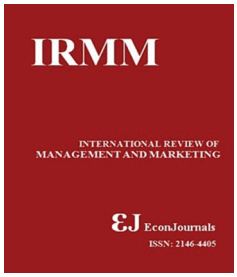

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The Impact of Audit Committee Characteristics on Audit Quality: Evidence from Saudi Arabia

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ABSTRACT

This study examines the impact of audit committee (AC) characteristics on audit quality in the Saudi listed firms. In addition, this study is also evaluating the Saudi CG Code amended in 2017. The data for the study is obtained from secondary (annual reports) data. The sample firms are 210 firms listed on the Saudi Stock Exchange (Tadawul) over the period of 2017-2019. The audit firm type is used as a proxy for quality in this study. Multiple regression analysis is used to assess the relationship between AC characteristics and audit quality. The regression models show that firms with AC educational background in accounting and finance, and larger firms with higher state and institutional ownership are more likely to engage a big four audit firm, in so doing signalling greater audit quality. The results support agency and institutional theories concerning audit quality. In contrast, firms with more experts on the AC and higher leverage are more likely to select non-big four auditing firms which require lower audit fees. However, the size, number of meetings, and degree of independence of the AC do not significantly affect the level of audit quality. In addition, a combined AC effectiveness score is found to have a negative though insignificant impact on audit quality, contradicting governance regulation and theory expectations that effective ACs should improve audit quality. The results of this study present some key implications for CG regulators and other stakeholders. CG regulators should understand that the simple presence of an AC that meets baseline CG regulatory requirements does not automatically ensure its efficacy or improve auditing process quality. Therefore, boards and shareholders must continue to monitor and review AC decisions, particularly where they relate to auditor engagement, even where committees are, prima facie, deemed effective. The study contributes to the existing body of literature on the role of the audit committee in improving audit quality by addressing the paucity of evidence for emerging economies, and the case of Saudi Arabia in particular. The findings should prove useful for regulators and policy makers, academic researchers, accountants, financial experts, and audit practitioners in the Middle East and wider Arab region, particularly for those countries currently reviewing and setting guidelines for effective audit committees. Moreover, the findings should emphasise the importance of the concept of audit quality and its drivers in a Saudi Arabian corporate setting.

Keywords: Audit Quality, Audit Committee Characteristics, Audit Committee Effectiveness, Corporate Governance, Corporate Governance Code, Saudi Arabia
JEL Classifications: G3, M4

1. INTRODUCTION

Financial information users depend on the information communicated to them via the firm's annual report in order to take economic decisions. As a result, the report should be credible, reliable, acceptable and relevant to facilitate shareholders, lenders and creditors making sensible decisions. Thus, it is important the financial report should provide financial information that is transparent, timely, reliable and comprehensive, and that such information is not prepared with the intent of misleading users. However, regardless of its pivotal role, such information may suffer from reliability and credibility issues as it may be erroneous, accounting numbers may be intentionally manipulated, and earnings may be managed opportunistically.

Fama (1980) and Fama and Jensen (1983) regard the audit committee (AC) as one of the fundamental elements in an effective corporate governance (CG) system, constituting a strong

instrument to help monitor and control the management of a firm; thus it is a significant component of a board's decision-making and monitoring system with the firm. The majority of CG regulations across the globe necessitate the establishment of an AC to ensure audit quality and financial statement reliability. For example, the Saudi Corporate Governance Code (2017) requires that firms create an AC to control their internal auditing tasks, to appraise and report the effectiveness of their internal monitor system, and to make recommendations for the engagement of external auditors. Nevertheless, the presence of ACs is not always sufficient, with Sommer (1991) and Abbott and Parker (2000) arguing that the presence alone does not always ensure effective monitoring, rather efficacy depends on the detailed characteristics of such committees.

Corporate governance regulations, examples being the Combined Code (2018) in the UK and the Saudi Code (2017) require the presence of certain structural and compositional characteristics to assure AC effectiveness. For example, the UK Code (2018, p. 10) states that "the board should establish an Audit Committee of at least three, or in the case of smaller companies two, members, who should all be independent non-executive directors. The board should satisfy itself that at least one member of the AC has recent and relevant financial experience". Similarly, the Saudi Code (2017, p. 34) states that "the members of the audit committee shall be from the shareholders or others, provided that at least one of its members is an Independent Director and that no Executive Director is among its members. The number of the members of the audit committee shall not be less than three or more than five, provided that one of its members is specialised in finance and accounting".

The literature observes that ACs with more independent directors, with greater expertise and educational levels, and holding more meetings during a given financial year, should improve audit process efficacy and quality. Effective committees are more prone to engaging an audit firm from the Big-4 group, hire specialist auditors, increase the audit process timeframe, and suggest resolutions for internal control issues (Monks and Minow, 2008; Krishnan et al., 2009; Habbash, 2015).

