statements, though seemingly comprehensive, is subject to scrutiny as  
33 it relies heavily on the post-audit revisions by the company's general assembly of stockholders.  
34 The second instance pertains to revisions made to previously issued financial statements, which  
35 also depends on the discretion of the company's general assembly of stockholders. However,  
36 the practice of implicitly restating financial statements by adjusting the prior year's financial  
37 statements during the subsequent year's reissuance for comparison purposes warrants critical  
38 attention. This practice could be an attempt to avoid the negative ramifications associated with  
39 explicit restatements, such as increased litigation, auditor resignations, high executive turnover,  
40 and increased capital costs (Habib et al., 2021; Files et al., 2014; Hennes et al., 2014).  
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51 The narrative of financial statements as a joint product of a company and the auditor  
52 (Elmarzouky et al., 2022b, 2023b; DeFond & Zhang, 2014), while true, often leads to an  
53 oversimplification of the complexity and dynamics of the auditing process. Restatements  
54 indeed imply a deficiency in transparency, completeness, and audit quality of the previously  
55 issued financial statements (Newton et al., 2013; Flanagan et al., 2008), but it also puts auditors  
56 under unfair scrutiny and assumes a simplistic view of the audit process. It tends to scapegoat  
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3 auditors for not detecting and preventing all material misstatements, ignoring the role of  
4 management in ensuring the accuracy of financial statements (Jiang et al., 2015; Blankley et  
5 al., 2012). While restatements are generally recognized as robust measures of audit quality (Ho,  
6 2022; Habib et al., 2021; Rajgopal et al., 2021; Khurana et al., 2021; Hennes et al., 2014;  
7 Francies et al., 2013), this acceptance could lead to an overreliance on restatements as the  
8 primary indicator of audit quality. A more nuanced understanding is required, that appreciates  
9 the multifaceted nature of audit quality and the numerous factors that could potentially  
10 influence it.  
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## 18 **2.2 Auditor type**

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20 The discourse on the influence of auditor size on audit quality is primarily governed by  
21 two key presumptions: differentiation and homogeneity, both within an audit firm and among  
22 auditors belonging to a similar category. As posited by DeAngelo (1981), larger CPA firms,  
23 commonly branded as "Big N," are typically associated with superior audit quality. This  
24 perception is primarily grounded in several characteristics, such as enhanced independence, a  
25 more substantial pool of dedicated resources and personnel, superior training programs,  
26 improved incentives and monitoring mechanisms, advanced review processes, and superior  
27 access to technological resources and facilities (Elmarzouky et al., 2022a; Stice et al., 2022;  
28 Martani et al., 2021; Rajgopal et al., 2021; Che et al., 2020; Eshleman & Guo, 2014).  
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37 Nevertheless, these assumptions are not immune to contestation. The real-world  
38 disintegration of Arthur Andersen, a formerly revered Big N audit firm, raises critical doubts  
39 about the validity of the differentiation assumption. Empirical research exploring the  
40 differences in audit quality between Big 4 and non-Big 4 firms has yielded mixed results,  
41 further complicating the narrative (Khurana et al., 2021; Berglund et al., 2018). Additionally,  
42 the presupposition of homogeneity within an audit firm and among auditors of a similar tier is  
43 equally contestable (Honkamäki et al., 2020; Hrazdil et al., 2020).  
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50 When considering restatements as a measure for audit quality, research conducted in  
51 developed nations like the U.S. indicates a negative correlation between auditor size and  
52 restatements (Newton et al., 2013; Francies et al., 2013). However, findings from developing  
53 economies, such as China, are inconsistent (Zhizhong et al., 2011; Chen et al., 2020).  
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58 Applying this understanding to the Egyptian market context, it seems plausible that  
59 restatements could serve as an effective measure of audit quality. The Egyptian audit market  
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3 does not exhibit a hegemony of Big 4 firms; less than a third of corporations seek their services,  
4 and local auditors audit only about a third of the market. Interestingly, over 40% of companies  
5 employ auditors affiliated with foreign non-Big firms. Given the inherent limitations of  
6 previous research, particularly pertaining to accruals models and heterogeneous industry  
7 classification in Egypt, resorting to restatements as a measure of audit quality may offer a more  
8 robust and reliable basis for inquiry. Based on these observations, we can formulate the  
9 following hypotheses.

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16 H<sub>1</sub>: auditor type is associated with audit quality.

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19 H<sub>1a</sub>: Egyptian audit firms affiliated with foreign audit firms are negatively associated with the  
20 frequency of restatements.

