



# The Moderating Effect of Firm Characteristics on the Relationship between the Audit Style and Firm-pair Earnings Comparability: An Evidence from Listed Firms on the Egyptian Stock Exchange

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#### Abstract

**Purpose** – This research aims to study and investigate the relationship between the audit style and earnings comparability. Also, the research examines the influence of some firm-specific characteristics, as moderating variables, on this relationship.

**Design/Methodology** – Ordinary Least-Squares (OLS) regression and multiple regressions are used to test the research hypotheses. The sample used in the current study consists of 57 non-financial firms listed on the Egyptian Stock Exchange (EGX) during 2016–2019 resulting in a final sample of 1,039 firm-pair year observations.

**Findings** – The researcher concludes that the audit style, as measured by whether each firm-pair is audited by the same audit firm, has a significant positive effect on the earnings comparability, as measured by the differences in the discretionary accruals between firm-pairs. Besides, the positive effect of the audit style on earnings comparability has been strengthened under the presence of the firm size as a moderating variable, but it does not vary by the leverage and profitability moderating variables. These findings are robust since the results of the sensitivity analyses, using the Big 4 audit firms and the differences in the operating cash flows as alternative measures to the audit style and earnings comparability, respectively, support the results of the basic analysis. However, the results under the additional analysis indicate that all firm characteristics have a significant positive effect on the differences in the discretionary accruals which, in turn, means a negative effect on earnings comparability.

**Originality/value** – To the best of the researcher's knowledge, there is relatively limited evidence on the comparability of earnings, as measured by the differences in discretionary accruals between firm-pairs, and its association with the audit style under the presence of firm characteristics as moderating variables. Furthermore, the findings of this research have some implications for researchers, audit firms, and regulatory bodies who seek to enhance the quality of the financial statements in emerging economies.

**Keywords**: Earnings Comparability; Audit Style; Firm-specific Characteristics

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## **1** Introduction

Providing useful accounting information to investors and creditors is the main objective of preparing the financial statements. According to the International Accounting Standards Board (IASB)'s Conceptual Framework, comparability is one of the important attributes that enhances the financial statements' usefulness. That is, decision-makers would be able to make more sound decisions if they can identify the similarities and the differences among the firms' financial results and positions (IASB, 2018).

The comparability of financial statements is not limited to the consistency in the selection and application of accounting methods, but it extends to the differences in the estimates of certain items as well as the differences in the level of disclosure (Cole et al., 2009). Empirically, comparability can be measured in terms of the similarity in firms' accounting systems (e.g., De Franco et al., 2011), the differences in the value relevance of firms' accounting information (e.g., Barth et al., 2012), or the differences in discretionary accruals (e.g., Francis et al., 2014). In addressing the issue of financial statements' comparability, most studies (e.g., Chen & Gong, 2019; Chen et al., 2018; Chircop et al., 2020; Fang et al., 2016; Hajiha & Chenari, 2017; Imhof et al., 2017; Kim et al., 2020; Neel, 2017; Young & Zeng, 2015) have focused on the consequences of achieving high financial statements' comparability.

Regarding the determinants of the financial statements' comparability, prior studies have focused on the adoption of IFRS (e.g., Barth et al., 2012; Brochet et al., 2013; DeFond et al., 2011; Lin et al., 2019), the effectiveness of the audit committee (e.g., Endrawes et al., 2020), and the audit style (e.g., Cao et al., 2016; Chen et al., 2020; Francis et al., 2014; Jiu et al., 2020; Kawada, 2014). Audit style means that each audit firm has its own internally developed working rules that interpret the accounting and auditing standards and guide its auditors when

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implementing the audit process. Consequently, each audit firm applies the same audit strategy when auditing their clients in the same industry which would result in greater similarity in their earnings structure (Francis et al., 2014; Kawada, 2014). Empirical studies have measured the audit style using the same audit firm (e.g., Chen et al., 2020; Mohseni et al., 2014), the Big 4 audit firms (e.g., Francis et al., 2014; Jiu et al., 2020; Kawada, 2014), or the same audit partner (e.g., Chen et al., 2020; Jiu et al., 2020; Mohseni et al., 2020; Mohseni et al., 2014).

In this context, prior studies (Francis et al., 2014; Kawada, 2014; Mohseni et al., 2014) find that the audit style contributes to more comparable earnings. The current research focuses on the audit firm style, not the auditor style, since Blay et al. (2014) provided evidence that the auditor has not affected the audit quality. Noting that the audit quality can be impaired in case of engaging the same auditor in auditing more clients in the same period (Goodwin & Wu, 2016). However, the audit quality can be increased if the audit partners share their knowledge about their auditees, especially in case of each audit firm standardizes its internal working rules (Duh et al., 2020; Gul et al., 2013). Consequently, it is supposed that auditors in the same audit firm share the same agreed-upon audit strategy and share their knowledge about clients.

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To the best of the researcher's knowledge, prior studies conducted on this issue have focused on the firm-specific characteristics as control variables. However, firm characteristics are broadly used among prior studies (e.g., Agyei-Mensah, 2013; Priharta & Rahayu, 2019; Ross et al., 2019; Soyemi & Olawale, 2019) as determinants of financial statements' quality. Accordingly, from the viewpoint of the researcher, firm characteristics can interact with the audit style in enhancing firms' earnings comparability.

However, there is limited direct evidence from the Egyptian environment on whether the audit style affects earnings comparability and the role of firm characteristics, as moderating variables, on this relationship as well. Accordingly, the **research problem** can be summarized in, theoretically and empirically, answering the following questions: Does the audit style affect firm-pairs' earnings comparability among listed firms on the Egyptian Stock Exchange (EGX)? And to what extent this effect differs with the differences in firm size, leverage, and profitability of the firm-pairs?

Hence, the main **objective** of this research is to investigate the potential effect of the audit style on firm pairs' earnings comparability. Also, the research aims to examine whether firm size, leverage, and profitability, as firm-specific characteristics, affect the strength and/or the direction of the relationship between the audit style and earnings comparability among listed firms on the EGX.

Since the important role of audit in achieving earnings quality, this research has followed Chen et al. (2020) using the differences in the discretionary accruals (DA), as a measure of earnings comparability, among 1,039 firm-pairs over the period 2016-2019. The data are collected for 57 firms from 6 sectors listed on the EGX.

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Using Ordinary Least-Squares (OLS) regression, the research finds evidence supporting the first research hypothesis that states that the audit style, as measured by being audited by the same audit firm, positively affects the firm pairs' earnings comparability. Regarding the moderating effect of firm characteristics, using multiple regression analysis, the results support the second research hypothesis which indicates that the firm size strengthens the relationship between the audit style and firm pairs' earnings comparability among listed firms on the EGX. However, the results do not support the third and fourth research hypotheses testing the moderating effect of leverage and profitability, respectively, on the relationship between the audit style and firm pairs' earnings comparability among listed firms on the EGX.

As a robustness test, the researcher re-tested the research hypotheses using the Big 4 audit firms as a measurement of the audit style. Also, the main model is re-tested using the differences in the operating cash flows as an alternative measure of the earnings comparability under both measures of the audit style. In all cases, the results of the sensitivity analyses provide evidence of the robustness of the results. Furthermore, an additional test is executed using the firm characteristics as control variables.

The **research's importance** stems from its contribution to the literature and practice in several ways. First, the current research comes to keeping up with the recent international concern about improving the comparability of firms' financial statements as one of the enhancing qualitative characteristics of useful financial information. Second, despite the importance that comparability has gained recently in the Egyptian empirical research, there is relatively scarce evidence, to the best of the researcher's knowledge, on earnings comparability measured by the differences in DAs between firm-pairs.

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More specifically, this research adds to two streams of literature. The first stream is the literature examining the comparability of the financial statements, the current research contributes to this stream by being applied to the listed firms on the EGX and by focusing on earnings components' comparability. Besides, this research contributes to the second stream of studies that have concerned with the role of the external audit in improving the quality of the financial statements by examining the interaction effect of the firm characteristics and the audit style on enhancing earnings comparability. Finally, the current research provides more insights to audit firms and policymakers interested in enhancing the usefulness of the financial statements in an emerging economy such as Egypt which, in turn, would benefit financial statements' users as well.

The remainder of this research is structured as follows. In Section 2, research hypotheses are developed after reviewing related prior research. Section 3 describes the research design. Findings are presented and discussed in Section 4. Sections 5 and 6 present the results of the sensitivity and additional analyses, respectively, and finally, Section 7 concludes the research.

## 2 Literature Review and Hypotheses Development

This section aims to analyze prior studies that have examined the association between the audit style and earnings comparability, followed by studies that have addressed the role of firm characteristics as determinants of earnings comparability, and hence its potential moderating effect on this association in the context of related theories which, in turn, build the theoretical foundation from which research hypotheses are developed.

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#### 2.1 Audit style and Firm-pair Earnings Comparability

From the perspective of the joint Conceptual Framework issued by both the IASB and the Financial Accounting Standards Board (FASB) in 2010 and amended in 2018, comparability is one of the qualitative characteristics that improves the usefulness of the relevant and faithfully represented accounting information (FASB, 2018; IASB, 2018). Similarly, in the Egyptian context, the revised Framework for the Financial Statements' Preparation and Presentation issued by the Minister of Investment in 2015, includes the same qualitative characteristics as the IASB's Concept Framework, which makes sense considering Egypt's adoption of the International Financial Reporting Standards (IFRS) (The Ministry of Investment, 2015).

