

# Audit committee effectiveness and audit quality: the moderating effect of joint audit

The moderating effect of joint audit

Ahmed Elmashtawy

*Faculty of Business, Economics and Social Development,  
University Malaysia Terengganu (UMT), Kuala Nerus, Malaysia and  
Faculty of Commerce, Menoufia University,  
Menoufia, Egypt*

Mohd Hassan Che Haat and Shahnaz Ismail

*Faculty of Business, Economics and Social Development,  
University Malaysia Terengganu (UMT), Kuala Nerus, Malaysia, and*

Faozi A. Almaqtari

*College of Business Administration, A'Sharqiyah University (ASU), Ibra, Oman*

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## Abstract

**Purpose** – The main aim of the present study is to assess the moderating effect of joint audit (JA) on the relationship between audit committee effectiveness (ACEFF) and audit quality (AQ) in Egypt.

**Design/methodology/approach** – The sample included 61 non-financial corporations listed on the Egyptian Exchange from 2016 through 2020. The results are estimated using panel data analysis with fixed-effect models.

**Findings** – The findings exhibit that audit committee (AC) independence, ACEFF; and audit firm size negatively affect AQ. Conversely, the influence of AC meetings on AQ is positive and significant. The findings also reveal that JA moderates the relation between the ACEFF and AQ.

**Research limitations/implications** – The study offers theoretical contributions to corporate governance mechanisms, JA; and AQ by using data from listed firms in Egypt. The study is the first one that examines the moderating role of JA on ACEFF and AQ.

**Practical implications** – The study has practical implications for investors, board members, practitioners, academicians; and policymakers. Moreover, the study contributes using a composite measure for the ACEFF score.

**Originality/value** – The findings, supported by agency, resource dependence; and signaling theories, contribute to a better understanding of the relationship between ACEFF, AQ; and JA. The evidence about JA is still unknown in developing countries. Further, revisiting AQ with different measures, particularly accounting conservatism, has not been a subject of prior studies.

**Keywords** Accounting conservatism, Audit quality, Audit committee effectiveness, Joint audit, Egypt

**Paper type** Research paper

## 1. Introduction

Audit quality (AQ) is essential because the principal-agency relationship of owners and managers leads to the divergent interests of both parties (DeFond, Hann, & Hu, 2005), which causes agency problems. As one of the corporate governance (CG) mechanisms, the audit committee (AC) assists the board in fulfilling its responsibilities and performing supervision and control. In addition, it increases confidence and credibility in financial reports by



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examining the reports and carrying out activities to boost accounting conservatism (Nawafly, Alarussi, & Ahmi, 2018). The AC performs these duties to help the company achieve its goals and protect the interests of its shareholders and related parties (Jung and Cho, 2022). Alsartawi (2019) indicated that when explaining AQ, relying on a group of governance mechanisms gives a better explanation than relying on just one mechanism. Previous research (Alqadasi and Abidin, 2018; Amin, Lukviarman, Suhardjanto, & Setiany, 2018; Khudhair, Al-Zubaidi, & Raji, 2019; Nawafly *et al.*, 2018; Soliman and Abd Elsalam, 2013) looked into a variety of governance mechanisms and AQ in developed nations. Except for Soliman and Abd Elsalam (2013), these studies discovered positive relations between CG and AQ. However, there is a dearth of research in developing countries in this field.

In the last few decades, joint audit (JA) has gained momentum in academic research and practice. For example, according to a report titled "Audit Policy: Lessons from Crises" released by the European Commission (EC), JA is one of the most crucial mechanisms to enhance the audit profession (European Commission (EC), 2010). However, the JA has incited much controversy among academics and professionals. Although it has already been practiced in many countries for decades, it became a controversial mechanism after the publication of the Green Paper report (Bédard, Chtourou, & Courteau, 2004). JA is familiar to industries in Egypt because it has already been done mandatorily or voluntarily. When there is a combination of joint auditors, they hold joint responsibility (Financial Regulatory Authority (FRA), 2016).

Accordingly, the present study's purpose is to examine the moderating influence of JA on the relation between audit committee effectiveness (ACEFF) and AQ in Egypt. The study depends on a balanced database of 305 observations and spans from 2016 to 2020. The findings demonstrate that AC independence and ACEFF have a negatively significant association with AQ. However, the influence of AC meetings on AQ is positive and significant. The findings also reveal that JA moderates the association between the ACEFF and AQ.

The study has several contributions. First, it is one of the first studies to assess the moderating influence of JA on the relation between ACEFF and AQ. Second, the study contributes to the theoretical understanding and adds to the current literature on ACEFF, AQ, and JA, especially in the Egyptian context. Third, most of the previous studies used individual AC characteristics to assess the impact of the AC on AQ (Adeyemi and Fagbemi, 2010; Alawaqleh, Almasria, & Alsawalhah, 2021; Fakhfakh and Jarboui, 2021; Karabrahimoglu, 2013; Khudhair *et al.*, 2019; Kuang, 2011; Saidu and Aifuwa, 2020). However, the present research employs a composite measure for the ACEFF score. As a result, the composite scale provides a comprehensive measure of the ACEFF. In addition, the study is based on the Egyptian context, which is considered an emerging economy in the Middle East and North Africa (MENA). Most countries in the MENA region are inspired by Egypt's business practices and take them as a model (Amer, Ragab, & Ragheb, 2014; Soliman and Abd Elsalam, 2013; Soliman, 2014). Therefore, the study has useful implications for investors, board members, practitioners, academicians; and policymakers.

## 2. Literature review and hypotheses development

The joint audit is familiar to Egyptian industries because it has already been done either mandatorily or voluntarily. Companies Law No. 159 of 1981 stipulates that "a joint-stock company shall have one or more auditors who meet the conditions stipulated in the law of practicing the accounting and auditing professions, appointed by the General Assembly and whose fees are estimated". In the case of multiple auditors, they are jointly liable (Financial Regulatory Authority (FRA), 2016). The joint audit is voluntary for Egyptian joint-stock companies, insurance companies, and factoring companies according to the provisions of Companies Law No. 159 of 1981 (as amended by Law No. 3 of 1998, the Insurance Supervision and Control Law No. 10 of 1981) and EFSA Board Decision No. 72 of 2013 on Regulatory and

Supervisory Controls for Factoring Activity (Financial Regulatory Authority (FRA), 2016). This approach is also mandatory for banks, investment funds, mortgage finance companies, investment funds, investor protection funds; and central depository and registration companies (Financial Regulatory Authority (FRA), 2016). It is based on the Capital Market Law No. 95 of 1992 and its Executive Regulations, Central Depository Law and Registration No. 93 of 2000, Central Bank Law and the Banking System No. 88 of 2003, Real Estate Finance Law No. 148 of 2001 and its Executive Regulations, Law of Companies Operating in Receiving Funds for Investment No. 146 of 1988, and President of the Capital Market Authority Decree No. 106 of 2006 on the Statute of the Investor Protection Fund.