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23 H<sub>1b</sub>: big 4 audit firms are negatively associated with the frequency of restatements.

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26 H<sub>1c</sub>: Egyptian audit firms affiliated with non-big foreign audit firms are negatively associated  
27 with the frequency of restatement.

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30 H<sub>1d</sub>: ASA is negatively associated with the frequency of restatements.

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33 H<sub>1e</sub>: local audit firms are positively associated with the frequency of restatements.

### 34 35 36 **2.3 Audit type**

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38 The Egyptian audit market embodies a complex landscape, largely due to the multitude  
39 of auditor types and the diverse range of audits permissible under law. Legal provisions allow  
40 for single, dual, and joint audits, the latter being a collaborative process wherein two auditing  
41 firms join forces to produce a singular audit report. Since 1954, joint audits have been a  
42 discretionary choice for companies, an option that remains valid under the current Companies  
43 Act of 1981. While the Egyptian Guide for Corporate Governance recommends joint audits for  
44 larger corporations, the European Commission initiated a discourse on joint audits in 2010,  
45 reflecting on experiences in France and Denmark. Moreover, the UK's Competition and  
46 Markets Authority mandates listed companies to utilize joint audits with the overarching  
47 objective of improving audit quality (CMA, 2019). Dual audits—where two CPA firms  
48 independently scrutinize the same financial statements—are permitted on a non-compulsory  
49 basis for companies where state ownership comprises at least 25%. Moreover, Article 124 of  
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Act 194/2020 necessitates the engagement of two auditors to evaluate financial statements of banking institutions.

Despite the regulatory support for these audit models, empirical findings on the relationship between joint audits and audit quality remain inconclusive. Several studies even insinuate that joint audits could potentially undermine audit quality. For instance, both Deng et al. (2014) and Willekens et al. (2019) conclude that joint audits may not necessarily enhance audit quality. International research presents a wide spectrum of results; while some studies found negligible disparity in audit quality between nations that mandate joint audits and those that do not, others reported a positive correlation between joint audits and audit quality .

When considering the Egyptian context, research investigating the impact of joint and dual audits on audit quality is scarce and primarily reliant on accrual models as proxies of audit quality. Both El-Dyasty (2017) and El-Dyasty and Elamer (2022a) found no significant relationship between joint audits and audit quality, but they did establish a positive link between dual audits and proxies of audit quality. Even with the inherent limitations of accrual models, researchers advocate that alternative proxies for audit quality, such as restatements, might yield more dependable results. To scrutinize the influence of audit types on restatements—as a measure of audit quality—in Egypt, the following hypotheses are proposed:

H<sub>2</sub>: Audit type is associated with audit quality.

H<sub>2a</sub>: Joint audits are negatively associated with the frequency of restatements.

H<sub>2b</sub>: Dual audits are negatively associated with the frequency of restatements.

### 3. Research Design

#### 3.1 Measurement of Variables and Model Specification

The dependent variable is a dichotomous. In such a case, logistics regression is appropriate (e.g. Habib et al., 2021; Greine et al., 2021; Jiang et al., 2015; Abbott et al., 2004). The following logistic regression model is used to test the study's hypotheses:

$$\text{Restatement} = \beta_0 + \beta_1 \text{Type}_{it} + X' \beta + \text{Year\_FE} + \varepsilon_{it} \quad (1)$$

where Restatement is coded 1 if a company is subsequently restated its financial statements and 0 otherwise, Type is the audit(or) type in the year that audit was conducted, X