Given the importance of the comparability as one of the factors used in judging the quality of the financial statements, some studies (e.g., Barth et al., 2012; Brochet et al., 2013; Lang et al., 2010; Neel, 2017; Taplin, 2011) have concerned with ways of measuring comparability and the association with the adoption of IFRS, while others (e.g., Choi et al., 2019; De Franco et al., 2011; Fang et al., 2016) have investigated its association with stock and debt market participants' decisions.

Also, there is a wide range of prior studies that have investigated the relationship between the external audit and the quality of financial statements in terms of limiting the earnings management activities (e.g., Alzoubi, 2016; Chen et al., 2011; Chi et al., 2011; Gaynor et al., 2016; Nawaiseh, 2016). However, there is some audit literature that has focused on the role of audit in enhancing the quality of financial statements in terms of increasing the financial statements' comparability. In this context, prior research (Francis et al., 2014; Kawada, 2014; Mohseni et al., 2014) has agreed that firms that are audited by the same audit firm have greater comparable earnings, similarly if being audited by the same auditor (e.g., Chen et al., 2020; Jiu et al., 2020).

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Therefore, the current research focuses on investigating the effect of the audit firm style, not the individual auditor, on enhancing firms' earnings comparability. That is if two firms belong to the same industry are audited by the same audit firm, then they will be subject to the same audit procedures and strategy which, in turn, would be reflected in the closeness of their earnings structure. This leads to the development of the first research hypothesis, in its alternative form, as follows:

# *H*<sub>1</sub>: *The audit style positively affects the firm-pair earnings comparability among listed firms on the EGX.*

## **2.2 The Moderating Effect of Firm Characteristics on the relationship between Audit style and Earnings Comparability**

Firm size, leverage, and profitability are considered firm characteristics that are commonly used among prior studies (e.g., Agyei-Mensah, 2013; Priharta & Rahayu, 2019; Ross et al., 2019; Soyemi & Olawale, 2019) as determinants of the quality of the financial statements which applies, also, to the comparability as one of the qualitative characteristics of the accounting information.

Larger firms may be characterized by high comparability of their financial statements because of high levels of scrutiny by regulators. They are also often audited by Big 4 audit firms that are concerned with improving the quality of financial reports of their clients. Moreover, larger firms have more financial capabilities than small firms which enable them keeping more automated financial reporting process, and well-structured internal control systems (Agyei-Mensah, 2013; Priharta & Rahayu, 2019; Ross et al., 2019; Soyemi & Olawale, 2019). However, from the agency theory's perspective, larger firms have more agency problems which may negatively affect the quality of their financial statements. Also, they may have incentives to manage earnings for tax avoidance (Lanouar et al., 2013; Priharta & Rahayu, 2019).

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In this context, the results of several studies (Brochet et al., 2013; Chen et al., 2020; Francis et al., 2014; Jiu et al., 2020; Kawada, 2014; Mohseni et al., 2014; Souza et al., 2015) have indicated the possibility of considering the firm size as one of the determinants of the financial statements' comparability. Noting that, these studies have addressed the firm size as a control variable, however, from the researcher's viewpoint, the interaction between the audit style and the firm size can produce an interactive variable, which is expected to affect the strength and/or the direction of the relationship between the audit style and firm pairs' earnings comparability. This leads to the development of the second undirected research hypothesis, in its alternative form, as follows:

# **H**<sub>2</sub>: *Firm size moderates the relationship between the audit style and firm-pair earnings comparability among listed firms on the EGX.*

Regarding the leverage ratio, firms with high debt ratios are subject to debt covenants which would motivate them to produce high-quality financial statements with detailed disclosure (Agyei-Mensah, 2013). However, from the perspective of the positive accounting theory, high-leverage firms are more likely to manage their earnings to meet the more restrictive debt covenants (Priharta & Rahayu, 2019).

In this context, several studies (Cao et al., 2016; Chen et al., 2020; Francis et al., 2014; Jiu et al., 2020; Kawada, 2014; Mohseni et al., 2014) have agreed on the negative impact of the leverage ratio on the financial statements' comparability. Noting that, these studies have addressed the leverage ratio as a control variable, however, from the researcher's viewpoint, the leverage ratio can interact with the audit style in affecting the strength and/or the direction of the relationship between the audit style and firm pairs' earnings comparability. This leads to the development of the third undirected research hypothesis, in its alternative form, as follows:

## **H**<sub>3</sub>: Leverage ratio moderates the relationship between the audit style and firm-pair earnings comparability among listed firms on the EGX.

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Concerning profitability, from the signaling theory's perspective, firms achieving high profit will tend to disclose more detailed information and faster than unprofitable firms. Nevertheless, according to the positive accounting theory, firms may resort to earnings management to avoid reporting volatile profit across periods or increase the managerial compensation (Agyei-Mensah, 2013; Ross et al., 2019; Soyemi & Olawale, 2019). Moreover, Lobo et al. (2018) suggest that firms with similar economic circumstances would achieve similar operating results, in turn, would have more comparable earnings.

However, these studies have not addressed profitability as a moderating variable, from the researcher's viewpoint, profitability can interact with the audit style in affecting the strength and/or the direction of the relationship between the audit style and firm pairs' earnings comparability. This leads to the development of the fourth undirected research hypothesis, in its alternative form, as follows:

**H**<sub>4</sub>: Profitability moderates the relationship between the audit style and firm-pair earnings comparability among listed firms on the EGX.

## **3** Research Design

This section aims to empirically test the research hypotheses to conclude whether the audit style affects earnings comparability and whether the firm characteristics, namely firm size, leverage, and profitability, interact with the audit style in affecting the earnings comparability. The following sub-sections explain variable measurements and the research models estimated to test the research hypotheses.

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#### **3.1 Models Specification**

By analyzing the research hypotheses, it is revealed that there is a main independent variable represented by the audit style which means that each audit firm has its internal guide or working rules in implementing the audit process for its clients (Chen et al., 2020; Francis et al., 2014; Jiu et al., 2020), which is expected to affect the earnings comparability, as the dependent variable, through influencing the DAs. That is, if two firms in the same industry are audited by the same audit firm, then it should apply on both firms the same procedures which would result in the closeness of their earnings structure. Moreover, this effect is expected to be moderated by some of the firm characteristics resulting in the research moderation model shown in **Figure 1**.



### 3.1.1 Audit style and Firm-pair Earnings Comparability Model

Prior studies have examined financial statements' comparability either using (i) the covariance between earnings and return over time (e.g., Barth et al., 2012; De Franco et al., 2011; Ross et al., 2019), or (ii) the crosssectional differences (e.g., Francis et al., 2014; Kawada, 2014). The current research follows the second method, using the accruals-differences between firm-pairs in each industry-year, hence controlling for economic conditions. Accruals are an important component of earnings, and it is expected that each firm-pair in the same industry audited by the same audit

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firm is more likely to have similar accounting systems resulting in low differences in accruals, hence more comparable earnings (Cao et al., 2016; Chen et al., 2020; Francis et al., 2014; Jiu et al., 2020; Kawada, 2014).

**To calculate earnings comparability**, first, the DAs is calculated cross-sectionally, then differences in DAs are calculated for each firm-pair in the same industry-year through the sample period 2016-2019. DAs are measured using the performance-adjusted model developed by Kothari et al. (2005) to test the cross-sectional similarities of firm-pairs (Chen et al., 2020; Francis et al., 2014; Liu, 2020; Mohseni et al., 2014):

$$TACC_{it} = \beta_0 + \beta_1 / Assets_{it-1} + \beta_2 \Delta Sales_{it} + \beta_3 PPE_{it} + \beta_4 ROA_{it} + \varepsilon_{it} \qquad Eq. (1)$$

Where TACC is the total accruals measured as the earnings before extraordinary items and discontinued operations minus the operating cash flows reported in the statement of cash flows in year t, scaled by total assets in year t-1,  $\Delta$ Sales is the change in sales scaled by the beginning total assets, Assets<sub>it-1</sub>, and PPE is the net property, plant, and equipment scaled by Assets<sub>it-1</sub>. DAs are the differences between firms' total accruals and the normal level of accruals estimated by Eq. (1).

Then, the data for the DAs obtained from equation (1) are used in the following equation to calculate the differences in DAs for each firm-pair in the same industry-year:

 $Diff_DA_{ijt} = Abs (DA_{it} - DA_{jt})$  Eq. (2)

Where DA<sub>it</sub> is the discretionary accruals for firm i in year t, and DA<sub>jt</sub> is the discretionary accruals for firm j in year t. Diff\_DA<sub>ijt</sub> is calculated for each (i-j) firm-pairs as the absolute difference between each firm-pair signed discretionary accruals.

To empirically test  $H_1$ , the effect of the audit style on earnings comparability, an OLS regression model is estimated as follows:

Diff\_DA<sub>ijt</sub> = 
$$\alpha_0 + \beta_1$$
Same\_Audit<sub>ijt</sub> +  $\varepsilon_{ijt}$  Model (1)  
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Where Same\_Audit<sub>ijt</sub> is a dummy variable that takes the value of (1) if firm-pairs i and j are audited by the same audit firm, and (0) otherwise (Jiu et al., 2020).  $\beta_1$ , the coefficient of the explanatory variable, is predicted to have a negative sign, since the lower the differences in the DAs between the two firms audited by the same audit firm, the greater the cross-sectional earnings comparability. This regression model is estimated using a sample of firm-pairs audited by the same audit firm versus those with two different audit firms. **Table 1** summarizes the main variables used in this research and the way of measuring each variable.