The main purpose of this study is to investigate the effect of AC characteristics on Saudi listed firm audit quality over the period 2017–2019, as a means of evaluating the Saudi CG Code as amended in 2017. There are two reasons why examining the drivers of audit quality is valuable in terms of its potential AC characteristic drivers in Saudi firms. First, the Code was amended in Saudi in 2017, requiring firms to create ACs with specific characteristics, and necessitating some evaluation of its progress. Second, there is a paucity of studies on the determinants of Saudi firm audit quality.

The structure of this study is presented as follows. Section 2 provides a summary and discussion of AC development in Saudi Arabia. Section 3 presents theoretical framework of the study, followed by a literature review concerning potential AC quality determinants in section 4 and hypothesis development in section 5. Section 6 presents a discussion of the empirical approach employed, with the results discussed in section 7. Finally, section 8 presents the conclusions, implications, and limitations of the study, along with avenues for future studies.

2. THE AUDIT COMMITTEE IN SAUDI ARABIA

The pivotal role of ACs has been acknowledged in Saudi Arabia since January 1994, when the Saudi Ministry of Commerce delivered a declaration requiring all public firms to establish such a committee. The guidance in the declaration defines certain characteristics for the AC with regard to its structure and composition. First, with regard to member independence, it declares that the members of the committee members should have no interest, whether direct or otherwise, in the dealings of the audit firm, and neither should they be involved in organizational, technical, or consulting work for that firm. Second, in relation to member expertise, the guidance requires that members should possess appropriate financial and accounting qualifications. Third, with regard to committee size, the guidelines suggest that the composition of the committee should be between three and five members.

In 2006, CG was formally instituted in Saudi Arabia by means of the CG Code (Al-Nodel and Hussainey, 2010; Al-Moataz and Hussainey, 2012), and amended more recently in 2017 (Saudi Corporate Governance Regulations, 2017). The Code requires listed firms to establish an AC drawing from the board, and characterised by the prerequisites for effectiveness and audit quality. Article 54 of the Code requires that the committee comprises of a minimum of three directors. In addition, AC member directors ought to be non-executives, with a minimum of least one director specializing in financial and accounting matters. This paper investigates the AC characteristics, as gauged by committee size, meeting frequency, the degree of independence, and member expertise and education, that may drive audit quality as proxied by audit firm type.

3. THEORETICAL STRUCTURE

3.1. Agency Theory

Agency theory provides a framework for the working relationship between the principal and their agent (Jensen and Meckling, 1976). Scott (2015) explains agency theory in terms of a contract designed to motivate agents to act in the name of the principal when their interests' conflict. In this relationship, the principals employ agents to carry out tasks in the interests of the former, including delegation of authorization for decision-making from the principals to the agents. In firms where the capital consists of shares, the shareholders are the principals and managers perform the role their agents in accordance with their interests. However, in the real world, firm managers will often have different goals, and these may conflict with the objectives of the shareholders. Problems arising from such manager-shareholder conflicts of interest are thus referred to as agency problems, the occurrence of which leads to agency fees or other costs.

The implications of agency theory for this research are that the audit committee constitutes a key component of the firm's

corporate governance system, and this committee has an important supervisory function in ensuring that the firm issues good quality financial statements which reflect the actual financial condition of the firm. In addition, the committee has the authority to determine the incentives offered to audit service providers to ensure a high-quality audit. However, the audit committee has a vested interest in presenting a healthy picture of the firm, of which it is a structural part, to financial statement users. This study looks at how the characteristics of a firm's audit committee may improve audit quality through the provision of incentives. In so doing, agency theory provides the framework for how the quality of financial reporting is driven by the characteristics of the AC.

3.2. Audit Quality

The audit quality process performed by auditors aims to safeguard that client firms adhere to applicable auditing standards and that quality control processes are instituted to support consistent good audit quality (Arens et al., 2016). Achieving good audit quality requires adherence to established standards, namely general standards, fieldwork standards, and reporting standards.

DeAngelo (1981) recognises audit quality in terms of the possibility that auditors are able to identify and report violations in the client's accounting system. However, DeFond and Zhang (2014) clarify that the function of auditors is more than simple reporting-related detection. It is expected that auditors of higher quality will consider both whether the client's accounting measures comply with technical rules and also the extent to which the financial statements mirror the actual position and performance of the firm. The role played by the auditor in ensuring financial reporting quality is further evidenced in audit opinions, thereby ensuring that the financial statements are produced fairly and in compliance with the regulations that apply. This requires auditors to pay attention to how the rules are employed and the consistency between actual firm financial conditions and the report as presented. DeFond and Zhang (2014) argue that audit quality may be enshrined in, and revealed by, contracting features of the relationship between auditor and client, including audit fees. Such fees may be employed to gauge the quality of the audit process as they should provide some metric of the level of auditor effort.