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3 is a vector of control variables, and Year\_FE is the year fixed effects (see APPENDIX A for  
4 variable definitions).  
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8 The dependent variable in this study takes three forms: explicit restatements, implicit  
9 restatements, and total misstatements. Explicit restatements occur when the company's  
10 stockholders revise the financial statements, either on previously issued reports or during the  
11 ratification of new ones. The second form, implicit restatements, happen when a company  
12 reissues prior year financial statements with undisclosed revisions. Total misstatements are a  
13 combination of explicit and implicit restatements. The ratification of financial statements is a  
14 requirement as per Acts 159/1981 and regulations of the Financial Regulatory Authority (FRA)  
15 and the Egyptian Exchange (EGX). The process of ratification involves two consecutive steps,  
16 including the filing of financial statements and the independent audit report to EGX, and  
17 discussion of the financial statements at the company's annual general assembly of  
18 stockholders. In case of revision, the company must restate its financial statements and refile  
19 them with EGX. Implicit restatement happens when a company reissues prior-year financial  
20 statements with undeclared revisions. This practice is common in Egypt and its potential  
21 consequences are yet to be explored. Total misstatements are a combination of both explicit  
22 and implicit restatements.  
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34 The variable of interest is Type, which represents the audit type in the year prior to  
35 restating financial statements. Type is a binary variable, with a value of 1 if a specific type  
36 exists and 0 otherwise. The auditor type takes five forms: Big 4, Foreign (Egyptian audit firms  
37 affiliated with foreign CPA firms, including the Big 4), Non-Big Foreign, ASA (Accountability  
38 State Authority), and Local. The audit type has two forms: Joint (when two audit firms are  
39 appointed to produce a unified report) and Dual (when a private audit firm works alongside the  
40 ASA).  
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48 In line with previous research on audit quality (El-Dyasty and Elamer, 2021; Elemes  
49 and Chen, 2020; Dang et al., 2017; Cao et al., 2016; Files et al., 2014;), the study uses several  
50 control variables, including Leverage, Loss, Current Ratio, ZIM (financial stress score),  
51 Inherent risk, OCashFlow (operating cash flow to total assets ratio), LnAge (company age),  
52 LnTAssets (company size), ROA (return on assets), Cost (cost of debt), Complex,  
53 Grow\_Assets (assets growth), and Year\_FE (year fixed effects).  
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### 3.2 Sample Selection and Data Sources

In order to evaluate the connection between audit type and restatements, a sample of 217 non-financial, listed Egyptian companies with 1845 company-year observations from the period of 2011-2021 was used. Beginning of 2011, EGX requires listed companies additional forms to increase transparency and disclose more information to users.

The data was gathered through manual collection from official PDF versions of unconsolidated financial statements and minutes of stockholder general assemblies, primarily from the EGX website and the websites of the respective companies. The financial website, Mubasher, was also utilized for obtaining official financial statements. In order to avoid any confounding effects, data related to first-time-issued financial statements was excluded, resulting in a total of 1494 usable company-year observations.

FRA and EGX regulations were utilized as a basis for determining explicit and implicit restatements. A company was considered to have undergone explicit restatement if either its financial statements from the previous year were marked as revised in the following year or if the minutes of the stockholder general assembly recorded a decision to revise the financial statements. Implicit restatements were recognized in the absence of explicit restatements and the occurrence of a mismatch between financial statements from the previous year and those reissued in the subsequent year.

## 4. Empirical Results and Discussion

### 4.1 Descriptive Statistics and Bivariate Analyzes

Table 1 presents the descriptive statistics for the company-year observations included in the multivariate model estimations. The results indicate a significant occurrence of restatements among listed Egyptian companies, with 44% of the companies undergoing some form of restatement. Explicit restatements were relatively uncommon, accounting for only 7% of the restatements. In contrast, implicit restatements were prevalent, making up 38% of the total restatements. This high frequency of restatements raises questions about the quality of financial reporting and auditing in the Egyptian market.

Regarding audit type, the findings indicate that the Big 4 firms were not dominant in the market, auditing only 27% of the companies. Instead, Egyptian companies tended to engage with Egyptian audit firms affiliated with non-Big 4 foreign CPA firms, who performed 40% of

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3 the audit services for listed companies in Egypt. Local audit firms accounted for 32% of the  
4 market, while mandatory audits performed by the ASA represented 26% of the listed  
5 companies in Egypt.  
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9 Table 2 provides a correlation matrix for the study variables. A direct correlation was  
10 found between the Big 4 and total restatements. However, no correlation was found between  
11 the Big 4 and either explicit or implicit restatements. No association was also found between  
12 Foreign and the three forms of restatements, or between Non-Big Foreign and any form of  
13 restatements. In contrast, the ASA was positively associated with the three forms of  
14 restatements. Surprisingly, a negative correlation was found between Local and the three forms  
15 of restatements. Regarding audit type, Joint was negatively associated with total and explicit  
16 restatements, while Dual was only directly associated with explicit restatements.  
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24 The control variables were also analyzed. Leverage was directly associated with the  
25 three forms of restatements, while the Current Ratio was negatively associated with explicit  
26 restatements. Zim was directly related to total and explicit restatements. Both LnAge and  
27 LnTAssets were positively associated with the three forms of restatements, while Cost was  
28 only directly associated with explicit restatements. Finally, Complex was only directly  
29 associated with total and explicit restatements.  
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## 35 **4.2 Multivariate Regression Results**