## **3.1.2 Firm Characteristics Moderating Models**

To test the research hypotheses,  $H_2$ - $H_4$ , which aim to investigate the moderating effects of firm size, leverage, and profitability, as firm characteristics, on the relationship between the audit style and earnings comparability, multiple regression models are estimated.

To test  $H_2$  that addresses the moderating effect of firm size on the relationship between the audit style and earnings comparability, the following multiple regression model is estimated:

 $Diff_DA_{ijt} = \alpha_0 + \beta_1 Same_Audit_{ijt} + \beta_2 Diff_Size_{ijt} + \beta_3 Same_Audit_{ijt} * Diff_Size_{ijt} + \varepsilon_{ijt} Model (2)$ 

Where  $\beta_3$ , the coefficient of the interactive variable Same\_Audit<sub>ijt</sub>\*Diff\_Size<sub>ijt</sub> is expected to have a negative sign, since the lower the difference in size between a firm-pair, the lower the differences in their DAs, and then the greater the earnings comparability. Diff\_Size is measured as the absolute value of the difference in size, measured as the natural logarithm of total assets, between each firm-pair (Chen et al., 2020).

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**To test H**<sup>3</sup> that addresses the moderating effect of leverage on the relationship between the audit style and earnings comparability, the following multiple regression model is estimated:

#### $Diff_DA_{ijt} = \alpha_0 + \beta_1 Same_Audit_{ijt} + \beta_2 Diff_Lev_{ijt} + \beta_3 Same_Audit_{ijt} * Diff_Lev_{ijt} + \varepsilon_{ijt} Model (3)$

Where the interactive variable Same\_Audit<sub>ijt</sub>\*Diff\_Lev<sub>ijt</sub> is predicted to have a negative coefficient,  $\beta_3$ , since the lower the difference in the debt ratio between a firm-pair, the lower the differences in their DAs, and then the greater the earnings comparability. Diff\_Lev is measured as the absolute value of the difference in leverage, measured by the debt-to-assets ratio, between firm-pairs (Chen et al., 2020; Jiu et al., 2020).

**To test H4** that addresses the moderating effect of profitability, measured by return on assets (ROA), on the relationship between the audit style and earnings comparability, the following multiple regression model is estimated:

## $Diff_DA_{ijt} = \alpha_0 + \beta_1 Same_Audit_{ijt} + \beta_2 Diff_ROA_{ijt} + \beta_3 Same_Audit_{ijt} * Diff_ROA_{ijt} + \epsilon_{ijt} Model (4)$

Where the interactive variable Same\_Audit<sub>ijt</sub>\*Diff\_ROA<sub>ijt</sub> is expected to have a negative coefficient  $\beta_3$ , since the lower the difference in the ROA between a firm-pair, the lower the differences in their DAs, and then the greater the earnings comparability. Diff\_ROA is measured as the absolute value of the difference in ROA between firm-pairs, measured as the net income divided by total assets (Lobo et al., 2018).

#### **3.2 Sample Selection**

The initial sample consists of all non-financial listed firms on the EGX during the period 2016–2019 with fiscal year ends on December 31, and with financial statements in local currency. The required financial data are obtained from the websites of (i) the EGX, (ii) Mubasher Misr Information, and (iii) listed firms' official websites. To measure the

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differences in the DAs, firms in each industry-year are paired, including only industries with six or more firms. As a simple illustration of preparing firm-pairs, if an industry "A" has 6 listed firms, then the firm-pairs are (A1, A2), (A1, A3), (A1, A4), (A1, A5), (A1, A6), (A2, A3), (A2, A4), (A2, A5), (A2, A6), (A3, A4), and so on, till consisting 15 firm-pairs for this industry in a particular year.<sup>1</sup>

Panel A of **Table 2** presents the sample selection process, after excluding the financial services-related sectors because of their special accounting practices (Jiu et al., 2020), and firms with insufficient required data, and those with year-end on June 30 and with financial statements in foreign currency. Consequently, data are collected for 57 firms from six industries, constrained by the availability of data, totaling 1,039 firm-pair year observations over the period 2016-2019. Panels B and C of **Table 2** depict the distribution of the firm-pair observations by industry and year, respectively.

<sup>&</sup>lt;sup>1</sup> See Appendices A and B for more information on the names of sample firms, and the distribution of firm-pair observations among industries over the sample period, respectively.



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Variable	Symbol	Type (Predicted sign)	Measurement
Earnings comparability	Diff_DA <sub>ijt</sub>	Dependent	The absolute difference in the signed discretionary accruals between each (i-j) firm-pair (Chen et al., 2020; Francis et al., 2014; Mohseni et al., 2014), using the performance-adjusted model developed by Kothari et al. (2005).
Audit style	Same_Audit	Independent (-)	Dummy variable takes the value of 1 if firm-pairs are audited by the same audit firm, and 0 if audited by two different audit firms (Jiu et al., 2020)
Firm size	Diff_Size	+/-	The absolute value of the difference in size, measured as the natural logarithm of total assets, between each firm-pair* (Chen et al., 2020; Jiu et al., 2020).
Firm size* Audit style	Diff_Size* Same_Audit	Moderating (-)	The interaction between the audit style dummy variable and the difference in size.
Leverage	Diff_Lev	+/-	The absolute value of the difference in leverage, measured by the debt-to-assets ratio, between firm-pairs (Chen et al., 2020; Jiu et al., 2020).
Leverage* Audit style	Diff_Lev* Same_Audit	Moderating (-)	The interaction between the audit style dummy variable and the difference in leverage.
Profitability	Diff_ROA	+/-	The absolute value of the difference in ROA between firm-pairs, measured as the net income divided by total assets (Lobo et al., 2018).
Profitability* Audit style	Diff_ROA* Same_Audit	Moderating (-)	The interaction between the audit style dummy variable and the difference in ROA.

## **Table 1: Measurement of Variables**

\*Since the dependent variable is measured by the differences between each firm-pair in a particular year, then all moderating variables are measured in the same way using the differences between firm-pairs.

Source: Developed by the researcher.

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1,039

100%

Table 2: Sample selection process				
Panel A: Sample selection criteria	Firms			
All listed firms during the period 2016-2019	219			
Less: Financial services	46			
Firms with financial year-end other than December 31	40			
Firms in sectors with less than 6 firms and those lacking data of interest	76			
Final sample size	57			

# Panel B: Sample by industry

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<u>Industry</u>	Population	Sample firms	%	Firm-pairs Obs. (n)	%
Basic Resources	16	8	50	112	11
Food, Beverages, and Tobacco	28	12	43	264	25
Building Materials	13	10	77	180	17
Real Estate	32	14	44	339	33
Health Care & Pharmaceuticals	17	7	41	84	8
Travel & Leisure	16	6	38	60	6
Total	122	57	47%	1,039	100%
Panel C: Sample by year					
Year				<u>Obs. (n)</u>	<u>%</u>
2016				241	23%
2017				266	26%
2018				266	26%
2019				266	26%

Source: Developed by the researcher.

Total

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#### **4** Results and Discussion

This section presents and discusses the results of the descriptive statistics for research variables used in the regression models followed by the results of hypotheses testing.

## 4.1 Descriptive Statistics

Panel A of **Table 3** depicts the descriptive statistics for all variables used in the analysis for the research model. The mean (median) of the Diff\_DA, dependent variable, is 0.18837 (0.11163). The mean (median) of the Same Audit, independent variable, is 0.18479 (0.00), indicating that most of the firm-pairs are audited by two different audit firms since only 18% of the firm-pairs are audited by the same audit firm.

Panel B of **Table 3** shows the correlations among variables. The researcher used the Pearson correlation coefficient to determine the degree of correlation among independent variables, and if the degree of correlation is less than 0.7, this means a weak correlation between independent variables and therefore no multi-collinearity problem. Concerning variables that form the model (2), the correlation coefficient is -0.437 between Diff\_Size and Same\_Audit\*Diff\_Size. Also, there is a weak correlation (-0.305) between Diff Lev and Same Audit\*Diff Lev, variables of the model (3), and similarly for the model (4) since the correlation coefficient is -0.242 between Diff ROA and Same\_Audit\*Diff\_ROA. Then, the multiple regression models can be performed without any problems. The same conclusion is reached based on the Variance Inflation Factor (VIF) indicated in the next section.

Furthermore, there is a significant negative relationship between the differences in discretionary accruals, Diff\_DA, and audit style, Same\_Audit as evidenced by the coefficient (-0.319). Regarding the moderating variables, Diff\_DA is negatively correlated with

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Same\_Audit\*Diff\_Size (-0.266), Same Audit\*Diff\_Lev (-0.262), and same Audit\*Diff\_ROA (-0.253). Therefore, there is a significant and negative association between the Diff\_DA, and the moderating variables, but this relationship is weak.

## **4.2 Empirical Results**

This section presents and discusses the results of the regression models estimated to test the research hypotheses.

# 4.2.1 Results of the Audit style and Firm-pair Earnings Comparability Model

**Table 4** reports the results of the OLS regression that examines the effect of being audited by the same audit firm on earnings comparability, where earnings comparability is measured by the absolute value of the differences in DAs between each firm-pair, as the dependent variable Diff\_DA. **H**<sub>1</sub> is **supported** as evidenced by the significant negative coefficient on the Same\_Audit (-0.209) since the p-value is less than 0.05. Also, the model is significant (p-value < 0.05), and 10% of changes in earnings comparability can be interpreted by the variation in the audit style (the adjusted R<sup>2</sup> is 0.1013).