The study generates hypotheses based on several modifications of prior research findings. The study, which is based on agency theory, resource dependence theory; and signaling theory to derive research variables, contributes to a deeper understanding of the relationship between ACEFF, AQ and JA. The agency theory identified the broad knowledge and deep understanding that the AC's effectiveness is an important mechanism for CG, which, in turn, better monitors management and protects the interests of shareholders, reducing the cost of the agency and improving AQ (Fama and Jensen, 1983). At the same time, the resource dependence theory assumes that the AC's effectiveness assists the board of directors in providing extensive management knowledge and other necessary resources, as well as providing advisory services regarding strategic decisions and thus improving AQ (Pfeffer, 1972). In contrast, signaling theory suggests that managers may make some critical decisions as a signal to shareholders and a tool to convince investors that the company has good AQ, such as selecting Big 4 to conduct the audit process or adopting JA (Alves and Carmo, 2022; Jung and Cho, 2022).

### 2.1 AC independence and AQ

The AC's independence is frequently seen as necessary for efficient AQ monitoring (Khudhair *et al.*, 2019; Nawafly *et al.*, 2018). This is due to the influence of independence on the directors' ability to supervise the AQ of a company adequately. It could be argued that independent directors are best suited to serve as active overseers of AQ (Al Farooque, Buachoom, & Sun, 2020). Furthermore, Suryanto, Thalassinou and Thalassinou (2017) claimed that AC must be independent to function effectively since this liberates internal and external auditors from undue influence and interference from corporate executives. Therefore, the AC's independence is a critical aspect of improving AQ. According to the Egyptian CG Code, the AC must have a minimum of three members, with the (2/3) being independent (Egyptian Institute of Directors (EIOD), 2016). Furthermore, agency theory holds that the AC's function is to monitor and regulate AQ (Pfeffer, 1972).

Prior studies support the independence of AC members (Bédard *et al.*, 2004; Davidson, Xie, & Xu, 2004; Lo, Wong, & Firth, 2010). Most of their data backs up the beneficial relationship between AC member independence and AQ. Furthermore, the studies (Amin *et al.*, 2018; Khudhair *et al.*, 2019; Suryanto *et al.*, 2017) discovered that increased AC independence is connected with higher accrual quality and, as a result, enhanced AQ. Conversely, some studies found a negative relation between AC independence and AQ (Kent, Routledge, & Stewart, 2010; Lo *et al.*, 2010). Some researchers, such as AbdulRahman and Ali (2006), failed to find a link between AC independence and AQ. Therefore, it is hypothesized that:

*H1.* AC independence is significantly and positively related to AQ.

### 2.2 AC financial expertise and AQ

As part of its supervisory obligations, AC members' expertise is crucial to AC's success in improving AQ. As a result, without experience, AC members would struggle to effectively understand the financial information required to determine AQ (Nawafly *et al.*, 2018).

In Egypt, the CG Code mandates that a minimum of one member has competence in accounting and finance (Egyptian Institute of Directors (EIOD), 2016). The resource dependence theory, on the other hand, suggests that the purpose of the AC is to provide resources in the form of expertise to gain a competitive advantage (Abbott, Parker, & Peters, 2004).

Several previous research findings indicate the value of AC members' expertise. For example, Amin *et al.* (2018) found a positive relationship between AC expertise and AQ. Similarly, Krishnan, Wen, and Zhao (2011); and Krishnan and Visvanathan (2009) have shown that having a minimum of one AC expertise member is favorably connected to AQ. In recent years, the literature has provided evidence that the positive impact of financial expert directors is solely attributed to accounting expertise rather than other financial experts (Alodat, Salleh, Hashim, & Sulong, 2022; Suryanto *et al.*, 2017; Zhou, Owusu-Ansah, & Maggina, 2018). Some studies, however, showed the opposite results, such as Lin, Li and Yang (2006), who found that financial expertise does not influence AQ. Based on the above, the following hypothesis has been developed:

*H2. Financial expertise of the AC is significantly and positively related to AQ.*

### *2.3 AC size and AQ*

The size of the AC is a significant component in improving AQ since larger committees are more likely to draw on a broader knowledge base and diverse experience, allowing them to perform their duties more successfully (Vafeas, 2005). As stated by Fakhfakh and Jarboui (2021), the size of the AC is a critical component of its effectiveness. According to the Egyptian Institute of Directors (EIOD) (2016), an AC should have at least three members. Following the agency theory, an efficient and effective AC must be able to resolve conflicts (Klein, 2002). The resource dependence theory, on the other hand, implies that an optimally sized AC allows members to put their diverse skills and talents to work in the best interests of the stakeholders (Karabrahimoglu, 2013).

In general, the results of the literature are divergent. Amin *et al.* (2018) and Mansor, Che-Ahmad, Ahmad-Zaluki, and Osman (2013) found that the AC size is connected to improved AQ. Lin *et al.* (2006) discovered a positive relation between AC size and AQ, indicating that a specific minimum of AC members may be significant to AQ. Also, Nawafly *et al.* (2018) reported that larger ACs are related to higher AQ. Otherwise, Soliman and Abd Elsalam (2013) found no significant relationship between the size of AC and AQ. Similarly, Abbott *et al.* (2004) discovered that the AC size had no impact on AQ. As such, the following hypothesis has been developed:

*H3. AC size is significantly and positively related to AQ.*

### *2.4 AC meetings and AQ*

It is suggested that the regularity with which AC meetings are held is a crucial factor in their effectiveness (Abbott and Parker, 2000; Davidson *et al.*, 2004; El-Dyasty, 2017). According to Lin *et al.* (2006), AC meeting frequency is connected with increased AQ, and a more active AC is expected to be a more effective monitor. According to the resource dependence theory, AC meetings can control urgent audit difficulties (Pfeffer, 1972).

Mardessi (2022) discovered a strong positive link between AC meetings and AQ in a recent meta-analysis study. Furthermore, Soliman (2014), Khudhair *et al.* (2019); and Amin *et al.* (2018) found a substantial positive link between AC meetings and discretionary accruals as a proxy for AQ. However, empirical investigations, such as those conducted by Lin *et al.* (2006), indicated no significant relationship between meeting frequency and AQ. According to DeZoort, Hermanson, Archambeault, and Reed (2002), firms often depend on AC meetings as

a stand-in for the AC's diligence because other indicators of diligence are not publicly viewable. Therefore, the following hypothesis has been formulated:

*H4. AC meetings are significantly and positively related to AQ.*

### 2.5 ACEFF and AQ

ACEFF relies on its composition, precisely its independence, size, financial expertise; and the number of meetings (Alqadasi and Abidin, 2018; DeZoort *et al.*, 2002). While previous literature has developed a strong assurance of individual AC characteristics (Bananuka, Nkundabanyanga, Nalukenge, & Kaawaase, 2018; Bradbury, 1990; Haniffa and Hudaib, 2006; Hsu and Petchsakulwong, 2010; Hunjra, Hanif, Mehmood, & Nguyen, 2020; Klein, 2002; Krishnan *et al.*, 2011; Lin *et al.*, 2006; Nawafly *et al.*, 2018; Salleh, Baatwah, & Ahmad, 2017; Zhou *et al.*, 2018), recent studies contend that the ACEFF composite scale gives better results (Hashim and Amrah, 2016). In particular, the effectiveness of one mechanism may be influenced by the other mechanisms (Khudhair *et al.*, 2019; Lin and Hwang, 2010). Furthermore, Alqadasi and Abidin (2018) contend that examining CG mechanisms as a composite scale yields more accurate results than examining them individually.