Chadegani (2011) notes that there is a variety of metrics used in the extant literature to encapsulate the concept of audit quality. Chadegani (2011:2) notes that direct measures include "financial reporting compliance with GAAP, quality control review, bankruptcy, desk review and SEC performance," whereas indirect measures include "audit size, auditor tenure, industry expertise, audit fees, economic dependence, reputation and cost of capital". However, Chadegani recognises that the employment of the more direct measures in academic research is uncommon given the difficulty in obtaining the required data due to privacy issues, thereby explaining why indirect measures are much more prevalent. As in practice audit quality may not be readily observable, the measures employed to ensure reliability should therefore be a close and acceptable proxy. The most prevalent proxies are auditor size (Zureigat, 2011; Habbash, 2015), audit fees (Yuniarti 2011; Aronmwan et al., 2013; Drogalas et al., 2021), auditor sector specialization (Abbott and Parker, 2000, Jiang et al., 2012; Habbash, 2015), and the quality of accruals (Dhaliwal et al., 2010; Lawrence et al., 2011). Importantly though, Chadegani (2011) identify auditor size as the most frequently employed audit quality proxy.

The incidence of financial statement manipulation has been shown to fall as audit fees increase, thereby leading to the proposition that higher audit fees give rise to higher audit quality (Hoitash et al., 2007; Stanley and Dezoort, 2007). The audit fee itself is determined by the total hours expended on the audit (Goodwin and Munro, 2004). Importantly, larger audit firm scale tends to lead to greater information disclosure. An audit firm's authority encourages client disclosure of additional annual report information (Watts and Zimmerman, 1986; Francis, 2004). The gradual industry consolidation into the prominent international audit firms, referred to as the "Big 4" and including of Deloitte Touche Tohmatsu (DTT), PricewaterhouseCoopers (PwC), Ernst and Young (EY) and Klynveld Peat Marwick Goerdeler (KPMG), has led to a dichotomy between large and small audit firms, whereby larger audit firms may be better placed to counteract earnings management activity and advance audit quality than smaller firms (Al-Ajmi, 2009).

4. LITERATURE REVIEW

The principal intent of auditing is to safeguard that the firm's financial statements are reliable and credible (Chu and Hsu, 2018; Khasharmeh and Desoky, 2018), attributes which are strengthened when audit quality is high. DeAngelo (1981) provides the seminal definition of audit quality which emphasises the increased likelihood of auditors discovering and reporting an accounting system violation or financial statement fraud when that quality is high. In turn, audit quality is largely determined by the auditor's independence and their level of professional ability (Chu and Hsu, 2018).

The extant corporate governance literature links audit committee characteristics to a variety of accounting and financial phenomena including financial reporting timeliness (Ika and Ghazali, 2012; Sultana et al., 2015; Oussii and Taktak, 2018), the incidence of earnings management (Badolato et al., 2014; Zgarni et al., 2016; Safari, 2017) and external audit opinion (Pucheta-Martinez and De Fuentes, 2007). Further, certain studies examine the audit committee characteristic drivers of audit quality (Carcello et al., 2002; Abbott et al., 2003; Zaman et al., 2011; Ali et al., 2018; Al-Hajaya, 2019). However, there is no consensus measure of audit quality, with researchers employing a range of proxies including audit firm size, big four versus non-big four audit firm type (Carver et al., 2011; Habbash, 2015; Khlif and Samaha, 2016; Al-Hajaya, 2019), audit fee levels (Abbott et al., 2003; Goodwin-Stewart and Kent, 2006; Ali et al., 2018), and auditor experience and knowledge (Lim and Tan, 2009; Randal et al., 2015; Khudhair et al., 2019). In this study, audit firm type is selected as a proxy for the degree of audit quality in Saudi listed firms, whereby engaging a "Big-4" auditor is seen as signalling higher quality.

Several empirical studies examine the impact of audit committee characteristics on audit fees and audit firm type, though the majority are conducted for developed countries (Abbott et

al., 2003; Goodwin-Stewart and Kent, 2006; Rainsbury et al., 2009; Dhaliwal et al., 2010; Zaman et al., 2011; Adelopo et al., 2012; Blankley et al., 2012; Clout et al., 2013; Bruynseels and Cardinaels, 2014; Hossain et al., 2016; Ghafran and O'Sullivan, 2017; Ali et al., 2018; Drogalas et al., 2021). However, few studies examining the association between the characteristics of audit committees and audit quality have been undertaken for developing countries. In the Arab country context, Habbash (2015) finds for Saudi firms that there is no evidence that an effectual audit committee arises from the engagement of a big-four auditing firm. Farooq et al. (2018) find that more effective audit committees enjoy lower audit fees in Pakistani firms. Alqadasi and Abidin (2018) find that Malaysian listed companies with efficient mechanisms of corporate governance, including an efficient audit committee, are more likely to establish a complete audit service, thereby increasing the level of audit fees.