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Panel A: Summary Statistics					
Variable	Mean	Std. Dev.	Min	Median	Max
Diff_DA	0.18837	0.25477	0.00023	0.11163	2.50275
Same_Audit**	0.18479	0.38832	0.000	0.000	1
Diff_Size	0.89083	0.65628	0.00116	0.76245	3.04657
Same_Audit*Diff_Size	0.02702	0.06621	0.000	0.000	0.27575
Diff_Lev	0.33807	0.38266	0.00052	0.28839	4.44423
Same_Audit*Diff_Lev	0.00682	0.01690	0.000	0.000	0.07713
Diff_ROA	0.08739	0.12221	0.00005	0.05477	1.00661
Same_Audit*Diff_ROA	0.00142	0.00366	0.000	0.000	0.01715

## **Table 3: Descriptive statistics\***

Panel B: Correlation Coefficients Matrix

	Diff_DA	Same_Audit	Diff_Size	Same_Audit*	Diff_Lev	Same_Audit*	Diff <u></u> ROA	Same_Audit*Diff
				Diff_Size		Diff_Lev		ROA
Diff_DA	1							
Same_Audit	-0.319***	1						
Diff_Size	0.865***	-0.540***	1					
Same_Audit*Diff_Size	-0.266***	0.857***	-0.437***	1				
Diff_Lev	0.942***	-0.375***	0.802***	-0.309***	1			
Same_Audit*Diff_Lev	-0.262***	0.848***	-0.431***	0.998***	-0.305***	1		
Diff_ROA	0.973***	-0.308***	0.816***	-0.255***	0.928***	-0.252***	1	
Same_Audit*Diff_ROA	-0.253***	0.816***	-0.414***	0.966***	-0.294***	0.961***	-0.242***	1

\* The statistics are based on a sample of 1,039 firm-pair observations during the period 2016-2019.

\*\* Only 192 (18.48%) firm-pairs out of the 1,039 observations are audited by the same audit firm.

\*\*\* Correlation is significant at 5%.

Source: Developed by the researcher using the outputs of EViews 10.

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This result is consistent with the correlation between the audit style and the earnings comparability reported in Panel B of Table 3 (-0.319). This result is also consistent with the findings of other studies (Chen et al., 2020; Jiu et al., 2020; Kawada, 2014; Mohseni et al., 2014).

Accordingly, this evidenced inverse relationship between audit style and the differences in discretionary accruals implies that there is a positive relationship between the audit style and earnings comparability which is logical. That is, firm-pairs audited by the same audit firm are subject to the same internal working rules of the audit firm which would result in lower differences between the two firms in their discretionary accruals, thus have more comparable earnings structure, especially being in the same industry and year, thus controlling for economic circumstances.

Table 4. OLS results of Audit Style and Earnings Comparability
Test*

Table 4: OIS results of Audit Style and Farnings Comparability

Model (1): Diff_DA <sub>ijt</sub> = $\alpha_0 + \beta_1$	Model (1):Diff_DAijt = $\alpha_0 + \beta_1 Same_Audit_{ijt} + k_{it}$							
Variable	β	t-statistics	Sig.					
Intercept	0.2271	27.3668	0.0000					
Same_Audit	-0.2097	-10.8616	0.0000					
R <sup>2</sup>	0.1021							
Adjusted R <sup>2</sup>	0.1013							
F-statistic (Model Sig.)	117.9734 ( <b>0.0000</b> )							
* No. of observations are 1,039 firm-p	airs for the fis	scal years 2016-20	19, and the level of					

significance is 5%.

Source: Developed by the researcher using the outputs of EViews 10.

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#### 4.2.2 Results of the Firm Characteristics Moderating Models

Results of testing H<sub>2</sub>-H<sub>4</sub> are reported in **Table 5**.<sup>2</sup> Panel A presents the results of testing the second research hypothesis regarding the moderating effect of the firm size on the relationship between audit style and earnings comparability. The model is significant (p-value < 0.05), and the adjusted R<sup>2</sup> is increased from 10% to 78% (rounded). Also, the coefficient of the interactive variable, Same\_Audit\*Diff\_Size, indicates an increased negative impact on the differences in the DAs after considering the firm size as a moderating variable, since  $\beta$  is -0.2589 and statistically significant (p-value < 0.05). Therefore, the results **support H<sub>2</sub> indicating that the effect of the audit style on earnings comparability differs with differences in sizes between firm-pairs.** 

It is also noted that there is a positive and significant relationship between the differences in firm size and differences in DAs since the coefficient of Diff\_Size is 0.3805 and the p-value < 0.05. This result is consistent with Cao et al. (2016) while contradicts with findings of some studies (Chen et al., 2020; Francis et al., 2014; Jiu et al., 2020; Kawada, 2014; Mohseni et al., 2014).

Accordingly, the evidenced negative and significant effect of the interaction between the firm size and audit style is logical and as expected, since if firm-pairs are audited by the same audit firm, and have lower

<sup>&</sup>lt;sup>2</sup> According to Pallant (2016), if the largest Variance Inflation Factor (VIF) value is greater than 10, the model would be subject to multi-collinearity problem, i.e., high correlations between independent variables. However, the maximum VIF value in Table 5 is 4.3334, therefore, there is no violation to the multi-collinearity assumption. This is also supported by the results reported in the correlation matrix (Panel B of Table 3). Accordingly, the multiple regression models are estimated without the presence of the multi-collinearity problem.

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differences in their sizes, then they are more likely to have more comparable earnings. This result is consistent with the correlation coefficient (-0.266) between earnings comparability, as measured by the absolute value of the differences in DAs, and the moderating variable Same\_Audit\*Diff\_Size reported in Panel B of Table 3.

Therefore, the **researcher** concludes that the positive effect of the audit style on firm-pair earnings comparability, as reflected by the negative association with the differences in discretionary accruals, differs with the differences in firm sizes. More specifically, as firms are close in their sizes and at the same time are audited by the same audit firm, then they are more likely to have lower differences in their discretionary accruals, and in turn, have more comparable earnings.

Regarding the regression results of testing H<sub>3</sub>, concerning the moderating effect of the leverage on the relationship between audit style and earnings comparability, Panel B of Table 5 shows that the model is significant (p-value < 0.05), and the adjusted R<sup>2</sup> is increased from 10% to 89% (rounded). Although the coefficient of the interactive variable, Same\_Audit\*Diff\_Lev, is negative (-0.1754) as predicted, it is statistically insignificant (p-value > 0.05) which means that the results do not support the moderating effect of the leverage on the relationship between audit style and earnings comparability. Also, the regression coefficients indicate the conversion of the most logical negative impact of the audit style to the illogical positive effect after considering the firms' leverage ratios as a moderating variable. Accordingly, H<sub>3</sub> is not supported, since the positive effect of the audit style on firm-pair earnings comparability, as reflected by the negative association with the differences in discretionary accruals, does not differ with the differences in firms' leverage ratios.

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It is also noted that there is a positive and significant relationship between the differences in leverage and differences in DAs since the coefficient of Diff\_Lev is 0.6374 and the p-value < 0.05. This result contradicts with findings of some studies (Cao et al., 2016; Chen et al., 2020; Francis et al., 2014; Jiu et al., 2020; Kawada, 2014; Mohseni et al., 2014). However, from the researcher's viewpoint, it is more logical that the relation between the differences in leverage and differences in DAs to be positive, since the lower the differences in leverage between firm-pairs, the lower the differences in their DAs, in turn. This also is consistent with the relationship between the debt ratio and earnings management from the agency theory's perspective.

Regarding the moderating effect of the profitability on the relationship between audit style and earnings comparability, Panel C of **Table 5** shows that the model is significant (p-value < 0.05), and the adjusted  $R^2$  is increased from 10% to 94%. Although the coefficient of the interactive variable Same\_Audit\*Diff\_ROA is negative (-0.0804) which is consistent with Lobo et al. (2018), it is statistically insignificant (p-value > 0.05). Accordingly, **H4 is not supported**.

From the researcher's viewpoint, the results of the leverage and profitability moderating models are consistent with the correlation coefficient between earnings comparability and the moderating variables Same\_Audit\*Diff\_Lev (-0.262), and Same\_Audit\*Diff\_ROA (-0.253) reported in Panel B of Table 3. However, increasing the sample size or using alternative measures of leverage and profitability may lead to significant results.

## 4.2.3 Summary of the Hypothesis Testing Results

To sum up, **Table 6** summarizes the results of the hypotheses testing. It can be concluded from the hypothesis testing that the audit style significantly affects firm-pairs' earnings comparability among listed firms

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on the EGX. More specifically, if two firms in the same industry are audited by the same audit firm, they will be subject to the same audit style, which will lead to more earnings comparability between firm-pairs via reducing the differences in their discretionary accruals. This positive impact on earnings comparability is strengthened under the presence of the firm size as a moderating variable. While there is no significant effect of the leverage and profitability, as moderating variables, on the relationship between the audit style and firm-pairs' earnings comparability.

## 5 Sensitivity Analysis

Sensitivity analysis aims to verify the robustness of the findings obtained from running the basic analysis (Francis et al., 2014). The researcher tests the sensitivity of the findings based on using alternative metrics for the two main variables, the earnings comparability and audit style. More specifically, the researcher seeks to answer the following question: Do the results of testing the research hypotheses vary by using different ways of measuring the two main variables of the study? To answer this question, the models used to test research hypotheses are retested using Big 4 audit firms as an alternative measure of the audit style, and the differences in the operating cash flows between firm-pairs as an alternative measure of the earnings comparability.