In the Egyptian context, Soliman and Abd Elsalam (2013) investigated the relationship between the ACEFF as measured by the AC index, which includes four characteristics: independence, financial expertise, size; and meetings with AQ. According to the findings of their research, there are negative relationships between ACEFF and AQ. Furthermore, Nawafly *et al.* (2018) claimed that previous literature on the association between ACEFF and AQ had yielded indecisive results. Based on the preceding discussion, the following hypothesis has been proposed:

*H5. ACEFF is significantly and positively related to AQ.*

### 2.6 The moderating effect of JA

Agency theory has identified that the external auditor is an important mechanism for CG, which, in turn, audits management, protects the interests of shareholders and reduces the cost of the agency. In addition to the AC's role in selecting and appointing auditors, it leads to an improvement in the AQ (Fama and Jensen, 1983; Mardessi, 2022; Zerni, Haapamäki, Järvinen, & Niemi, 2012). The separation of ownership and control in corporations, according to agency theory, creates problems in agencies because managers may act in their own interests rather than in the interests of shareholders. The JA approach is also supported by agency theory, which suggests that JA has more resources and expertise to conduct high-quality audits. At the same time, resource dependence theory assumes that external auditors assist the board of directors in providing extensive management knowledge and other necessary resources, as well as advising on strategic decisions, thereby improving AQ (Alodat *et al.*, 2022; Alqadasi and Abidin, 2018; Pfeffer, 1972). Thus, the auditor's role is to assure shareholders that the financial statements are accurate and reliable. Because of its greater resources and experience, the JA approach may be better suited to provide this assurance. In contrast, signal theory suggests that managers may make critical decisions as a signal to shareholders as well as a tool to persuade investors that a company is of high quality, such as selecting the Big 4 to conduct the audit or JA adoption (Alves and Carmo, 2022; Jung and Cho, 2022; Lobo, Paugam, Zhang, & Casta, 2016). According to signal theory, companies may use various signals to communicate their quality to external stakeholders, such as the AC's decision to adopt the JA, which may indicate that the company is committed to issuing high-quality financial statements and has hired two auditors.

The JA aims to improve the credibility of financial reports by reducing information asymmetry and increasing capital market confidence (Deng, Lu, Simunic, & Ye, 2014).

Lobo *et al.* (2016) also emphasized the significance of the JA's positive influence on the AQ. The positive effects of the JA will contribute to the activation of the company's conservative accounting practices, creating additional investment opportunities for the company because of the cumulative effect of value storage due to the postponement of profit recognition in the current period (Watts, 2003). Zerni *et al.* (2012) confirmed that corporates that activate the JA have a high level of conservatism and improve AQ compared to single audits. According to some previous studies (Abbott and Parker, 2000; DeFond and Lennox, 2011; El-Dyasty, 2017; Zerni *et al.*, 2012), the auditor selection process depends on several factors, including the ACEFF, business risks and some control variables. The company may rely on a strong governance structure instead of not paying attention to a high AQ. At the same time, the company may be concerned with the AQ to support its governance structure (Alfraih, 2016).

Furthermore, auditor selection and demand for high-quality audits are influenced by the signaling effect, which depends on agency theory and contends that directors share additional information about their company and their behavior with the market (Yeoh and Jubb, 2001). Otherwise, Alhababsah and Yekini (2021) examined the relationship between AQ and CG, and their findings revealed that good internal governance would never eliminate AQ. Likewise, Abbott, Parker, Peters, and Rama (2007) investigated the AC's demand for high AQ and discovered that firms with effective AC demand higher AQ. While previous studies advocated a direct relationship between AC and AQ, some studies presented other variables influencing this relationship, such as JA (Alfraih, 2016; Alves and Carmo, 2022; Jung and Cho, 2022). Based on the above propositions, the proposed hypotheses are as follows:

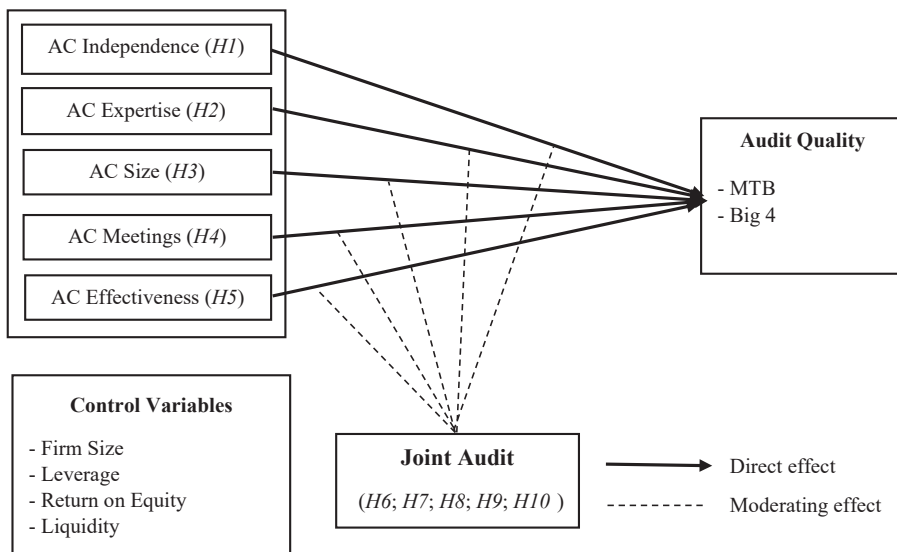
- H6.* JA moderates the association between AC independence and AQ.
- H7.* JA moderates the association between AC expertise and AQ.
- H8.* JA moderates the association between AC size and AQ.
- H9.* JA moderates the association between AC meetings and AQ.
- H10.* JA moderates the association between ACEFF and AQ.

To summarize, our investigation into the relationships between ACEFF, AQ, and JA resulted in the model in Figure 1.