The extant literature investigating the effect of audit committee characteristics on audit quality is predominantly focused on developed rather than developing countries, and it is not clear that the findings relating to the former may be generalised to the latter. The developed country corporate environment is characterised by a more established audit structure, stronger regulatory settings, higher quality internal audit, and better corporate governance control (Khlif and Samaha, 2016; Oussii and Taktak, 2018). In contrast, Alzeban and Gwilliam (2014) argue that hierarchy and cultural differences in less developed countries lead to audit committees which are still developing, and which conduct themselves differently to those in developed countries. Thus, investigation of the relationship between the characteristics of audit committees and audit quality is under researched for developing countries, particularly in an environment where systems of corporate governance and internal control have been subject to significant revision (Afify, 2009, Khlif and Samaha, 2016). Thus, this research aims to investigate the impact of the characteristics of audit committees, as measurable features of corporate governance, on audit quality (as proxied by audit firm type) for Saudi listed firms over the period 2017–2019, in so doing enabling some evaluation of the Saudi CG Code as amended in 2017.

5. HYPOTHESIS DEVELOPMENT

5.1. Audit Committee Size

In Saudi Arabia, the Code on CG recommends that ACs should comprise a minimum of three directors. Agency theory suggests that AC size will determine the monitoring effectiveness and efficiency of the board and its management, thereby improving auditing and reporting quality. However, the empirical literature reveals mixed results on the relation between AC size on audit quality. For instance, Xie et al. (2003), Abbott et al. (2004), Madawaki and Amran (2013), and Soliman and Ragab (2014) find no relationship, while other studies find AC size and audit quality to be positively related (Suryanto et al., 2017; Asiriuwa et al., 2018; Khudhair et al., 2019). Supporting a positive relation, Bedard et al. (2004) and Baxter and Cotter (2009) argue that large ACs are better able to tackle possible issues and influence board decision-making, with more expansive committees bringing greater knowledge and expertise. In contrast, some studies find a negative relation (García and Pérez, 2012; Khlif and Samaha, 2016), arguing that larger ACs suffer from less effective processes and responsibilities spread too thinly (Karamanou and Vafeas, 2005). Therefore, given the lack of theoretical and empirical consensus direction the relation between AC size and audit quality, Hypothesis H_1 is stated in non-directional form as follows:

H_1: There is a significant relationship between AC size and audit quality.

5.2. Audit Committee Meeting Frequency

Holding a number of meetings of the audit committee during a given year provides the opportunity to consult and debate the accounting and auditing process within a firm. Based on Article 57 of the Saudi CG Code, "the audit committee shall convene periodically, provided that at least four meetings are held during the Company's financial year." As a result, it may hold the meeting half yearly, quarterly, or at four other times during a year. With regard to logistics, as audit committee size increases, the number of meetings will most likely decrease due to the difficulty of AC member communication. In terms of monitoring, however, more frequent meetings should lead to greater time available for discussion and decision making, and ultimately improved audit quality (Asiriuwa et al., 2018).

Several extant empirical studies investigate the relation between AC meeting frequency and audit quality. Both Salawu et al. (2017) and Asiriuwa et al. (2018) find that audit committee meeting frequency has no measurable impact on audit quality. However, Ghafran and O'Sullivan (2017) find that the meeting frequency and audit quality are positively related while Mwangi (2018) finds that the quality of financial reporting improves with greater frequency. This study argues that increased AC meeting frequency signals greater effectiveness and audit quality, while fewer meetings may signal lower member commitment and a lack of time to discuss and resolve critical issues. Thus, Hypothesis H_2 is stated as follows:

H_2: There is a positive relationship between AC meeting frequency and audit quality.

5.3. Audit Committee Independence

Article 57 of the Saudi CG Code requires that "AC directors should be independent non-executive board directors." AC member independence is an important condition for AC effectiveness that in turn should improve audit quality (Asiriuwa et al., 2018). It is argued that independent directors on the AC should help to lessen the agency problem between the corporation and its stockholders by controlling and supervising the auditing and financial reporting processes. Agency theory supports the concept of independence, whether it relates to board members, external auditors, or directors on the AC, as a critical factor for lessening information asymmetry and agency costs, and thus increasing audit quality (Habbash, 2015). AC independence should affect voluntary corporate governance levels in terms of the scope of the quality of disclosure. If the information quality provided in the annual report improves as a result, stock market efficiency and transparency should improve, in addition to audit quality (Talpur et al., 2018). Zgarni et al. (2016)

argue that AC member independence enhances their ability to safeguard published financial statement quality, along with earnings quality, and should also lessen audit report issue time.