To test the first research hypothesis under the sensitivity analysis, the following model is estimated to examine the effect of the audit style on firm-pair earnings comparability:

## **Diff\_DA**<sub>ijt</sub> = $\alpha_0 + \beta_1 BIG4_{ijt} + \epsilon_{ijt}$

Where,  $BIG4_{ijt}$  is a dummy variable that takes the value of (1) if the firm-pair (i and j) in year t is audited by one of the Big 4 audit firms, and (0) otherwise.

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$\frac{1 \operatorname{ance} A. \operatorname{Results} \operatorname{or} \operatorname{testing} \Pi_2}{\operatorname{Model} (2): \operatorname{Diff} DA_n = a + B_n}$	Sama Audit. + 8 Diff Siza	+ R.Sama Audit	*Diff Sizon -	L o		
Would (2): DIII_DAijt – 00+ pi Variabla	Same_Auun <sub>ijt</sub> + p2Dm_Size <sub>ij</sub> R	t_statistics	ijt DIII_Sizeijt - Sia	نة - VIF		
Intercent	р 	21 2611	0.0000	V 11		
Intercept	-0.1760	-21.3011	0.0000	1 222/		
Same_Audit	0.1757	0.0227	0.0000	4.5554		
Diff_Size	0.3805	56.4426	0.0000	1.4180		
Same_Audit*Diff_Size	-0.2589	-2.3695	0.0180	3.7904		
$\mathbb{R}^2$		0.7799				
	0.7793					
Adjusted R <sup>2</sup>		0.7793				
Adjusted R <sup>2</sup> F-statistic (Model Sig.) <u>Panel B: Results of testing H3</u> Model (3): Diff DAir. = aet B.Same	] Auditar + B2Diff Levar + B2S	0.7793 222.443 ( <b>0.0000</b> ) ame_Audit;a*Diff	) Lev::: + £:::			
Adjusted R <sup>2</sup> F-statistic (Model Sig.) Panel B: Results of testing H <sub>3</sub> Model (3): Diff_DA <sub>ijt</sub> = α <sub>0</sub> + β <sub>1</sub> Same_ Variable	Audit <sub>ijt</sub> + β2Diff_Lev <sub>ijt</sub> + β3Si β	0.7793 222.443 ( <b>0.0000</b> ) ame_Audit <sub>ijt</sub> *Diff <u></u> t-statistics	) _Lev <sub>ijt</sub> + ɛ <sub>ijt</sub> Sig.	VIF		
Adjusted R <sup>2</sup> F-statistic (Model Sig.) <u>Panel B: Results of testing H3</u> Model (3): Diff_DA <sub>ijt</sub> = α <sub>0</sub> + β <sub>1</sub> Same_ <u>Variable</u> Intercept	Audit <sub>iji</sub> + $\beta_2$ Diff_Lev <sub>ijt</sub> + $\beta_3$ S: 	0.7793 222.443 ( <b>0.0000</b> ) ame_Audit <sub>ijt</sub> *Diff_ <u>t-statistics</u> -7.6024	$\frac{\text{Lev}_{ijt} + \varepsilon_{ijt}}{\text{Sig.}}$	VIF		
Adjusted R <sup>2</sup> F-statistic (Model Sig.) Panel B: Results of testing H <sub>3</sub> Model (3): Diff_DA <sub>ijt</sub> = α <sub>0</sub> + β <sub>1</sub> Same_ <u>Variable</u> Intercept Same_Audit	Audit <sub>ijt</sub> + $\beta_2$ Diff_Lev <sub>ijt</sub> + $\beta_3$ Si -0.0319 0.0323	0.7793 222.443 (0.0000) ame_Audit <sub>ijt</sub> *Diff <u></u> t-statistics -7.6024 2.4550	Lev <sub>ijt</sub> + $\varepsilon_{ijt}$ Sig. 0.0000 0.0143	<b>VIF</b>  3.7579		
Adjusted R <sup>2</sup> F-statistic (Model Sig.) Panel B: Results of testing H <sub>3</sub> Model (3): Diff_DA <sub>ijt</sub> = $\alpha_0$ + $\beta_1$ Same_ Variable Intercept Same_Audit Diff_Lev	Audit <sub>iji</sub> + $\beta_2$ Diff_Lev <sub>ijt</sub> + $\beta_3$ S: $\beta_{-0.0319}$ 0.0323 0.6374	0.7793 222.443 (0.0000) ame_Audit <sub>ijt</sub> *Diff_ t-statistics -7.6024 2.4550 85.8979		<b>VIF</b>  3.7579 1.1643		
Adjusted R <sup>2</sup> F-statistic (Model Sig.) Panel B: Results of testing H <sub>3</sub> Model (3): Diff_DA <sub>ijt</sub> = α <sub>0</sub> + β <sub>1</sub> Same_ <u>Variable</u> Intercept Same_Audit Diff_Lev Same_Audit*Diff_Lev	$Audit_{ijt} + \beta_2 Diff_Lev_{ijt} + \beta_3 Starting Startin$	0.7793 222.443 (0.0000) ame_Audit <sub>ijt</sub> *Diff_ t-statistics -7.6024 2.4550 85.8979 -0.5971	$Lev_{ijt} + \varepsilon_{ijt}$ Sig. 0.0000 0.0143 0.0000 0.5506	VIF 3.7579 1.1643 3.5622		
Adjusted R <sup>2</sup> F-statistic (Model Sig.) Panel B: Results of testing H <sub>3</sub> Model (3): Diff_DA <sub>ijt</sub> = $\alpha_0$ + $\beta_1$ Same_ Variable Intercept Same_Audit Diff_Lev Same_Audit*Diff_Lev R <sup>2</sup>	Audit <sub>iji</sub> + $\beta_2$ Diff_Lev <sub>ijt</sub> + $\beta_3$ St -0.0319 0.0323 0.6374 -0.1754	0.7793 222.443 (0.0000) ame_Audit <sub>ijt</sub> *Diff_ t-statistics -7.6024 2.4550 85.8979 -0.5971 0.8896	_Lev <sub>ijt</sub> + ε <sub>ijt</sub> Sig. 0.0000 0.0143 0.0000 0.5506	VIF 3.7579 1.1643 3.5622		
Adjusted R <sup>2</sup> F-statistic (Model Sig.) Panel B: Results of testing H <sub>3</sub> Model (3): Diff_DA <sub>ijt</sub> = $\alpha_0$ + $\beta_1$ Same_ Variable Intercept Same_Audit Diff_Lev Same_Audit*Diff_Lev R <sup>2</sup> Adjusted R <sup>2</sup>	$\frac{Audit_{iji} + \beta_2 Diff_Lev_{iji} + \beta_3 Si}{\beta} - \frac{\beta}{0.0319} \\ 0.0323 \\ 0.6374 \\ -0.1754$	0.7793 222.443 (0.0000) ame_Audit <sub>ijt</sub> *Diff_ t-statistics -7.6024 2.4550 85.8979 -0.5971 0.8896 0.8893	$\frac{\text{Lev}_{ijt} + \epsilon_{ijt}}{\text{Sig.}}$ 0.0000 0.0143 0.0000 0.5506	VIF 3.7579 1.1643 3.5622		

Variable	β	t-statistics	Sig.	VIF
Intercept	0.0149	5.7496	0.0000	
Same_Audit	-0.0137	-1.6568	0.0979	3.1201
Diff_ROA	2.0148	128.9657	0.0000	1.1052
Same_Audit*Diff_ROA	-0.0804	-0.0935	0.9255	3.0003
$\mathbb{R}^2$		0.9474		
Adjusted R <sup>2</sup>		0.9473		
F-statistic (Model Sig.)		6215.559 ( <b>0.0000</b> )		

\* No. of observations are 1,039 firm-pairs for the fiscal years 2016-2019, and the level of significance is 5%.

Source: Developed by the researcher using the outputs of EViews 10.

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## **Table 6: Summary of Hypotheses Testing**

	Research Hypotheses	Result
$\mathbf{H}_1$	The audit style positively affects the firm-pair earnings comparability among listed firms on the EGX.	Supported
<b>H</b> <sub>2</sub>	Firm size moderates the relationship between the audit style and firm-pair earnings comparability among listed firms on the EGX.	Supported
<b>H</b> 3	Leverage ratio moderates the relationship between the audit style and firm- pair earnings comparability among listed firms on the EGX.	Not supported
H4	Profitability moderates the relationship between the audit style and firm-pair earnings comparability among listed firms on the EGX.	Not supported

Source: Developed by the researcher.

**Table 7** presents the results of the OLS regression that examines the effect of being audited by one of the Big 4 audit firms on earnings comparability, where earnings comparability is measured by the absolute value of the differences in DAs between each firm-pair. The model is significant (p-value < 0.05), and the adjusted  $R^2$  is 16% (rounded) which means 16% of changes in earnings comparability, as measured by differences in DAs, can be interpreted by the variation in the audit style as measured by the Big 4 audit firms. It is noted that there is a significant negative relationship between the audit style and the differences in DAs as evidenced by the coefficient of the Big4 (-0.225), and the p-value is less than 0.05.

Accordingly, there is a significant positive relationship between the audit style, as measured by the Big 4 audit firms, and earnings comparability. The researcher believes this relationship is logical since comparability is one of the qualitative characteristics that enhance the usefulness of the financial statements, and the Big 4 audit firms have their special audit style that seeks to keep their reputation which would lead to

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high-quality financial statements for their clients. Therefore, firm-pairs in the same industry and year that are audited by one of the Big 4 audit firms would be subject to a high-quality audit process which would result in lower differences between the two firms in their discretionary accruals, thus have more comparable earnings structure. Therefore, the results of the sensitivity analysis greatly support the results of the basic analysis.