### 36 **4.2.1 Auditor Type**

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38 In this study, the hypothesis (H1) that auditor type is associated with restatements is  
39 partially supported by the results of logistic regression as shown in tables 3-5. The dependent  
40 variable for the logistic regression was total restatements, and the results showed that no  
41 significant association was found for Big4, Foreign, ASA, and Local auditor types. However,  
42 Non-Big foreign auditor type was found to be positively related to total restatements.  
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49 The results of logistic regression for explicit restatements and implicit restatements as  
50 dependent variables did not support H1 and the related sub-hypotheses. The findings showed  
51 that all auditor types were not providing high audit quality in the case of explicit restatements  
52 and that Non-Big foreign auditor type was directly associated with the frequency of implicit  
53 restatements.  
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3 The results of the study are not consistent with prior research in the US and some studies  
4 performed in China (Newton et al., 2013; Francies et al., 2013; Eshleman and Guo, 2014; Cao  
5 et al., 2016; Dang et al., 2017; Zhizhong et al., 2011). However, the results are consistent with  
6 studies performed in developing countries such as China (Chen et al., 2020) and Malaysia  
7 (Hasnan et al., 2021).  
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13 Control variables, such as leverage, company age, and total assets, were found to have  
14 a significant association with total restatements. On the other hand, inherent variables were  
15 inversely associated with total restatements. Similar results were found for implicit  
16 restatements. For explicit restatements, Zim, LnAge, and complex were positively associated,  
17 and the current ratio was inversely related in some models. Overall, the study results suggest a  
18 need for further research to understand the impact of auditor type on restatements and to  
19 improve the level of audit quality provided by different types of auditors.  
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#### 26 **4.2.2 Audit Type**

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28 The results of the logistic regression testing the hypothesis (H2) that audit type is  
29 associated with restatements are presented in Table 6. Three forms of restatements, total  
30 restatements, explicit restatements, and implicit restatements, were used as the dependent  
31 variables. The results partially support H2 and its sub-hypotheses.  
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36 Joint audits were found to have a direct association with both total restatements and  
37 explicit restatements, indicating that they do not improve audit quality. In contrast, conflicting  
38 results were found regarding dual audits. While dual audits may improve audit quality in the  
39 case of explicit restatements, they do not provide higher audit quality in the case of implicit  
40 restatements. No significant relationship was found between dual audits and total restatements.  
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46 The findings in this study are consistent with prior research that relied on analytical  
47 approach (Deng et al., 2014) and accruals models (Van der Zahn and Tebourbi, 2021; Holm  
48 and Thinggaard, 2018; Velte and Azibi, 2015) regarding the association between joint audits  
49 and audit quality. Furthermore, albeit the outcome of the association between joint audits and  
50 audit quality is consistent with prior research in Egypt (El-Dyasty and Elamer, 2022a; El-  
51 Dyasty, 2017), the current study provides much conclusive evidence. The results regarding  
52 dual audits are partially consistent with prior research in Egypt (El-Dyasty and Elamer, 2022a).  
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3 The results related to control variables showed that leverage is positively associated  
4 with restatements, the current ratio is inversely related to explicit restatements, and inherent is  
5 inversely associated with most forms of restatements. Company age and total assets were  
6 directly related to the three forms of restatements, and a direct relationship was found between  
7 complexity and the three forms of restatements.  
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### 13 **4.3 Additional Analysis**

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15 To ensure the robustness of our findings, several sensitivity tests are conducted. Our  
16 analysis of the relationship between audit(or) type and financial statement restatements in the  
17 Egyptian context is expanded by verifying the stability of the logistic regression models. To  
18 further confirm the validity of our results, we perform the examination using Probit regression,  
19 an alternate regression specification, in order to eliminate any potential biases or inaccuracies  
20 in the logistic regression estimates. The (untabulated) results of these tests indicate inferences  
21 that are in line with our original findings shown in Tables 3, 4 and 5.  
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28 Lastly, to account for the potential impact of unobservable factors on both audit(or)  
29 type and restatements, we employ a two-stage least squares (2SLS) regression. In the first stage,  
30 we conduct a Probit regression with audit(or) type as the dependent variable and several  
31 observable variables as the independent variables, including all control variables used in our  
32 main regression (Abdelfattah et al., 2021). To meet the requirement of the 2SLS model, we use  
33 the percentage of government ownership as an instrumental variable. In the second stage, we  
34 use the fitted values of audit(or) type from the first stage as the main independent variable and  
35 reestimate the main regression models as presented in Tables 3-6. The results from the second  
36 stage of the 2SLS are consistent with those reported in Tables 3-6.  
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## 45 **5. Summary and Conclusion**