In terms of empirical evidence, most studies find a negative relationship between AC independence and audit quality, in line with agency theory (Bedard et al., 2004, Ebrahim, 2007; Madawaki and Amran, 2013; Soliman and Ragab, 2014). However, studies including Xie et al. (2003), Peasnell et al. (2005) and Habbash (2015) find no such relation. Consistent with agency theory arguments, Hypothesis H_3 is stated as follows:

H_3: There is a positive relationship between AC member independence and audit quality.

5.4. Audit Committee Experience

AC members may be considered to have relevant prior experience where they have experience of work in an accounting and finance department or institution. Most governance regulations globally require a minimum of one accounting and financial expert to be appointed to the AC. For Saudi firms, Article 54 of the Saudi CG Code states that "the committee should consist of at least one director specialized in financial and accounting affairs". The literature argues that the presence of experts within the AC enhance its efficacy significantly. Juhmani (2017) sees the availability of accounting and financial experience as enhancing AC effectiveness and its ability to identify and avert earnings management activity. Ghafran and O'Sullivan (2017) explain that greater relevant AC expertise increases both audit costs and thus, by proxy, audit quality.

The empirical literature provides evidence to support AC expertise and audit quality being positively related. For example, Xie et al. (2003), Abbott et al. (2004), and Soliman and Ragab (2014) find that greater expertise within the AC decreases earnings management and enhances audit quality. Moreover, DeFond et al. (2005) find a positive market reaction to the selection of accounting and finance experts to the AC. In addition, Madawaki and Amran (2013) find that expertise on the committee improves audit quality. However, some studies find no relationship between audit quality and AC expertise (Krishnan et al., 2009; Lin et al., 2006; Salawu et al., 2017; Asiriuwa et al., 2018). This study argues that ACs containing directors with expertise are better positioned to deliberate and efficiently resolve key concerns, are better placed to engage an independent and specialized external auditor, and therefore enjoy increased the audit quality. Therefore, Hypothesis H_4 is stated as follows:

H_4: There is a positive relationship between AC member expertise and audit quality.

5.5. Audit Committee Education

Article 54 of the CG Code explains that the AC should a minimum of one person with an accounting and finance educational background. The purpose of this requirement is that the committee should have sufficient knowledge to perform within the scope of its work, duties, and authority. An AC in possession of the required knowledge can be fundamental to maintaining audit quality. The accounting firm, PricewaterhouseCoopers (1999), along with the US market regulator, the Securities and Exchange Commission (SEC, 2003), emphasize the necessity of member financial mastery in accounting and finance to safeguard that the AC fulfils its function of controlling financial reporting and improving audit quality.

Jaime and Micheal (2013) argue that AC member financial mastery and possession of an accounting and finance educational background is fundamental as the committee is in charge of the process of financial reporting and audit quality. Lo et al. (2010) find that relevant financial expertise and an accounting and finance educational background in AC members improves audit quality. Further, Davidson et al. (2004) find that AC member financial proficiency/knowledge and accounting and finance educational background promotes financial performance, alleviating agency problems that cause low audit quality. Therefore, Hypothesis H_5 is stated as follows:

H_5: There is a positive relationship between AC membership with an accounting and finance educational background and audit quality.

6. RESEARCH METHODOLOGY

6.1. Data Sample

The study sample selected is the 70 leading Saudi non-financial firms in terms of stock market weighting listed on the Tadawul over the period 2017–2019, providing 210 annual reports spanning sectors and constituting 52 percent of firms. This allows some examination of the Saudi CG Code as amended and applied from the beginning of 2017. The source of the data is company annual reports which is collected manually and in general organised into the financial statements and the directors' report. The annual report and other variable data are collected from the following websites: www.tadawual.com.sa, www.argaam.com and https://english.mubasher.info/countries/sa. Bank and insurance industry firms, along with Real Estate Investment Trust funds (REITs), are omitted as their financial statements depend on regulations and corporate attributes which differ from other sectors. Their financial statements are different from firms in other sectors as they are presented in accordance with Saudi Central Bank standards rather than the Saudi Organization for Certified Public Accountants standards and IFRS. The sample selected and the reduction process are detailed in Table 1.

6.2. Dependent Variable

The literature examines a wide range of potential proxies for audit quality, including audit firm type, the level of audit fees, and the

Table 1: The Sample selection process

	2017	2018	2019	Total
Initial sample	188	200	204	592
Less: Financial firms	(12)	(12)	(12)	(36)
Less: Insurance firms	(33)	(33)	(33)	(99)
Less: Real estate investment firms	(17)	(17)	(17)	(51)
Final sample	126	138	142	406
Selected firms	70	70	70	210
Percentage of selected firms	55%	51%	49%	52%

extent of earnings management. This study employs audit firm type or classification, that is Big-4 versus other audit firms, as its proxy for audit quality, and as the model dependent variable, for several reasons. First, the selection and engagement of an audit firm is one of the primary tasks for ACs; the Saudi CG Code (2017) requires that the AC is directly responsible for external auditor appointment and compensation, along with supervision of their work. Second, larger as opposed to smaller audit firms have a greater propensity to provide higher audit quality, as the former have better auditing know-how and advanced knowledge, compared to the latter, resulting from knowledge economies (Gramling and Stone, 2001). Third, bigger audit firms are far more able to spot fraud and errors as opposed to smaller firms (Wright and Wright, 1997). Fourth, Big-4 firms rely on their reputation, and failure to report discovered violations for a client might result in a significant loss in their client base (DeAngelo, 1981). In sum, Big-4 audit firms are characterised by professional auditors with the requisite expertise and resources to provide high audit quality.