Table 7: OLS results of Audit Style and Earnings Comparability Robustness Test

$\mathbf{Diff}_{\mathbf{D}}\mathbf{A}_{ijt} = \alpha_0 + \beta_1 \mathbf{BIG4}_{ijt} + \varepsilon_{ijt}$						
β	t-statistics	Sig.				
0.2525	29.4476	0.0000				
-0.2251	-14.0129	0.0000				
	0.1592					
	0.1584					
1	96.3622 ( <b>0.0000</b>	)				
	$+ \beta_1 BIG4_{ijt} + \varepsilon_{ijt}$ $\frac{\beta}{0.2525}$ -0.2251	β1BIG4ijt + εijt           β         t-statistics           0.2525         29.4476           -0.2251         -14.0129           0.1592         0.1584           196.3622 (0.0000				

\* No. of observations are 1,039 firm-pairs for the fiscal years 2016-2019, and the level of significance is 5%.

Source: Developed by the researcher using the outputs of EViews 10.

Regarding the moderating models under the sensitivity analysis (changing the method of measuring the audit style), the results, as shown in Table 8, are consistent with results reached under the basic analysis. The coefficient of the interactive variable, Two\_Big4\*Diff\_Size, indicates a significant negative impact of the audit style on the differences in DAs after considering the firm size as a moderating variable since  $\beta$  is -0.2722 and p-value < 0.05. While the coefficients of the interactive variables, Two\_Big4\*Diff\_Lev  $(\beta =$ -0.1937, p-value > 0.05). and Two\_Big4\*Diff\_ROA ( $\beta$ = -0.0644, p-value > 0.05) indicate a negative, but insignificant impact on the differences in DAs after considering the leverage ratio and profitability as moderating variables. Accordingly, the results of the sensitivity analysis support the results of the basic analysis.

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To further check the robustness of the results, the first research hypothesis that examines the main relationship between the audit style and earnings comparability is re-tested using an alternative measure of the earnings comparability which is the differences in the operating cash flows (DIFF\_OCF<sub>iit</sub>), measured as the absolute value of the difference in OCF between firm-pairs, where the OCF is divided by the beginning total assets. That is, both accruals and cash flow from operating activities are primary components of earnings (Francis et al., 2014). Results reported in Table 9 indicate that there is a significant negative relationship between the audit style, whether measured by the same audit firm or the Big 4 audit firms, and the differences in the operating cash flows, which in turn leads to more earnings comparability. This suggests that the audit style affects the firmpair earnings comparability both the operating cash flows and accruals components of earnings. However, this result contradicts with findings of Francis et al. (2014) which find that the audit style affects only the accruals component of earnings.

To summarize, **Table 10** presents the findings of testing the research hypotheses under both the basic and sensitivity analyses. It is concluded that the results of the hypotheses testing under the sensitivity analyses agree with the results under the basic analysis. Regarding  $H_1$ , the results of the basic analysis largely agree with the results of the sensitivity analyses concerning the fact that the audit style, whether measured by being audited by the same audit firm or by one of the Big 4, significantly affects firm-pair earnings comparability via reducing the differences in the discretionary accruals and operating cash flows among the listed firms on the EGX.

Regarding the moderating impact of the firm characteristics on the relationship between the audit style and the firm pairs' earnings comparability, the results are also largely in agreement with those achieved under the basic analysis, since  $H_2$  is supported suggesting the moderating effect of the firm size on the relationship between the audit style and firm

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pairs' earnings comparability among the listed firms on the EGX, while  $H_3$  and  $H_4$  are not supported.

Accordingly, the results of the sensitivity analysis, under changing the method of measuring both the audit style and earnings comparability, are broadly consistent with the results of the basic analysis, and thus, provide evidence of the robustness of the research findings.

## 6 Additional Analysis

The aim of conducting this additional analysis is to clarify the relationships examined in the fundamental analysis and to address any defect in the basic research model if any. By analyzing the most relevant previous studies (e.g., Cao et al., 2016; Chen et al., 2020; Francis et al., 2014; Jiu et al., 2020; Kawada, 2014), the researcher noticed that they have addressed the firm characteristics as control variables instead of moderating variables as used in the current research to examine their influence on the strength and/or direction of the relationships examined in the fundamental analysis, which raise the question of the preference to follow any of them in addressing the impact of these variables. To answer this question, firm characteristics-related hypotheses are re-tested, relying on addressing these variables as control variables. This enables comparing the results of the additional and basic models to determine the extent of differences in results achieved. Accordingly, the following multiple regression model is estimated:

# $$\begin{split} Diff_DA_{ijt} &= \alpha_0 + \beta_1 Same_Audit_{ijt} + \beta_2 Diff_Size_{ijt} + \beta_3 Diff_Lev_{ijt} + \\ & \beta_4 Diff_ROA_{ijt} + \epsilon_{ijt} \end{split}$$

Where variables have the same variables' definitions and measurements mentioned above in Table 1, Section 3.1.

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#### Table 8: Results of the Robustness of Firm Characteristics Moderating Models\*

Panel A: Results of testing H <sub>2</sub>							
$Model \ (2): \ Diff_DA_{ijt} = \alpha_0 + \beta_1 Two_Big4_{ijt} + \beta_2 Diff_Size_{ijt} + \beta_3 Two_Big4_{ijt} * Diff_Size_{ijt} + \epsilon_{ijt} + \epsilon_{ij$							
Variable	β	t-statistics	Sig.				
Intercept	-0.2256	-24.1615	0.0000				
Two_Big4	0.2231	13.1779	0.0000				
Diff_Size	0.4119	57.3287	0.0000				
Two_Big4*Diff_Size	-0.2722	-4.6389	0.0000				
R <sup>2</sup>		0.7989					
Adjusted R <sup>2</sup>		0.7983					
F-statistic (Model Sig.)		1370.582 (0.0000)					

#### Panel B: Results of testing H3

 $Model (3): Diff_DA_{ijt} = \alpha_0 + \beta_1 Two_Big4_{ijt} + \beta_2 Diff_Lev_{ijt} + \beta_3 Two_Big4_{ijt} * Diff_Lev_{ijt} + \epsilon_{ijt} + \epsilon$ 

Variable	β	t-statistics	Sig.
Intercept	-0.0355	-7.6262	0.0000
Two_Big4	0.0363	3.4222	0.0006
Diff_Lev	0.6414	82.8274	0.0000
Two_Big4*Diff_Lev	-0.1937	-1.4053	0.1602
R <sup>2</sup>		0.8899	
Adjusted R <sup>2</sup>		0.8896	
F-statistic (Model Sig.)	2	2789.340 ( <b>0.0000</b>	)

## Panel C: Results of testing H4

Model (4): Diff_DA <sub>ijt</sub> = $\alpha_0$	+ $\beta_1 Two_Big4_{ijt} + \beta_2 Diff_{jt}$	_ROA <sub>ijt</sub> + β <sub>3</sub> Two_Big	$4_{ijt}$ *Diff_ROA <sub>ijt</sub> + $\epsilon_{ij}$
Variable	β	t-statistics	Sig.
Intercept	0.0192	6.5398	0.0000
Two_Big4	-0.0181	-2.4159	0.0159
Diff_ROA	2.0018	122.3132	0.0000
Two_Big4*Diff_ROA	-0.0644	-0.1505	0.8804
$\mathbb{R}^2$		0.947339	
Adjusted R <sup>2</sup>		0.947181	
F-statistic (Model Sig.)		5966.527 ( <b>0.0000</b> )	
+ <b>3</b> 7 <b>0 1 0 1 0 0 0</b>			1 1 2 1 12

\* No. of observations are 1,039 firm-pairs for the fiscal years 2016-2019, and the level of significance is 5%.

Source: Developed by the researcher using the outputs of Eviews 10.

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# Table 9: OLS results of Audit Style and Earnings Comparability Robustness Test\*

Panel A: DIFF	_OCF <sub>ijt</sub> = α <sub>0</sub> + β <sub>1</sub> Same_Audit <sub>ijt</sub> +	<sup>-</sup> Eijt		
<u>Variable</u>	β	t-statistics	Sig.	
Intercept	0.1613	36.0199	0.0000	
Same_Audit	-0.1471	-14.1223	0.0000	
$\mathbb{R}^2$		0.1613		
Adjusted R <sup>2</sup>		0.1605		
F-statistic (Model Sig.)	]	199.4378 ( <b>0.0000</b>	)	
Panel B: D	$IFF\_OCF_{ijt} = \alpha_0 + \beta_1 BIG4_{ijt} + \varepsilon_{ij}$	t		
Variable	β	t-statistics	Sig.	
Intercept	0.1788	39.5019	0.0000	
Big4	-0.1569	-18.5018	0.0000	
$\mathbb{R}^2$		0.2482		
Adjusted R <sup>2</sup>		0.2475		
F-statistic (Model Sig.)		342.3161 ( <b>0.0000</b>	)	
* No. of observations are 1,039	* No. of observations are 1,039 firm-pairs for the fiscal years 2016-2019, and the level of			

significance is 5%.

Source: Developed by the researcher using the outputs of EViews 10.