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47 This study aims to examine the relationship between audit(or) type and financial  
48 statement restatements in the complex and multifaceted Egyptian audit market. This represents  
49 a novel exploration, extending prior literature that only elucidated the association between  
50 restatements and audit quality. By leveraging the unique structure of the Egyptian audit  
51 market—allowing single, joint, and dual audits, as well as the high frequency of implicit  
52 restatements—this study adds a valuable layer of understanding about how auditor type can  
53 impact restatements as an indicator of audit quality.  
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3 The results of this study show that the type of auditor does not have a significant effect  
4 on explicit restatements. The exception is that Egyptian audit firms affiliated with non-big  
5 foreign CPA firms have a low level of audit quality when it comes to implicit restatements.  
6 Concerning audit types, dual audits are found to be useful in mitigating explicit restatements,  
7 while joint audits are positively related to total and explicit restatements. On the other hand,  
8 dual audits have a positive relationship with implicit restatements. These results may raise  
9 questions about the overall audit quality in the Egyptian market. The study provides evidence  
10 on the motivations for restatements in the Egyptian market. Leverage, company age and size,  
11 reputation, inherent risk, financial difficulties, and increased sales were found to be associated  
12 with restatements. The results suggest that companies may restate financial statements due to  
13 incentives such as increasing leverage or relying on their reputation. However, inherent risk  
14 being inversely associated with restatements indicates that good auditing effort could mitigate  
15 restatements. Additionally, financial difficulties and increased sales were found to be positively  
16 associated with restatements.  
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28 This research deepens understanding of audit type and quality in Egypt, with several  
29 critical contributions. Firstly, the recurrent implicit restatements amongst listed companies  
30 underscore a call for reform and heightened oversight from the Egyptian Stock Exchange  
31 (EGX). Secondly, the results suggest auditors in Egypt may be falling short in delivering high-  
32 quality audits, with audit quality showing a positive correlation with affiliation to non-Big N  
33 foreign CPA firms. Thirdly, the research contradicts the Financial Regulatory Authority's  
34 (FRA) endorsement of joint audits, providing evidence of joint audits failing to enhance audit  
35 quality in terms of restatements. Finally, results relating to dual audits offer a nuanced view—  
36 showing no significant association with total restatements but demonstrating a positive  
37 correlation with implicit restatements and a negative correlation with explicit restatements. The  
38 results also challenge the FRA's position on the relationship between audit type and  
39 restatements. In certain cases, dual audits could potentially conceal attempts by companies to  
40 issue misleading financial statements. However, given the relatively low rate of explicit  
41 restatements, the negative consequences of dual audits might supersede their benefits. This  
42 supports previous research in Egypt, indicating a need for reforms to bolster the quality of audit  
43 services. In this vein, the role of ASA as a mandatory auditor merits reassessment.  
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57 The prominence of audit firms affiliated with non-Big N CPA firms calls for further  
58 scrutiny. There exists a significant disparity between the current study's results and prior  
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3 research (El-Dyasty and Elamer, 2021). Affiliation with a non-Big 4 CPA firm may be  
4 leveraged to disguise subpar audit quality. In contrast, the relatively small presence of Big 4  
5 audit firms in the Egyptian market is noteworthy. These firms may resist policies of implicit  
6 and explicit restatements and restrict their activities when dealing with large listed Egyptian  
7 companies. The obligatory role of the governmental agency ASA in auditing financial  
8 statements of state-owned and local firms, which does not seem to result in superior audit  
9 quality, casts a shadow over Egypt's audit quality. Policy-makers could consider terminating  
10 ASA's mandatory role, allowing for a free audit market and improved audit services quality in  
11 Egypt. Finally, the results question the FRA's position on joint audits. Joint audits, although  
12 limited in use in the Egyptian market, may be employed to disguise misleading financial  
13 statements. Likewise, the choice of dual audits by state-owned companies could mask a  
14 potential intention to mislead financial statement users. Considering the relatively low rate of  
15 explicit restatements, the negative implications of dual audits might outweigh their advantages.  
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26 While the findings of this study illuminate crucial insights into the Egyptian audit  
27 market, it is essential to recognize the study's limitations. One potential limitation is the reliance  
28 on public data, which may not fully capture the internal dynamics and unique challenges of  
29 each audit firm. Additionally, the study focuses exclusively on the Egyptian market, potentially  
30 limiting the generalizability of the findings to other markets with different regulations, norms,  
31 and institutional structures. Moreover, future research could explore the motivations behind  
32 restatements, distinguishing between restatements due to errors and those due to fraud. This  
33 could provide a more nuanced understanding of audit quality and its relationship with  
34 restatements. Finally, researchers could also compare the Egyptian audit market with other  
35 markets to identify unique features and factors influencing audit quality and restatements.  
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## Tables