### 3. Data and methodology

#### 3.1 Sample and data collection

The study concentrates on the companies included in the EGX 100 Index from 2016 through 2020. Furthermore, this index demonstrates an accurate representation of all economic sectors. Following prior studies (Alodat *et al.*, 2022; Deng *et al.*, 2014; Khudhair *et al.*, 2019; Lobo *et al.*, 2016; Soliman and Abd Elsalam, 2013; Zerni *et al.*, 2012), 12 financial firms were not included in the sample because of the specific nature of their businesses and the various regulatory requirements with which they must comply. Subsequently, three firms whose reports were missing or unavailable were eliminated from the analysis. The study also excluded nine firms whose shares were not listed and traded throughout the study period. Further, 15 firms that did not submit their financial reports on December 31st every year were not considered. This is to ensure a fair and quality comparison. Thus, the final sample included 61 non-financial firms from 13 different sectors and 305 observations for the firm-year. Because of the third release of the CG code in 2016, the period 2016-2020 was chosen for the study. Secondary sources were used to collect research data, specifically published unconsolidated financial statements and auditor reports.



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**Figure 1.**  
Research framework

Source(s): Figure by authors

### 3.2 Variables measurement

This study uses two measures of AQ. First, it adopts Beaver and Ryan's (Beaver and Ryan, 2000) accounting conservatism model to measure the actual AQ. This model measures accounting conservatism as the market-to-book (MTB) value of net assets. The market value was calculated by multiplying the number of issued shares by their closing price. If the market value exceeds the book value or the ratio exceeds one, the company practices a conservative accounting policy in recognizing profits and assets, resulting in higher AQ (Alanezi, Alfaraih, Alrashaid, & Albolushi, 2012; Givoly, Hayn, & Natarajan, 2007; Lesage, Ratzinger-Sakel, & Kettunen, 2012; Lobo *et al.*, 2016; Sabah, Ali, & Abed, 2019; Velte and Azibi, 2015; Zerni *et al.*, 2012). This model was chosen for several reasons. Firstly, it is one of conservatism's simplest and most common estimators. Secondly, it is a comprehensive measure that covers conditional and unconditional conservatism. Moreover, it reflects the cumulative effect of conservatism from the company's establishment date until the measurement date, as it links financial position elements to market variables. Second, the audit firm's size (AFSIZE) is used as an alternative measure of AQ because it is one of the most commonly used measures in AQ research (Alawaqleh *et al.*, 2021; El-Dyasty, 2017; Francis, Richard, & Vanstraelen, 2009; Soliman and Abd Elsalam, 2013; Velte and Azibi, 2015). The AFSIZE is measured as a dummy variable that takes a value of 1 if the audit firm is a Big 4, and 0 if otherwise.

Table 1 shows the study's independent variables for ACEFF. Four measures of ACEFF have been used: AC independence, financial expertise, size; and meetings. Based on previous research (Al-Shammari, 2014; Aljifri, 2014; Givoly and Palmon, 1981; Lesage *et al.*, 2012; Lobo *et al.*, 2016), the present research included four control variables used in AQ studies: firm size, leverage, return on equity; and liquidity.

### 3.3 Research models

The direct effect models assess how the ACEFF can influence the AQ in the Egyptian exchange's non-financial sector.

Variable	Acronym	Measurement	Source
<i>Moderator variable</i>			
Joint audit	JA	Measured as a dummy variable that takes a value of 1 if the firm adopts voluntary JA, and 0 otherwise	Deng <i>et al.</i> (2014), Holm and Thinggaard (2016), Ittonen and Trønnes (2014), Zerni <i>et al.</i> (2012)
<i>Independent variables</i>			
Audit committee independence	ACIND	The number of independent members to the total AC members	Abbott and Parker (2000), Al Farooque <i>et al.</i> (2020), Klein (2002), Salleh, Hashim, and Mohamad, (2012)
Audit committee members' expertise	ACEXP	The number of members with financial experience is divided by the total number of AC members	Alodat <i>et al.</i> (2022), Amin <i>et al.</i> (2018), Salleh <i>et al.</i> (2017)
Audit committee size	ACSIZE	The total number of AC members	Alzeban (2020), Amin <i>et al.</i> (2018), Fakhfakh and Jarboui (2021), Karairahimoglu (2013)
Audit committee meetings	ACMEET	Frequency of AC meetings in a given year	Amin <i>et al.</i> (2018), Khudhair <i>et al.</i> (2019), Suryanto <i>et al.</i> (2017)
Audit committee effectiveness	ACEFF	The sum of the AC's four effectiveness ranges from 0 to 4, with a higher score signifying greater effectiveness	Alodat <i>et al.</i> (2022), Alqadasi and Abidin (2018), Lin and Hwang (2010), Soliman and Abd Elsalam (2013)
<i>Control variables</i>			
Firm size	LSIZE	Total assets natural logarithm at the end of the year	Lesage <i>et al.</i> (2012), Lobo <i>et al.</i> (2016)
Leverage	LEV	Total liabilities to total assets ratio	André, Broye, Pong, and Schatt (2016), Lesage <i>et al.</i> (2012), Lobo <i>et al.</i> (2016)
Return of equity	ROE	The net income-to-total-equity ratio	Alawaqleh <i>et al.</i> (2021), André <i>et al.</i> (2016)
Liquidity	LIQ	Total current assets to total current liabilities	Al-Shammari (2014), Aljifri (2014), Zerni <i>et al.</i> (2012)

**Table 1.**  
Measurement of variables

**Model 1** demonstrates a measure for the direct effect of the AC characteristics (independence/expertise/size/meetings) as an individual determinant of AQ, and it answers **hypotheses 1, 2, 3, and 4**. Similarly, **Model 2** is to measure the direct effect of the AC characteristics as an individual measure on the AQ in the presence of JA. In the same context, **Model 3** estimates the direct effect of the AC characteristics as an individual measure on the AQ in the presence of AFSIZE. Further, **Model 4** measures the direct effect of the AC characteristics as regressor for AQ in the presence of JA and AFSIZE. As for **model 5**, its function is to measure the direct effect of the AC effectiveness as a composite measure on the AQ, and it answers **Hypothesis 5**. **Model 6** also is to examine the direct effect of the AC effectiveness as a composite measure on the AQ in the presence of JA. Likewise, **Model 7** is used to assess the direct effect of the AC effectiveness as a composite measure on the AQ in the presence of AFSIZE. Finally, **Model 8** is to regress the direct effect of the AC effectiveness as a composite measure against AQ in the presence of JA and AFSIZE.