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Table 10: A Comparison betw	veen results of the ba	sic and sensitivity
	analyses	
The research hypotheses	Deculte under	Doculta undon

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6 41 1

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1.4

the basicthe sensitivity analysisH1: The audit style positivelySupportedSupportedaffects the firm-pair earnings comparability among listed
analysisanalysisH1: The audit style positivelySupportedSupportedaffects the firm-pair earnings comparability among listed firms on the EGX
H1: The audit style positively affects the firm-pair earnings comparability among listed firms on the EGX.SupportedSupportedH2: Firm size moderates theSupportedSupported
affects the firm-pair earnings comparability among listed firms on the EGX.H2: Firm size moderates theSupportedSupported
comparabilityamonglistedfirms on the EGX.H2: Firm size moderates theSupportedSupportedSupported
firms on the EGX.SupportedSupportedH2: Firm size moderates theSupported
H2: Firm size moderates the Supported Supported
relationship between the audit
style and firm-pair earnings
comparability among listed
firms on the EGX.
H3: Leverage ratio moderates Not supported Not supported
the relationship between the
audit style and firm-pair
earnings comparability among
listed firms on the EGX.
H4: Profitability moderates the Not supported Not supported
relationship between the audit
style and firm-pair earnings
comparability among listed
firms on the EGX.

Source: Developed by the researcher.

Table 11 presents the results of the additional analysis that examine whether firm characteristics, namely firm size, leverage, and profitability, affect firm-pair earnings comparability in the context of the causal relationship between the audit style and earnings comparability. The model is significant (p-value < 0.05), and the adjusted R<sup>2</sup> is increased from 10% to 97% after considering the differences in firm size, leverage, and

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profitability as control variables. Although, there is a significant relationship between the audit style and firm-pair comparability (p-value < 0.05), it is turned into a positive relation ( $\beta$ =0.0543).

Also, all control variables have a significant (p-value < 0.05) effect on the differences in DAs. It is noted that there is a positive relationship between the firm-pair earnings comparability, as measured by the differences in DAs, and differences in each of (i) firm size ( $\beta$ =0.0965), (ii) leverage ( $\beta$ =0.1705), and (iii) ROA ( $\beta$ =1.1633). These results are inconsistent with some studies (Chen et al., 2020; Francis et al., 2014; Jiu et al., 2020; Kawada, 2014; Mohseni et al., 2014) which find a significant negative relationship between financial statements comparability, measured by differences in DAs, and the differences in size and leverage. While there is an agreement with the findings of Cao et al. (2016) which reported a positive relationship between the differences in firm size and differences in accruals.

However, these results are consistent with the results of the correlation coefficients reported in Panel B of Table 3, Section 4.1. Diff\_DA is positively correlated with differences in firm size ( $\beta$ = 0.865), leverage ( $\beta$ =0.942), and profitability ( $\beta$ =0.973), indicating that the lower the differences in size, leverage, and ROA between firm-pairs, the lower the differences in the discretionary accruals, hence, the greater the earnings comparability between each firm-pair.

Therefore, it can be concluded that firm size, leverage, and profitability negatively affect firm-pair earnings comparability, through the positive association with the discretionary accruals. In other words, the greater the differences between firm-pairs in their sizes, leverage, and profitability, the greater the differences in their discretionary accruals and earnings structure, which, in turn, lead to fewer earnings comparability.

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To achieve the intended objective of conducting the additional analysis, a comparison is made between the results of the hypotheses testing under the moderating variables models and the results of answering questions related to the control variables, to clarify the extent to which the relationships have differed under the two approaches.

**Table 12** summarizes this comparison indicating the unacceptance of the effect of leverage and profitability, as moderating variables, on the relationship between the audit style and firm pairs' earnings comparability, while they have a significant effect on earnings comparability when treated as control variables. However, both the moderating and control approaches have an agreement upon the effect of the firm size on earnings comparability.

<b>Diff_DA</b> <sub>ijt</sub> = $\alpha_0$ -	+ β1Same_	Auditijt + $\beta_2 D$	Diff_Sizeijt-	⊦β3Diff_L	ev <sub>ijt</sub> + β4Diff_R	$\mathbf{OA}_{ijt} + \varepsilon_{ijt}$
	ו	Under Contro	ol Variable	es	Without C	ontrol Variables
<u>Variable</u>	β	t-statistics	Sig.	VIF	β	Sig.
Intercept	-	-20.1557	0.0000		0.2271	0.0000
	0.0669					
Same_Audit	0.0543	12.9278	0.0000	1.5717	-0.2097	0.0000
Diff_Size	0.0965	23.8406	0.0000	4.1715		
Diff_Lev	0.1705	18.0059	0.0000	7.7554		
Diff_ROA	1.1633	36.7955	0.0000	8.8158		
$\mathbb{R}^2$		0.9730			(	0.1021
Adjusted R <sup>2</sup>		0.9729			(	0.1013
F-statistic (Model Sig.)	93	324.297 ( <b>0.00</b>	)0)		117.97	734 ( <b>0.0000</b> )
* No. of observations are 1	,039 firm-	pairs for the fi	scal years	2016-2019	, and the level of	significance is 5%.

# Table 11: Results of Earnings Comparability Test using Firm Characteristics as Control Variables

Source: Developed by the researcher using the outputs of EViews 10.

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# Table 12: A Comparison between Results of the Basic and Additional Analyses

Research hypotheses under the	Result	<b>Research questions under the control</b>	Answer
moderating variables		variables	
H <sub>2</sub> : Firm size moderates the relationship	Supported	Does firm size affect the firm pairs'	Yes
between the audit style and firm-pair		earnings comparability, in the context of	
earnings comparability among listed firms		the causal relationship between the audit	
on the EGX.		style and earnings comparability among	
		listed firms on the EGX?	
H <sub>3</sub> : Leverage ratio moderates the	Not	Does leverage ratio affect the firm pairs'	Yes
relationship between the audit style and	supported	earnings comparability, in the context of	
firm-pair earnings comparability among		the causal relationship between the audit	
listed firms on the EGX.		style and earnings comparability among	
		listed firms on the EGX?	
H4: Profitability moderates the relationship	Not	Does profitability affect the firm pairs'	Yes
between the audit style and firm-pair	supported	earnings comparability, in the context of	
earnings comparability among listed firms		the causal relationship between the audit	
on the EGX.		style and earnings comparability among	
		listed firms on the EGX?	

Source: Developed by the researcher.

## 7 Conclusion

This research aims to investigate the relationship between the audit style and firm pairs' earnings comparability, and whether this relationship differs with the differences in some firm-specific characteristics. The statistical results of hypotheses testing documented in this research can be interpreted as evidence supporting the following inferences. Concerning the Egyptian context, there is a positive and significant relationship between the audit style, as measured by being audited by the same audit firm, and firm-pairs' earnings comparability, as measured by the

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differences in the discretionary accruals between each firm-pair in the same industry and year, among the non-financial listed firms. This finding is robust since by re-testing this relationship using alternative measures, the Big 4 audit firms, and the differences in the operating cash flows, results also support the first research hypothesis.

Regarding the moderating effect of the firm characteristics on the relationship between the audit style and earnings comparability, results indicate that firm size strengthens the relationship between the audit style and earnings comparability, while leverage and profitability have an insignificant effect. The same findings are reached based on using the Big 4 audit firms as an alternative measure of the audit style.

As an additional analysis, results indicated that there is a positive relationship between firm characteristics, firm size, leverage, and profitability, and the differences in the discretionary accruals. However, it turned the relationship between the audit style and firm-pairs' earnings comparability into a negative relationship which is an illogical result. Therefore, the researcher is more convinced of the preference to follow the moderating variables approach, since it implicitly indicates the effect of the control variables, as well as showing the interactive effect of these variables with the independent variable on the dependent variable under study.

It is important to realize that these results must be interpreted considering some **limitations**. **First**, the research is conducted in the Egyptian setting using data for only listed non-financial firms. Therefore, findings may not be generalizable to other institutional settings such as the financial sector, those whose financial reports are in foreign currency, and the non-listed firms. **Second**, only the moderating effect of firm size, leverage, and profitability are tested. Thus, another limitation of this research is the exclusion of other firm characteristics that may affect earnings comparability such as firm age, sales growth rate, the market-tobook ratio. **Finally**, the inference of the findings of the current research

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should be in the light of the research objectives, the covered period, and the sample used, and the specific conditions for its selection as well.

However, the results of this research have some implications and recommendations that can improve the Egyptian financial reporting environment. First, the issuers of the Egyptian Accounting Standards should be interested in strengthening the comparability of financial statements, as one of the qualitative characteristics of the accounting information, and issue specialized technical explanations and guidance on how to apply the standards to achieve consistency in their application among firms. Second, the Financial Regulatory Authority (FRA) and the EGX should also be concerned with seeking to improve the regulatory and financial reporting environment by activating the corporate governance mechanisms and encouraging firms to the usage of technology in the preparation and publishing of financial reports such as the use of XBRL, to enhance the comparability of financial statements. Third, it is necessary to ensure auditors' compliance with their audit firms' working rules related to conducting the audit. Also, it would be beneficial to establish separate monitoring authority to oversee firms' compliance with the corporate governance code. This is expected to increase firms' compliance with applicable laws and the consistent application of the accounting and auditing standards as preliminary steps toward improving the financial statements' comparability, and hence improving the financial reporting quality.