**Table 1: Descriptive statistics**

Variables	N	Minimum	Maximum	Mean	STD
Total Restatements	1494	0.00	1.00	0.44	0.50
Explicit Restatement	1494	0.00	1.00	0.07	0.25
Implicit Restatement	1494	0.00	1.00	0.38	0.49
Big4	1494	0.00	1.00	0.27	0.45
Foreign	1494	0.00	1.00	0.62	0.49
Non-Big Foreign	1494	0.00	1.00	0.40	0.49
ASA	1494	0.00	1.00	0.26	0.44
Local	1494	0.00	1.00	0.32	0.47
Joint	1494	0.00	1.00	0.13	0.34
Dual	1494	0.00	1.00	0.15	0.35
Leverage	1494	0.00	9.39	0.46	0.53
Loss	1494	0.00	1.00	0.22	0.42
Current	1494	0.02	310.43	4.84	15.47
Zim	1494	0.00	1.00	0.13	0.25
Inherent	1494	0.00	2.14	0.42	0.26
OCashFlow	1494	-1.11	1.74	0.05	0.16
LnAge	1494	0.69	4.88	3.27	0.66
LnTAssets	1494	13.43	25.04	19.85	1.88
ROA	1494	-1.44	0.48	0.04	0.12
Cost	1494	0.00	0.23	0.02	0.04
Complex	1494	-0.03	6.83	0.69	0.80
Grow_Assets	1494	-72.42	970.08	9.85	39.89

Table 2: Correlation matrix

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	
A Total Restatements	1																						
B Explicit Restatement	.305**	1																					
C Implicit Restatement	.858**	-.21**	1																				
D Big4	.052*	.048	.028	1																			
E Foreign	.008	.040	-.012	.477**	1																		
F Non-Big Foreign	-.048	-.005	-.046	-.262**	.637**	1																	
G ASA	.098**	.085**	.06*	-.14**	-.24**	-.17**	1																
H Local	-.09**	-.06*	-.06*	-.28**	-.66**	-.47**	-.22**	1															
I Joint	-.06*	-.05*	-.04	.30**	.15**	.14**	-.202**	.19**	1														
J Dual	.03	.11**	-.02	.03	.12**	.06*	.68**	-.06*	-.12**	1													
K Leverage	.08**	.05*	.05*	.02	-.08**	-.10**	.12**	-.07**	-.03	-.04	1												
L Loss	.02	.03	.000	-.06*	.00	.07**	-.06*	-.04	.00	-.08**	.17**	1											
M Current	-.046	-.055*	-.016	-.13**	-.13**	-.037	-.08**	.156**	-.041	-.050	.034	.031	1										
N Zim	.073**	.100**	.023	-.029	-.10**	-.08**	.122**	-.08**	-.050	-.048	.536**	.299**	-.115**	1									
O Inherent	-.039	.024	-.047	-.019	-.10**	-.10**	-.028	.057*	-.032	-.11**	.172**	-.08**	.00	.246**	1								
P OCashFlow	.019	-.028	.038	.018	.009	-.029	.133**	-.045	-.048	.092**	-.11**	-.23**	-.02	-.17**	-.14**	1							
Q LnAge	.123**	.105**	.075**	.076**	.019	-.06*	.395**	-.25**	-.09**	.172**	.121**	.006	-.19**	.128**	.026	.005	1						
R LnTAssets	.128**	.067**	.096**	.413**	.351**	.064*	.287**	-.43**	.087**	.269**	.042	-.12**	-.24**	.049	-.13**	.062*	.379**	1					
S ROA	.010	-.013	.018	.081**	.058*	-.020	.072**	-.003	-.005	.133**	-.47**	-.58**	-.001	-.46**	-.034	.355**	.005	.196**	1				
T Cost	.039	.058*	.012	.315**	.213**	.004	-.18**	-.07**	.161**	-.06*	.031	-.018	-.12**	.008	.037	-.07**	.064*	.197**	-.017	1			
U Complex	.053*	.120**	-.003	.030	-.030	-.08**	.134**	.056*	.028	.092**	.082**	-.16**	-.10**	.090**	.219**	.146**	.098**	-.002	.199**	.098**	1		
V Grow_Assets	-.004	.048	-.030	-.006	-.046	-.046	-.022	.063*	-.004	-.018	.039	-.10**	-.006	.036	.015	-.031	-.043	.082**	.127**	.027	.199**	1	