$$MTB_{it} = \alpha + \beta_1 ACIND_{it} + \beta_2 ACEXP_{it} + \beta_3 ACSIZE_{it} + \beta_4 ACMEET_{it} + \beta_5 LSIZE_{it} + \beta_6 LEV_{it} + \beta_7 ROE_{it} + \beta_8 LIQ_{it} + \varepsilon_{it} \quad (\text{Model 1})$$



$$MTB_{it} = \alpha + \beta_1 ACIND_{it} + \beta_2 ACEXP_{it} + \beta_3 ACSIZE_{it} + \beta_4 ACMEET_{it} + \beta_5 JA_{it} + \beta_6 LSIZE_{it} + \beta_7 LEV_{it} + \beta_8 ROE_{it} + \beta_9 LIQ_{it} + \varepsilon_{it} \quad (\text{Model 2})$$

$$MTB_{it} = \alpha + \beta_1 ACIND_{it} + \beta_2 ACEXP_{it} + \beta_3 ACSIZE_{it} + \beta_4 ACMEET_{it} + \beta_5 AFSIZE_{it} + \beta_6 LSIZE_{it} + \beta_7 LEV_{it} + \beta_8 ROE_{it} + \beta_9 LIQ_{it} + \varepsilon_{it} \quad (\text{Model 3})$$

$$MTB_{it} = \alpha + \beta_1 ACIND_{it} + \beta_2 ACEXP_{it} + \beta_3 ACSIZE_{it} + \beta_4 ACMEET_{it} + \beta_5 JA_{it} + \beta_6 AFSIZE_{it} + \beta_7 LSIZE_{it} + \beta_8 LEV_{it} + \beta_9 ROE_{it} + \beta_{10} LIQ_{it} + \varepsilon_{it} \quad (\text{Model 4})$$

$$MTB_{it} = \alpha + \beta_1 ACEFF_{it} + \beta_2 LSIZE_{it} + \beta_3 LEV_{it} + \beta_4 ROE_{it} + \beta_5 LIQ_{it} + \varepsilon_{it} \quad (\text{Model 5})$$

$$MTB_{it} = \alpha + \beta_1 ACEFF_{it} + \beta_2 JA_{it} + \beta_3 LSIZE_{it} + \beta_4 LEV_{it} + \beta_5 ROE_{it} + \beta_6 LIQ_{it} + \varepsilon_{it} \quad (\text{Model 6})$$

$$MTB_{it} = \alpha + \beta_1 ACEFF_{it} + \beta_2 AFSIZE_{it} + \beta_3 LSIZE_{it} + \beta_4 LEV_{it} + \beta_5 ROE_{it} + \beta_6 LIQ_{it} + \varepsilon_{it} \quad (\text{Model 7})$$

$$MTB_{it} = \alpha + \beta_1 ACEFF_{it} + \beta_2 JA_{it} + \beta_3 AFSIZE_{it} + \beta_4 LSIZE_{it} + \beta_5 LEV_{it} + \beta_6 ROE_{it} + \beta_7 LIQ_{it} + \varepsilon_{it} \quad (\text{Model 8})$$

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The moderator effect models investigate the moderator influence of the JA on the association between ACEFF and AQ in Egypt.

**Model 9**, on the other hand, answers [hypotheses 6, 7, 8, and 9](#) by measuring the moderating effect of the JA on the relation between the AC characteristics as an individual measure and the AQ. While model 10's objective is to examine the moderating effect of JA on the relation between AC effectiveness as a composite measure and AQ, it also answers [hypothesis 10](#).

$$MTB_{it} = \alpha + \beta_1 ACIND_{it} + \beta_2 JA * ACIND_{it} + \beta_3 ACEXP_{it} + \beta_4 JA * ACEXP_{it} + \beta_5 ACSIZE_{it} + \beta_6 JA * ACSIZE_{it} + \beta_7 ACMEET_{it} + \beta_8 JA * ACMEET_{it} + \beta_9 AFSIZE_{it} + \beta_{10} JA * AFSIZE_{it} + \beta_{11} JA_{it} + \beta_{12} LSIZE_{it} + \beta_{13} LEV_{it} + \beta_{14} ROE_{it} + \beta_{15} LIQ_{it} + \varepsilon_{it} \quad (\text{Model 9})$$

$$MTB_{it} = \alpha + \beta_1 ACEFF_{it} + \beta_2 JA * ACEFF_{it} + \beta_3 JA_{it} + \beta_4 AFSIZE_{it} + \beta_5 JA * AFSIZE_{it} + \beta_6 LSIZE_{it} + \beta_7 LEV_{it} + \beta_8 ROE_{it} + \beta_9 LIQ_{it} + \varepsilon_{it} \quad (\text{Model 10})$$

## 4. Results

### 4.1 Descriptive statistics

[Table 2](#) summarizes the descriptive statistics (min, max, mean and standard deviation). The descriptive analysis's additional information would make the data easier to comprehend and interpret. As shown in [Table 3](#), the mean value of the MTB is 1.85, which indicates that the companies practice conservative accounting policies in recognizing profits and assets, resulting in higher AQ. Meanwhile, the mean AFSIZE value is 0.70, with a standard deviation of 0.56, indicating that approximately 70% of the sampled firms were audited by the Big 4. According to the results, JA also has an average

Variables	Obs.	Min	Max	Mean	SD
MTB	305	0.02	17.37	1.85	2.35
AFSIZE	305	0	1	0.70	0.56
JA	305	0	1	0.36	0.48
ACIND	305	0	1	0.36	0.30
ACEXP	305	0	1	0.34	0.23
ACSIZE	305	2	7	3.55	0.96
ACMEET	305	0	16	4.70	2.46
ACEFF	305	1	4	3.13	0.78
LSIZE	305	17.30	25.49	21.97	1.74
LEV	305	0.00	20.16	0.76	1.75
ROE	305	-12.11	0.90	0.01	0.78
LIQ	305	0.19	54.14	2.03	5.33

**Table 2.**

Descriptive statistics

**Source(s):** Table by authors

value of 0.36 and a standard deviation of 0.48. This means that 36% of the sampled firms have a JA. Regarding AC characteristics, the results indicate that the proportion of ACIND is 36%, which ranges between 0 and 1. In parallel, 34% of the AC members have financial expertise (ACEXP), with an SD of 23%. ACSIZE also shows a minimum size of 2, a maximum of 7, and an average of 3.55. Moreover, BMEet also shows an average meeting attendance of 4.70, ranging between 0 and 16. In addition, the scale of ACEFF demonstrates an average of 3.13.

#### 4.2 Correlation analysis

**Table 3** provides the Pearson's correlation coefficients between AQ via accounting conservatism measured by the MTB model and ACEFF. The results show a positive and negative correlation between the dependent and independent variables. Importantly, JA exhibits a significant positive association with MTB and AFSIZE. Furthermore, the highest correlation value found is 0.51, showing that the study has no multicollinearity problems.