6.3. Independent Variables

To investigate the drivers of audit quality, this study selects five AC characteristics commonly featured in CG regulations across the globe, including the UK CG Combined Code (2018) and the Saudi CG Code (2017). The five AC characteristics which become the model independent variables are committee size, meeting frequency, the degree of member independence, expertise, and the educational level of members. In addition to these individual independent variables, an aggregated score of the five variables is also examined to gauge overall AC effectiveness. Examining each of the AC characteristics separately enables us to identify the relative impacts on audit quality, while examination of the aggregated score allows us to examine overall AC effectiveness and its impact on audit quality.

6.4. Control Variables

Besides AC characteristics, other variables may impact on audit quality (audit firm type). For example, Kane and Velury (2004) observe that greater institutional ownership tends to lead to a requirement for audits to be conducted by a large audit firm. In addition, Abdullah (2008) finds that institutional ownership and firm performance are positively related, and that greater institutional ownership increases the probability of the engagement of a Big-4 audit firm. Further, Chen et al. (2007) show that in general greater institutional share ownership gives rise to an increased demand for higher-quality audits, while in contrast the government ownership and audit firm size are negatively related. Similarly, Guedhami et al. (2009) observe that government ownership leads to Big 4 audit firm engagement by firms. Gaaya et al. (2017) finds that family ownership leads to higher audit quality. In terms of firm financial characteristics, Khudhair et al. (2019) find that higher leverage leads to lower audit quality. Abbott and Parker (2000) propose that firms with higher profitability tend to engage a higher quality auditor, as they have greater available resources than other firms. In order to avoid the problem of omitted variable bias (Bartov, 1993), this study adds six further variables to our models: three relating to ownership structure and three concerning firm characteristics, all as control variables. Table 2 provides more detail on how the model variables are defined and measured.

6.5. Model Specification

To determine the impact of AC characteristics and general effectiveness on audit quality (Big-4 firm or otherwise), this study employs two multiple regression models. Model 1 examines the relationship between audit firm type and the five AC characteristics individually, while Model 2 examines the impact of the same characteristics jointly in order to gauge the impact of audit effectiveness.

Model 1:

$$Big\text{–}4_{it} = \beta 0+\beta_1\ ACsize_{it}+\beta_2\ ACmeet_{it}+\beta_3\ ACindep_{it}+\beta_4\ ACexpert_{it}+\beta_5\ ACeducat_{it}+\beta_6\ Statgown_{it}+\beta_7\ Instown_{it}+\beta_8\ Famown_{it}+\beta_9\ Size_{it}+\beta_{10}\ Lev_{it}+\beta_{11}\ ROA_{it}+\varepsilon_{it}$$

Table 2: Model variable definitions and metrics

Symbol	Definition	Measurement
Dependent variables		
Big-4	Big-4 audit firm	Dummy variable that takes the value of 1 where the auditor of the firm i during the year t is a Big-4 firm, and 0 otherwise
Independent variables		
ACsize	Audit Committee Size	Number of audit committee members for firm i and year t
ACmeet	Audit Committee Meetings	Number of audit committee meetings of the firm i during the year t
ACindep	Audit Committee Independence	Ratio of the non-executive directors to the total number of AC members for firm i during year t
ACexpert	Audit Committee Expertise	Dummy variable that equals 1 if there is at least one expert on the AC, and 0 otherwise
ACeducat	Audit Committee Education	Dummy variable that equals 1 if there is at least one person on the audit committee who has an accounting and financial education background, and 0 otherwise
ACscore	Audit Committee Score	Dummy variable that takes the value 1 if the AC of firm i during year t consists of at least three members, has fully independent members, one of whom is a financial expert, and one of whom is has an accounting and finance educational background, where the AC holds at least three meetings in a year and 0 where these conditions are not all present
Control variables		
Statgown	State Ownership	Number of shares held by government divided by total number of outstanding shares for firm i during year t
Instown	Institutional Ownership	Number of shares held by institutions divided by total number of outstanding shares for firm i during year t
Famown	Family Ownership	Number of shares held by family members divided by total number of outstanding shares of the firm i during year t
Size	Firm Size	Natural logarithm of total assets for firm i during year t
Lev	Firm Leverage	Total debt divided by total assets for firm i during year t
ROA	Firm Performance	Net income divided by total assets for firm i during year t