Finally, it is recommended to conduct more **future research** in this area to provide a more in-depth understanding of ways to improve financial statements' comparability among the listed firms on the EGX. **For example**, examining the impact of the audit committee's effectiveness, and internal control quality on the comparability of the financial statements can be fruitful for further research. Also, it is recommended to investigate the potential impact of the digitalization on the financial statements' comparability, and the determinants of the interim financial

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statements' comparability as well. Furthermore, it would be beneficial to study the implications of the enhanced comparability in terms of its effect on the cost of equity and debt, real earnings management activities, and the audit opinion.

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# Appendices

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# **Appendix (A): Names of Sample Firms**

A. Basic Resources	B. Food, Beverages and Tobacco		
1. Arab Aluminum	1. AJWA for Food Industries company Egypt		
2. Asek Company for Mining - Ascom	2. Arabian Food Industries DOMTY		
3. Egyptian Financial & Industrial	3. Cairo Poultry		
4. EL Ezz Aldekhela Steel - Alexandria	4. Edita Food Industries S.A.E		
5. Kafr El Zayat Pesticides	5. Egyptian Starch & Glucose		
6. Misr Fertilizers Production Company -	6. Ismailia Misr Poultry		
Морсо	7. Ismailia National Food Industries		
7. Misr National Steel - Ataqa	8. Juhayna Food Industries		
8. Sidi Kerir Petrochemicals	9. Mansourah Poultry		
	10. Obour Land for Food Industries		
	11. Sharkia National Food		
	12. The Arab Dairy Products Co. Arab Dairy -		
	Panda		
C. Building Materials	D. Real Estate		
1. Arab Valves Company	1. Delta Construction & Rebuilding		
2. Arabian Cement Company	2. Egyptians For Investment & Urban		
3. El Ezz Porcelain (Gemma)	Development		
4. Misr Beni Suef Cement	3. El Obour Real Estate Investment		
5. Misr Cement (Qena)	4. Emaar Misr for Development		

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6. Rubex International for Plastic and Acrylic	5. Gharbia Islamic Housing Development			
Manufacturing	6. International Co For Investment &			
7. South Valley Cement	Development			
8. Suez Cement	7. Medinet Nasr Housing			
9. The Arab Ceramic CO Ceramica Remas	8. National Housing for Professional Syndicates			
10. Torah Cement	9. Orascom Development Egypt			
	10. Palm Hills Development Company			
	11. Six of October Development & Investment			
	(SODIC)			
	12. Zahraa Maadi Investment & Development			
	13. Elsaeed Contracting & Real Estate Investment			
	Company SCCD			
	1 0			
	14. Mena Touristic & Real Estate Investment			
E. Health Care & Pharmaceuticals	<ul><li>14. Mena Touristic &amp; Real Estate Investment</li><li>F. Travel &amp; Leisure</li></ul>			
<b>E. Health Care &amp; Pharmaceuticals</b> 1. Alexandria New Medical Center	14. Mena Touristic & Real Estate Investment         F. Travel & Leisure         1. Assiut Islamic Trading			
<b>E. Health Care &amp; Pharmaceuticals</b> 1. Alexandria New Medical Center 2. Cleopatra Hospital Company	14. Mena Touristic & Real Estate Investment         F. Travel & Leisure         1. Assiut Islamic Trading         2. Egyptian for Tourism Resorts			
<b>E. Health Care &amp; Pharmaceuticals</b> 1. Alexandria New Medical Center 2. Cleopatra Hospital Company 3. Ibnsina Pharma	<ul> <li>14. Mena Touristic &amp; Real Estate Investment</li> <li>F. Travel &amp; Leisure</li> <li>1. Assiut Islamic Trading</li> <li>2. Egyptian for Tourism Resorts</li> <li>3. Americana- International Egyptian Co. For</li> </ul>			
<b>E. Health Care &amp; Pharmaceuticals</b> 1. Alexandria New Medical Center 2. Cleopatra Hospital Company 3. Ibnsina Pharma 4. Minapharm Pharmaceuticals	<ul> <li>14. Mena Touristic &amp; Real Estate Investment</li> <li>F. Travel &amp; Leisure</li> <li>1. Assiut Islamic Trading</li> <li>2. Egyptian for Tourism Resorts</li> <li>3. Americana- International Egyptian Co. For Touristic Projects</li> </ul>			
E. Health Care & Pharmaceuticals 1. Alexandria New Medical Center 2. Cleopatra Hospital Company 3. Ibnsina Pharma 4. Minapharm Pharmaceuticals 5. Nozha International Hospital	<ul> <li>14. Mena Touristic &amp; Real Estate Investment</li> <li>F. Travel &amp; Leisure</li> <li>1. Assiut Islamic Trading</li> <li>2. Egyptian for Tourism Resorts</li> <li>3. Americana- International Egyptian Co. For Touristic Projects</li> <li>4. Rowad Misr Tourism Investment</li> </ul>			
E. Health Care & Pharmaceuticals 1. Alexandria New Medical Center 2. Cleopatra Hospital Company 3. Ibnsina Pharma 4. Minapharm Pharmaceuticals 5. Nozha International Hospital 6. October Pharma	<ol> <li>Mena Touristic &amp; Real Estate Investment</li> <li>F. Travel &amp; Leisure</li> <li>Assiut Islamic Trading</li> <li>Egyptian for Tourism Resorts</li> <li>Americana- International Egyptian Co. For Touristic Projects</li> <li>Rowad Misr Tourism Investment</li> <li>Sharm Dreams Co. for Tourism Investment</li> </ol>			
E. Health Care & Pharmaceuticals  1. Alexandria New Medical Center  2. Cleopatra Hospital Company  3. Ibnsina Pharma  4. Minapharm Pharmaceuticals  5. Nozha International Hospital  6. October Pharma  7. Sabaa International Company for	<ol> <li>Mena Touristic &amp; Real Estate Investment</li> <li>F. Travel &amp; Leisure</li> <li>Assiut Islamic Trading</li> <li>Egyptian for Tourism Resorts</li> <li>Americana- International Egyptian Co. For Touristic Projects</li> <li>Rowad Misr Tourism Investment</li> <li>Sharm Dreams Co. for Tourism Investment</li> <li>TransOceans Tours</li> </ol>			

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Appendix (B): The Distribution of Firm-pair Observations among Industries over the Sample Period				
Industry	Year	Firm-pairs	Total Observations	Percen
1. Basic Resources	2016	28		
	2017	28		
	2018	28		
	2019	28	112	11%
2. Food, Beverages, and Tobacco	2016	66		
	2017	66		
	2018	66		
	2019	66	264	25%
3. Building Materials	2016	45		
	2017	45		
	2018	45		
	2019	45	180	17%
4. Real Estate	2016	66		
	2017	91		
	2018	91		
	2019	91	339	33%
5. Health Care & Pharmaceuticals	2016	21		
	2017	21		
	2018	21		
	2019	21	84	8%
6. Travel & Leisure	2016	15		
	2017	15		
	2018	15		
	2019	15	60	6%
			1.039	100%

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أثر الخصائص التشغيلية للشركة على العلاقة بين نمط المراجعة وقابلية الأرباح للمقارنة - دليل من الشركات المقيدة بالبورصة المصرية

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ملخص البحث

**الهدف** – يستهدف هذا البحث در اسة واختبار أثر نمط المراجعة على قابلية الأرباح للمقارنة، وأثر بعض خصائص الشركات المتمثلة في كل من حجم الشركة، نسبة الرفع المالي، والربحية كمتغيرات مُعدّلة على هذه العلاقة.

المنهجية – تم استخدام أسلوبي الانحدار البسيط والمتعدد في اختبار فروض الدراسة، وبعد استبعاد الشركات التي تنتهي السنة المالية لها في 30 يونيو، وتلك التي تصدر تقارير ها بالعملة الأجنبية، والقطاعات المُقيّد بها أقل من ست شركات، تكونت عينة الدراسة من 57 شركة من الشركات غير المالية المقيدة ببورصة الأوراق المالية المصرية. لذا، بلغ عدد المشاهدات 1,039 مشاهدة ثنائية خلال الفترة من عام 2016 إلى عام 2019.

النتائج – توصل البحث، في ظل التحليل الأساسي، إلى أن نمط المراجعة له تأثير إيجابي ومعنوي على قابلية الأرباح للمقارنة، وأن هذا التأثير يختلف باختلاف حجم الشركة، في حين لم يكن لأي من نسبة الرفع المالي أو الربحية أي تأثير معنوي على العلاقة بين قابلية الأرباح للمقارنة ونمط المراجعة. كما تم التأكد من مدى قوة هذه النتائج، حيث توصلت الدراسة إلى نتائج، من تحليل الحساسية، تدعم بدرجة كبيرة نتائج التحليل الأساسي. كما توصلت الدراسة في طل التحليل الإضافي إلى أن كلاً من حجم الشركة، نسبة الرفع المالي، والربحية يؤثر تأثيراً

**المساهمة العلمية** – توجد ندرة نسبية في الدراسات الأكاديمية التي تناولت قابلية الأرباح للمقارنة باستخدام الاختلاف في مستوى إدارة الأرباح بين كل زوج من الشركات و علاقتها بأسلوب أو نمط المراجعة في ظل وجود خصائص الشركات كمتغيرات مُعدّلة للعلاقة، وذلك في حدود علم الباحث. كما انتهت الدراسة بعدد من التوصيات التي قد تكون محل اهتمام كل من الأكاديميين، مراقبي الحسابات ومكاتب المراجعة، والجهات التشريعية والرقابية المسئولة عن بيئة التقرير المالي.

الكلمات المفتاحية: قابلية الأرباح للمقارنة، نمط المراجعة، الخصائص التشغيلية للشركات.