## 5. Discussions

### 5.1 Direct effect regression

The results in **Table 4** present an estimation of the direct effect models. The findings in models 1-4 are devoted to ACEFF as individual measures. However, models 5-8 are for ACEFF as a composite measure. Regarding the results in models 1-4, the findings exhibit that ACIND has a negative significant impact on conservatism as a proxy of AQ across models 1, 2, and 3. In contrast, ACIND has a negative insignificant impact on conservatism across model 4. This could be due to the low proportion of independent members (36%) in Egyptian companies (see **Table 2**). It also implies that increasing the AC independent members makes them prefer JA, particularly the selection of Big 4 audit firms, possibly to relieve their responsibility before the board of directors. This result agrees with the signaling theory and the literature (*AlFarooque et al., 2020; Davidson et al., 2004; Lo et al., 2010*). The outcomes also demonstrate that ACEXP has an insignificant effect on AQ across the conducted models except in the case of model 1, which shows a significant negative effect on AQ. This suggests that inexperienced managers are more conservative than experienced ones. This is in accordance with the signaling theory, which stipulates that experienced managers, rather than being conservative, tend to improve the company's image to reassure investors. This agrees with prior literature (*AbdulRahman and Ali, 2006; Khudhair et al., 2019; Lin et al., 2006; Suryanto et al., 2017*).

Probability	MTB	ACEFF	ACEXP	ACIND	ACMEET	ACSIZE	AFSIZE	JA	LEV	LIQ	LSIZE	ROE
MTB	1											
ACEFF	-0.13**	1										
ACEXP	-0.13**	0.43***	1									
ACIND	-0.08	0.51***	0.27***	1								
ACMEET	-0.03	0.16***	-0.05	-0.01	1							
ACSIZE	0.03	-0.15***	-0.10*	0.06	0.09	1						
AFSIZE	0.10*	0.17***	0.23***	0.29***	0.19***	-0.00	1					
JA	0.00	0.14**	0.30***	0.06	-0.03	0.16***	0.31***	1				
LEV	-0.01	0.12**	0.03	0.03	-0.03	0.16***	-0.08	0.17***	1			
LIQ	-0.02	0.15***	0.00	0.11**	-0.04	-0.07	-0.16***	-0.11*	-0.07	1		
LSIZE	-0.08	0.14**	0.20***	0.26***	0.20***	-0.02	0.48***	0.20***	-0.04	-0.35***	1	
ROE	-0.10*	-0.03	-0.05	0.03	-0.10*	0.04	-0.14**	-0.09	-0.03	0.03	-0.10*	1

Note(s): \*\*\*, \*\* and \* are the correlation significance levels at 1%, 5% and 10%, respectively

Source(s): Table by authors

The moderating effect of joint audit

Table 3. Correlation matrices (Pearson correlation)

**Table 4.**  
Regression results –  
direct effect

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
C	64.14*** 14.87	21.33*** 3.45	20.53*** 4.17	22.04*** 3.71	58.76*** 11.92	57.78*** 12.65	58.73*** 11.61	60.50*** 12.07
ACIND	-3.09** 1.34	-1.71* 0.93	-1.89** 0.89	-1.66 1.03				
ACEXP	-1.32** 0.55	-0.42 0.56	0.87 0.81	0.01 0.46				
ACSIZE	-0.29*** 0.04	-0.12 0.07	-0.00 0.08	-0.12** 0.05				
ACMBEET	0.20*** 0.05	0.13*** 0.03	0.14*** 0.03	0.15*** 0.03				
ACEFF					-0.15*** 0.02	-0.31*** 0.08	-0.15*** 0.05	-0.16*** 0.05
JA		-1.98*** 0.59		-2.00*** 0.60		-1.49 1.21		-1.47 1.22
AFSIZE			-0.33*** 0.07	-0.33*** 0.06			-0.42*** 0.13	-0.41*** 0.13
LSIZE	-2.75*** 0.68	-0.81*** 0.15	-0.83*** 0.17	-0.84*** 0.16	-2.56*** 0.54	-2.45*** 0.55	-2.55*** 0.53	-2.61*** 0.53
ROE	-0.17 0.20	-0.29 0.18	-0.35* 0.18	-0.36* 0.19	-0.13 0.19	-0.09 0.21	-0.07 0.19	-0.08 0.19
LEV	-0.09** 0.03	-0.10*** 0.02	-0.11*** 0.02	-0.11*** 0.02	-0.08*** 0.03	-0.03** 0.01	-0.04*** 0.01	-0.04*** 0.01
LIQ	-0.02 0.02	-0.01 0.01	-0.01 0.01	-0.01 0.01	-0.02 0.02	0.00 0.01	0.01 0.01	-0.02 0.02
R-squared	0.83	0.78	0.78	0.79	0.82	0.82	0.83	0.82
Adjusted R-squared	0.77	0.71	0.72	0.73	0.76	0.75	0.76	0.76
F-statistic	13.01	11.99	12.43	12.51	12.80	12.25	12.79	12.47
Prob (F-statistic)	0	0	0	0	0	0	0	0
Durbin-Watson stat	1.77	1.82	1.81	1.81	1.74	1.72	1.70	1.72

**Note(s):** \*\*\*, \*\* and \* indicate a significance levels at 1%, 5% and 10%, respectively

The figures in the table represent the standard error coefficient

**Source(s):** Table by authors

Further, it is indicated that ACSIZE has a negative significant impact on AQ across model 1 and model 4 and has a negative insignificant effect across model 2 and model 3. This indicates that the greater size of the AC is related to lower conservatism as a proxy for AQ. The findings are consistent with previous studies (El-Dyasty, 2017; Fakhfakh and Jarboui, 2021; Karaibrahimoglu, 2013). This could be due to the large size of AC consisting mainly of members with no experience or are not independent; an AC may also consist of fictitious members, so the attendance rate is low, which is more likely to negatively influence the level of conservatism. The findings also exhibit that ACMET has a significant positive influence on AQ across the conducted models. This implies that the greater the activity of the AC and the number of its meetings, the greater the positive impact on accounting conservatism as a proxy to AQ. The increase in the AC meetings indicates its diligence, in light of the presence of JA and Big 4 as well. This is in agreement with Amin *et al.* (2018) and Khudhair *et al.* (2019).

Concerning the effect of ACEFF from models 5 to 8, the outcomes in Table 4 also demonstrate that ACEFF has a negative significant impact on AQ across the models. This means a negative relation between ACEFF as a composite scale and AQ. This result shows that the presence of these characteristics combined in the AC negatively affects the AQ because most of them are individually negatively associated with accounting conservatism as a proxy to AQ. This finding agrees with Alqadasi and Abidin (2018). As for JA, the findings also demonstrate that JA has a negative significant impact on accounting conservatism as a proxy to AQ across model 2 and model 4. This implies that the single audit firms are more conservative than JA. This is consistent with the findings of Deng *et al.* (2014). Overall, the models are appropriate, as denoted by a *p*-value. Adjusted R2 demonstrated that values varied from 71% to 77%, indicating that the models' variation accounts for about 77% of the variability in AQ. Table 4 shows that hypotheses H1, H2, H3, and H5 have been rejected, while H4 has been confirmed.