Model 2:

$$Big\text{–}4_{it}=\beta_0+\beta_1\ ACscore_{it}+\beta_2\ Statgown_{it}+\beta_3\ Instown_{it}+\beta_4\ Famown_{it}+\beta_5\ Size_{it}+\beta_6\ Lev_{it}+\beta_7\ ROA_{it}+\varepsilon_{it}$$

Where: i = firm identifier and t = year identifier; Big–4 = Big–4 audit firm dummy (proxy for audit quality); ACsize = audit committee size; ACmeet = audit committee meeting frequency; ACindep = audit committee independence; ACexpert = audit committee expertise; ACeducat = audit committee education; Size = firm size; Lev = firm leverage; ROA = firm performance; ACscore = overall AC effectiveness score; ε = error term.

7. RESULTS AND DISCUSSION

7.1. Descriptive Statistics

Table 3 displays descriptive statistics for the study model variables. The Big-4 dummy variable shows that, on average, 67% of auditors engaged belonged to the Big-4 group. Concerning the AC characteristics, the mean of AC size is 3.9 and so the average AC has around four members. This compares favourably with mean of 3.12 reported by Habbash (2015) for an earlier study of Saudi firms. Saudi firm ACs hold an average of 6.01 meetings in a given year, a figure which exceeds the 4.86 and 3.25 Saudi firm AC annual meetings reported by Al-Matari (2012) and Habbash (2015), respectively. Further, the range reveals a maximum of 19 meetings and a minimum of one meeting. The independence variable indicates that an average of 72% of AC members are independent, which is lower than 90% and 81% figures determined found by Al-Matari (2012) and Habbash (2015) for Saudi firms, respectively. The AC expertise reveals that 71% of sample Saudi firm ACs have at least one expert, a figure which is higher than the 67% found by Habbash (2015). The AC educational level variable shows that an average of 66% of ACs have a minimum of one person with educational background in accounting and finance. Regarding ownership structure, 26% of shares are institutional investor owned, 12% are owned by government agencies, and 4% by families. The mean natural logarithm of total assets (in natural logarithm form), as a measure of firm size, is 6.88, with a range of 6.097 to 9.174. Mean firm leverage is 42%, ranging from 3% to 88%, while the mean of profitability (ROA) is 5.3% and ranges from –13% to 31%.

7.2. Correlation Analysis

Table 4 presents a Pearson correlation matrix for the model variables. For the dependent variable, there are significant positive correlations between Big-4 and both Size (0.34) and ACeducat (0.29), and therefore higher audit quality is associated with larger firms with better educated ACs. Regarding the independent variables, Statown and Size (0.63), and between ACeducat and Instown are significantly positively correlated (0.30) while both Statown and Instown (–0.44) and Lev and ROA (–0.40) are significantly negatively correlated. The table confirms no issues with multicollinearity among the model independents as correlations between independent variables less than 0.80 should present no issues.

Table 3: Descriptive statistics for the model variables

Variable	Mean	Minimum	Maximum	Std. Deviation
Big–4	0.668	0.000	1.000	0.472
ACscore	0.639	0.000	1.000	0.481
ACsize	3.932	3.000	7.000	0.903
ACmeet	6.014	1.000	19.000	2.298
ACindep	0.721	0.600	1.000	0.097
ACexpert	0.716	0.250	1.000	0.148
ACeducat	0.666	0.250	1.000	0.165
Statgown	0.124	0.000	0.980	0.223
Instown	0.258	0.000	0.750	0.244
Famown	0.041	0.000	0.400	0.082
Size	6.875	6.097	9.174	0.641
Lev	0.425	0.026	0.875	0.210
ROA	0.053	-0.128	0.309	0.072

7.3. Regression Results

Table 5 summarizes the model results to determine the impact of AC characteristics and overall AC effectiveness on audit quality. Model 1, which reports the results for the five AC characteristics as individual measures, has an adjusted R^2 of 0.225 with a model F-test which is significant ($F = 8.366$, $P < 0.000$). Model 2, which includes the five AC characteristics in a single aggregated score for AC effectiveness, gives an adjusted of 0.170 and a significant F-test ($F = 9.156$, $P < 0.000$).

In relation to Model 1 which examines the impact of the separate AC variables, audit quality is significantly negatively related to audit committee expertise though only at the 10% level, providing no support for hypothesis H_4 which proposes a positive relation. This finding suggests that AC member experience working in an accounting and finance department does not have a positive impact on audit quality. This is an unexpected result as we might expect AC members with expertise, familiarity and skills in accounting and finance to be better able to address likely financial issues before they deteriorate given their enhanced ability to ask and debate questions, realize solutions, and in general improve AC effectiveness when overseeing the financial reporting process. One explanation may be that an AC with the requisite expertise, comprehension and tools of financial reporting may feel that it has less need to engage a Big-4 audit firm given its in-house expertise.