\*\* Correlation is significant at the 0.01 level (2-tailed)

\* Correlation is significant at the 0.05 level (2-tailed)

**Table 3: Results of regression analysis: Dependent variable total restatements, test variable auditor type**

Variables	Total restatements	Total restatements	Total restatements	Total restatements	Total restatements
Big4	-.046				
Foreign		.117			
Non-Big Foreign			.202*		
ASA				-.136	
Local					.118
Leverage	.291*	.288*	.273*	.283*	.289*
Loss	.152	.161	.166	.159	.147
Current	.000	.000	.000	.000	.000
Zim	.438	.405	.409	.413	.429
Inherent	-.497**	-.500**	-.517**	-.482**	-.492**
OCashFlow	-.010	-.014	-.026	-.039	-.027
LnAge	.236***	.221**	.217**	.204**	.226**
LnTAssets	.082**	.098***	.092***	.080**	.075**
ROA	1.091	1.070	1.038	1.074	1.099
Cost	1.076	1.453	1.183	1.628	1.237
Complex	.116	.118	.114	.108	.120
Grow_Assets	-.001	-.001	-.001	-.001	-.001
Year_FE	Included	Included	Included	Included	Included
Constant	-2.361	-2.713	-2.633	-2.161	-2.320
NO	1494	1494	1494	1494	1494
Cox & Snell R <sup>2</sup>	.049	.049	.051	.049	.049
Nagelkerke R <sup>2</sup>	.065	.065	.068	.066	.066
Wald chi <sup>2</sup>	74.777***	75.597***	77.891***	75.607***	75.480***

**Table 4: Results of regression analysis: Dependent variable explicit restatements, test variable auditor type**

Variables	Explicit restatements	Explicit restatements	Explicit restatements	Explicit restatements	Explicit restatements
Big4	-.204				
Foreign		-.304			
Non-Big Foreign			-.055		
ASA				-4.697	
Local					.301
Leverage	-.115	-.061	-.092	-.173	-.111
Loss	.238	.234	.236	.255	.240
Current	-.089	-.085	-.091	-.103*	-.091
Zim	.855*	.861*	.825	.790	.790
Inherent	-.230	-.187	-.214	-.168	-.183
OCashFlow	-.615	-.571	-.610	-.714	-.619
LnAge	.524***	.548***	.514***	.393**	.484***
LnTAssets	.033	.034	.055	.033	.034
ROA	.742	.808	.766	.682	.760
Cost	2.733	2.753	3.455	4.577	3.431
Complex	.334***	.328***	.333***	.311***	.342***
Grow_Assets	.001	.001	.001	.001	.001
Year_FE	Included	Included	Included	Included	Included
Constant	-5.298	-5.474	-5.820	-4.697	-5.574
NO	1494	1494	1494	1494	1494
Cox & Snell R <sup>2</sup>	.038	.039	.038	.039	59.982***
Nagelkerke R <sup>2</sup>	.097	.098	.096	1	59.982***
Wald chi <sup>2</sup>	58.199***	59.081***	57.640***	59.982***	58.825***

**Table 5: Results of regression analysis: Dependent variable implicit restatements, test variable auditor type**

Variables	Implicit restatements	Implicit restatements	Implicit restatements	Implicit restatements	Implicit restatements
Big4	.019				
Foreign		.199			
Non-Big Foreign			.223**		
ASA				-.011	
Local					.058
Leverage	.317**	.306**	.293**	.315**	.314**
Loss	.060	.072	.074	.060	.056
Current	.001	.001	.001	.001	.002
Zim	.088	.044	.064	.090	.090
Inherent	-.380	-.391*	-.404*	-.380	-.380
OCashFlow	.267	.260	.251	.265	.259
LnAge	.127	.108	.111	.126	.125
LnTAssets	.076**	.094**	.080**	.074**	.069**
ROA	.921	.878	.857	.918	.923
Cost	.416	.765	.323	.390	.366
Complex	-.011	-.009	-.014	-.012	-.009
Grow_Assets	-.003	-.003	-.003	-.003	-.002
Year_FE	Included	Included	Included	Included	Included
Constant	-2.106	-2.452	-2.225	-2.033	-1.979
NO	1494	1494	1494	1494	1494
Cox & Snell R <sup>2</sup>	.036	.038	.038	.036	.036
Nagelkerke R <sup>2</sup>	.049	.051	.052	.049	.049
Wald chi <sup>2</sup>	54.619***	57.135***	58.394***	54.607***	54.788***