### 5.2 Moderating effect

Table 5 provides an estimate of the moderating effect of JA. The findings indicate that the JA moderates the association between ACEFF and AQ proxy MTB. In both instances, the interaction between the JA and ACEFF as independent characteristics and a composite scale is statistically significant. However, it is insignificant in the case of the ACMEET. The present study found that JA, as a moderator variable on ACIND and AQ proxy MTB, positively affects MTB in Egypt. This suggests that when independent directors lead the AC under the JA, they improve AQ, agreeing with Hasan, Kassim, and Hamid (2020). Increasing AC managers' independence may make them more vigilant and focus their attention on the auditing process and joint auditor-management coordination, which supports H6. According to H7, JA's moderating effect on ACEXP and AQ proxy MTB in Egypt is negative and significant. JA moderated ACEXP and AQ through MTB. This is in line with Alves and Carmo's (2022) findings. The number of financially qualified AC members boosts the chance of appointing joint auditors. This means that there will be less work done to be more conservative if there are more financial accounting experts on AC and in JA.

ACSIZE is negatively associated with JA, as per H8. Larger ACs do not improve AQ (Soliman and Abd Elsalam, 2013). Moreover, the relationship between JA and ACSIZE reduces audit conservatism. It also means a small number of AC members will keep a close eye on management, the internal auditor, and business operations, even if the external auditors are less-qualified (Hasan *et al.*, 2020). Unexpectedly, hypothesis (H9) revealed that the moderating influence of JA is insignificant for the relation between ACMEET and AQ in Egypt, contradicting previous research (Abdalwahab and Alkabbji, 2020). It appears that the number of AC meetings has no direct effect on JA and that this relationship has no impact on the level of accounting conservatism. According to JA in model 10, the results demonstrated that hypothesis (H10) has a significant impact on MTB at the 1% significance level in the Egyptian context. More precisely, the presence of JA and ACEFF (as a composite scale) has a negative effect on improving AQ by lowering MTB. The interaction of JA\*AFSIZE is

Variable	Model 9	Model 10
	Standard error coefficient	Standard error coefficient
C	7.32*** 0.88	2.48*** 0.25
ACIND	-1.90*** 0.18	
JA*ACIND	3.01*** 0.51	
ACEXP	-0.06 0.82	
JA*ACEXP	-40.24*** 12.87	
ACSIZE	0.02 0.07	
JA*ACSIZE	-10.32*** 3.60	
ACMEET	0.09*** 0.01	
JA*ACMEET	0.02 0.02	
ACEFF		-0.43*** 0.07
JA*ACEFF		-0.48*** 0.11
AFSIZE	-0.26*** 0.03	0.39*** 0.04
JA*AFSIZE	0.45** 0.22	-1.19** 0.55
JA	39.33*** 14.63	1.68*** 0.40
LSIZE	-0.59*** 0.05	0.30 0.24
ROE	-1.00*** 0.16	-0.30 0.20
LEV	-0.07*** 0.01	0.03 0.03
LIQ	0.01** 0.00	0.01 0.01
R-squared	0.85	0.24
Adjusted R-squared	0.78	0.21
F-statistic	12.78	8.12
Prob (F-statistic)	0	0
Durbin-Watson stat	2.14	1.84

**Table 5.**  
Moderating effect  
regression results

**Note(s):** \*\*\*, \*\* and \* indicate a significance levels at 1%, 5% and 10%, respectively  
**Source(s):** Table by authors

significant and negative for ACEFF, and significant and positive for AC individual characteristics. This suggests a JA with Big 4 has a positive impact on accounting conservatism based on individual AC characteristics but a negative effect on the composite ACEFF scale. The JA has a positive and significant effect across models 9 and 10 at a level of 1%, indicating the positive influence of introducing the JA in the relationship model.

### 5.3 Additional analysis

**5.3.1 Alternative analysis.** To ensure the robustness of the study findings, AFSIZE has been used as an alternative measure of AQ (Table 6). The coefficients of MTB, ACIND, ACEXP, and

Table 6. Additional analysis

Variable	Alternative analysis			Robust regressions – Direct effect								Robust regressions – moderating effect		Endogeneity test
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 1	Model 2				
C	-14.66*** 2.61 0.39*** 0.24*** 0.11 0.07	-9.77*** 1.51 0.608	1.183* 0.608	2.650*** 0.586	2.831*** 0.613	2.146*** 0.571	2.160*** 0.581	3.030*** 0.547	2.777*** 0.611	4.301*** 0.592	2.518*** 0.771	2.813*** 0.790	0.915*** 0.345	1.523*** 0.290
ACIND	1.51***	-0.094**	-0.011**	-0.094**	-0.166*	-0.047**					-0.005**	-0.483***		
ACEXP	-2.61***	-0.526**	-0.268***	-0.526**	-0.168**	-0.593***					-0.591**	-0.089***		
ACSIZE	0.99	0.188	0.189	0.188	0.184	0.176					0.391	0.068		
ACMEET	0.17**	0.028**	0.028**	0.028**	0.042	0.039					0.060	-0.030		
ACEFF	0.09	-0.11	0.017	0.016	0.017	0.016	-0.106**	-0.148***	-0.053***	-0.046***	-0.007	0.027	-0.201	
JA	0.83**	0.36*	0.371***	0.371***	0.345***	0.345***	0.056	0.054	0.103	0.094	-1.322**	-0.104**	0.091	
AFSIZE	0.38	0.21	0.088	0.088	0.085	0.153*	0.089	0.089	0.220**	0.088	0.503	-0.642	0.824	
LSIZE	-0.58***	-0.44***	-0.040**	-0.096***	-0.104***	-0.084***	-0.051*	-0.091***	-0.101***	-0.164***	-0.075**	-0.074**	-0.181**	
ROE	0.11	0.07	0.027	0.027	0.028	0.026	0.027	0.025	0.029	0.028	0.035	-0.252	0.298	
LEV	0.59	0.34	0.053	-3.629*	-2.452*	-3.158*	-3.775**	-3.790*	-3.168	-3.727*	-0.029	-0.252	-0.073**	
LIQ	-0.23**	-0.02*	0.475***	0.256***	0.418***	0.459***	0.054	0.048	0.051	0.047	0.063	0.065	0.069	
JA*ACSIZE	0.05	-0.03	-0.04	-0.007	-0.061***	-0.070***	-0.006	-0.050***	-0.065***	-0.145***	-0.001	-0.002	-0.348	
JA*ACIND							0.009	0.013	0.013	0.008	0.010	0.167	0.127	
JA*ACEXP											-0.419***	-3.431***		
											0.122	1.053		
											0.751**	1.001***		
											0.373	0.592		
											-0.885*	-0.052***		
											0.505	0.045		

(continued)

Table 6.

Variable	Alternative analysis		Robust regressions – Direct effect					Robust regressions – moderating effect		Endogeneity test	
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 1		Model 2
JA*ACMEET									0.061	0.682	-1.544
JA*AFSIZE	0.28	0.24	0.18	0.19	0.21	0.22	0.18	0.17	0.040	0.225	0.828
JA*ACEFF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.469***	0.915**	-0.582**
Adj. R-squared									0.209	0.345	0.233
Prob									-0.179	0.148	-1.523***
									0.23	0.21	0.290
									0.000	0.19	0.21
									0.000	0.000	0.000

**Note(s):** \*\*\*, \*\* and \* indicate a significance levels at 1%, 5% and 10%, respectively. All variables are defined in [Table 1](#)  
The figures in the table represent the standard error coefficient  
**Source(s):** Table by authors



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LSIZE are positive and significant ( $p$ -value  $<0.01$ ). In contrast, ACSIZE and ACEFF have a negative insignificant impact on AFSIZE ( $p$ -value  $<0.1$ ). The present study's findings indicate that ACMEET has a significant positive relationship with AFSIZE at 10% level ( $p$ -value  $<0.1$ ). The results also show a strong and direct relationship between JA and AFSIZE at levels of 5% and 10%, respectively. The JA coefficients are both significant and positive. Furthermore, the findings are consistent with previous research (Bisogno and De Luca, 2016; Ittonen and Trønnes, 2014). They also agree with the main findings presented in Tables 4 and 5.

*5.3.2 Robustness.* In section 5.1 and 5.2, we investigated the direct and the moderating effects. To confirm that the earlier estimations are free from any heteroscedasticity, endogeneity or multicollinearity problems, we conducted robust regression to assess the results robustness across the different sets of analysis. The results in Table 6 (Models 1-8) show that the standard error values are not highly inflated or deflated. Further, the results show that all variables maintained its statistical significance except for some variations in the level of their significance. This indicates that the results are robust with the earlier findings.

*5.3.3 Endogeneity analysis by two-stage least square (2SLS) regression.* Two-stage least square (2SLS) regression models are conducted in which firms-specific variables are considered as endogenous variables and audit committee characteristics are treated as exogenous variables. The lagged variables of the dependent variable and the fitted values of the main models are used as instrumental variables. Table 6 shows that the interaction of JA with audit committee characteristics maintained its statistical significance compared to the moderating effect results in Table 5. This indicates that the findings of the main analysis of the moderating effect models are consistent with those of the 2SLS models.

## 6. Conclusion

The purpose of the study was to assess how the ACEFF can influence the AQ. Also, it aimed to investigate the moderator effect of the JA on the relation between ACEFF and AQ in Egypt. The analysis conducted showed that the AC meetings have a statistically positive impact on accounting conservatism as a proxy for AQ. This implies that Egyptian corporates have to concentrate on increasing AC meetings because this shows the diligence and activity of the AC, which affects the AQ. In contrast, the results showed that AC independence, AC size, AC expertise, ACEFF (as a composite scale), and audit firm size have a statistically negative impact on accounting conservatism as a proxy for AQ.

The findings also revealed that JA moderates the relation between the ACEFF and AQ. The study showed that the interaction between JA and ACEFF indicates that the positive association between BEFF (as a composite scale) and the AQ is more robust in light of the single audit and the presence of the non-Big 4 in the combination of the auditors. The study findings also demonstrated that accounting conservatism, AC independence, AC expertise, AC meetings, and JA have a significant positive relation with AQ measured by AFSIZE.

The study has several theoretical contributions and practical implications. First, the study adds to the current literature on ACEFF, AQ, and JA, using data from the Egyptian context. Second, it bridges an existing gap in the studies of ACEFF, AQ, and JA, especially in the Egyptian context. Third, by employing a composite scale, the study adds to the body of knowledge to measure the ACEFF score. The study is the first one that examines the moderating role of JA on ACEFF and AQ. The evidence about JA is still unknown in developing countries. The findings supported by agency theory, resource dependence theory, and signaling theory, contribute to a better understanding of the relation between ACEFF, AQ and JA. Further, revisiting AQ with different measures, particularly accounting conservatism, has not been a subject of prior studies. On the other hand, the study is based on the Egyptian context, which is considered an emerging economy in the Middle East and North Africa (MENA). Therefore, the findings acquired through this research have major significance for investors, board members, practitioners, academicians and policymakers.

The study provides several implications for policymakers, auditors, companies, and practitioners. For policymakers, the findings of this study suggest that the adoption of JA can enhance AQ in non-financial corporations listed on the Egyptian Exchange. Policymakers can promote JA as a mechanism for improving AQ and encourage its adoption by companies. Policymakers can also use the findings of this study to develop regulations and guidelines that encourage companies to establish effective audit committees with independent members. Further, this study highlights the importance of audit committees' effectiveness and independence in enhancing AQ. Auditors should pay attention to the quality and effectiveness of the audit committees and their members when assessing AQ in non-financial corporations. Auditors can also use the findings of this study to provide feedback and recommendations to companies on how to improve their audit committees' effectiveness. Moreover, this study underscores the importance of establishing effective and independent audit committees. Companies can use the findings of this study to evaluate their audit committees' effectiveness and independence and make necessary changes to enhance their AQ. Companies can also consider adopting JA as a mechanism for improving AQ and enhancing the effectiveness of their audit committees. Additionally, this study highlights the importance of considering the moderating effect of JA on the relationship between ACEFF and AQ. Practitioners can use the findings of this study to develop and implement strategies that enhance AQ in non-financial corporations. Practitioners can also use the findings of this study to provide guidance and recommendations to companies on how to establish effective and independent audit committees and adopt JA. Finally, for academicians, this study contributes to a better understanding of the relationship between ACEFF, AQ, and JA. The findings of this study offer insights into the application of agency theory, resource dependence theory, and signaling theory in assessing AQ in non-financial corporations. This study also offers avenues for further research on the moderating effect of JA on ACEFF and AQ and the use of composite measures for the ACEFF score.

Finally, there are certain limitations to this study, such as the fact that it was applied to one country and the sample consisted of 305 observations during five years. Next, all of the variables influencing the analysis are uncontrollable, limiting the generalizability of the conclusions. Thus, to fully comprehend the study variables, a study on more than one country or over a longer period can be conducted. Future research could also aim to investigate the causes of the negative relationship between some of the AC characteristics and AQ. Further, the study may have used Beaver and Ryan's accounting conservatism model and audit firm size as measures of AQ. However, it is possible that other measures such as audit independence, audit report lag and market-to-book ratio could also be relevant in the context of the research question. Thus, it is important to recognize that the choice of measures used in the study may not capture all aspects of audit quality. Furthermore, it is worth noting that there may be limitations associated with the use of audit firm size as a measure of audit quality. While larger audit firms may have more resources and expertise, this does not necessarily guarantee a higher quality audit, and there may be other factors such as the experience of the audit team or the firm's culture that also influence audit quality.

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#### Corresponding author

Faozi A. Almaqtari can be contacted at: [Fawzi.almaqtari@asu.edu.om](mailto:Fawzi.almaqtari@asu.edu.om)

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