**Table 6: Results of regression analysis: Dependent variable restatements, test variable audit type**

Variables	Total	Explicit	Implicit	Total	Explicit	Implicit
Joint	.410***	.940**	.231			
Dual				-2.597	-.818***	.374**
Leverage	.291**	-.110	.314**	.292**	-.097	.314**
Loss	.160	.263	.063	.152	.248	.053
Current	.000	-.099*	.001	.000	-.105**	.002
Zim	.395	.780	.070	.430	.873	.078
Inherent	-.499**	-.214	-.383**	-.501**	-.099	-.428*
OCashFlow	-.055	-.706	.240	-.009	-.655	.278
LnAge	.204**	.428**	.112	.236**	.443**	.145
LnTAssets	.097***	.085	.080**	.089**	.003***	.092
ROA	1.038	.751	.888	1.098	.732	.956
Cost	1.781	4.369	.678	1.145	4.210	-.090
Complex	.128*	.352***	-.006	.120	.270***	.010
Grow_Assets	-.001	.001	-.003	-.001	.001	-.003
Year_FE	Included	Included	Included	Included	Included	Included
Constant	-2.965	-7.001	-2.326	-2.597	-3.919	-2.777
NO	1494	1494	1494	1494	1494	1494
Cox & Snell R <sup>2</sup>	.053	.042	.037	.049	.044	.039
Nagelkerke R <sup>2</sup>	.070	.106	.051	.065	.111	.053
Wald chi <sup>2</sup>	80.758***	63.819***	58.463***	74.807***	66.699***	59.792***

**APPENDIX A: Variable definitions**

Restatement	<p>Explicit Restatement = Dummy variable equal to 1 if a company declares a restatement of its financial statements and 0 otherwise.</p> <p>Implicit Restatement = Dummy variable equal to 1 if a company restate its financial statements without declaration and 0 otherwise.</p> <p>Total Restatements = Dummy variable equal to 1 if a company restate its financial statements and 0 otherwise.</p>
Type	<p>One of seven different specifications of an Audit(or) type, as described in the definitions of the following seven variables:</p> <p>Big4 = a dummy variable equal to 1 if a Big 4 audit firm exists and 0 otherwise.</p> <p>Foreign = a dummy variable equal to 1 if any of the Egyptian audit firms that affiliate with a foreign audit firm exist and 0 otherwise.</p> <p>Non-Big Foreign = a dummy variable equal to 1 if any of the Egyptian audit firms that affiliate with a non-Big 4 foreign audit firm exist and 0 otherwise.</p> <p>ASA= a dummy variable equal to 1 if Accountability State Authority exists and 0 otherwise.</p> <p>Local = a dummy variable equal to 1 if a local audit firm exists and 0 otherwise.</p> <p>Joint= a dummy variable equal to 1 if a company appoints two audit firms to audit their financial statements and issue a unified audit report and 0 otherwise.</p> <p>Dual = a dummy variable equal to 1 if a company appoints a private audit firm alongside Accountability State Authority to audit their financial statements and 0 otherwise.</p>
Leverage	Total liabilities divided by total assets.
Loss	Dummy variable equal to 1 if earnings are negative and 0 otherwise.
Current	Current assets divided by current liabilities.
Zim	Financial stress score, calculated from Zmijewski's (1984) model.
Inherent	$(\text{Accounts receivable} + \text{Inventory}) / \text{total assets}$ .
OCashFlow	Operating cash flows/total assets in the prior year.
LnAge	Natural logarithm of the company age.
LnTAssets	Natural logarithm of total assets.
Return	Net income / total assets.
Cost	Cost of debt = Interest expenses / ((total debt in the last year + total debt in the current year) / 2).
Complex	Sales / Lagged total assets.
Grow_Assets	$(\text{Total Assets}_t - \text{Total Assets}_{t-1}) / \text{Total Assets}_{t-1} * 100$ .