Audit quality is significantly positively related to AC member accounting and finance education at the 1% level, supporting hypothesis H5. This result is consistent with the results of Lo et al. (2010) and Jaime and Micheal (2013) who argue that relevant AC member educational background in accounting and finance improves audit quality. Further, the accounting firm, PricewaterhouseCoopers (1999), the US market regulator, the SEC (2003), along with the Saudi CG Code (2017), all emphasize that financial mastery through an accounting and financial education background is necessary to safeguard the AC fulfilling its fundamental role of monitoring financial reporting and improving audit quality. A relevant accounting and finance educational background may also help to alleviate certain agency issues that give rise to low audit quality.

The model coefficients for the other three AC characteristics (size, meeting frequency, and member independence) are all insignificant, and thus hypotheses H_1, H_2 and H_3 are not supported as we expected a significant though unspecified relationship for H1 and a positive relationship for H_2 and H_3. While these results run

Table 4: Pearson correlation matrix for the model variables

	Big-4	ACsize	ACmeet	ACindep	ACexpert	ACeducat	Statown	Instown	Famown	Size	Lev	ROA
Big-4	1											
ACsize	0.090	1										
ACmeet	0.034	0.087	1									
ACindep	0.024	0.156**	0.063	1								
ACexpert	–0.070	0.017	0.070	–0.048	1							
ACeducat	0.287**	–0.035	0.132*	0.264**	–0.023	1						
Statown	0.251**	0.297**	0.082	–0.002	0.137*	–0.023	1					
Instown	0.147*	–0.082	–0.139*	0.129*	0.002	0.303**	–0.444**	1				
Famown	–0.066	–0.242**	0.007	–0.074	–0.067	–0.149*	–0.224**	–0.022	1			
Size	0.340**	0.233**	0.037	0.016	0.065	0.076	0.633**	–0.115	–0.229**	1		
Lev	0.028	0.068	0.002	0.043	0.064	0.190**	0.025	0.180**	–0.020	0.273**	1	
ROA	0.082	–0.148*	–0.124*	–0.045	–0.024	–0.030	0.025	0.035	0.080	–0.124*	–0.400**	1

**Correlation is significant at the 0.01 level (2-tailed). *Correlation is significant at the 0.05 level (2-tailed)

Table 5: Regression models results

Independent variables	Definition	Hyp.	Exp. sign	Model 1 Individual AC characteristics			Model 2 AC effectiveness score		
				Coef.	t-statistic	P> t	Coef.	t-statistic	P> t
Constant	Model constant	–	+	–0.892	–1.997	0.047**	–0.878	–2.378	0.018**
Audit Committee Characteristics:									
ACsize	Audit Committee Size	H1	±	0.021	0.690	0.491	–	–	–
ACmeet	Audit Committee Meetings	H2	+	0.005	0.399	0.690	–	–	–
ACindep	Audit Committee Independence	H3	+	–0.367	–1.354	0.177	–	–	–
ACexpert	Audit Committee Expertise	H4	+	–0.326	–1.897	0.059*	–	–	–
ACeducat	Audit Committee Education	H5	+	0.718	4.203	0.000***	–	–	–
ACscore	Audit Committee Score	–	±	–	–	–	–0.022	–0.408	0.683
Control variables:									
Statown	State Ownership	–	±	0.433	2.468	0.000***	0.450	2.565	0.011**
Instown	Institutional Ownership	–	±	0.438	3.413	0.094*	0.551	4.398	0.000***
Famown	Family Ownership	–	±	0.422	1.289	0.274	0.255	0.772	0.441
Size	Firm Size	–	±	0.198	3.627	0.014**	0.204	3.600	0.000***
Lev	Firm Leverage	–	±	–0.235	–1.680	0.001***	–0.172	–1.198	0.232
ROA	Firm Age	–	±	0.432	1.097	0.198	0.465	1.153	0.250
Adjusted R^2					0.225			0.170	
F–statistic					8.366			9.156	
VIF					<2			<2	
Prob. (F)					0.000			0.000	
No. of observations					210			210	

***Significant at the 1% level, **significant at the 5% level, *significant at the 10% level

counter to theory arguments on the drivers of audit quality whereby larger and more independent ACs which meet more frequently should improve monitoring, make better decisions, and thus improve audit quality, as well as the prescriptions of governance regulations, the results are in accordance with the findings of other empirical studies. Indeed, Madawaki and Amran (2013), Soliman and Ragab (2014), and See et al. (2020) find no relation between audit quality and AC size. Further, Habbash (2015), Salawu et al. (2017), and Asiriuwa et al. (2018) find no relation between audit quality and the frequency of committee meetings. Moreover, Xie et al. (2003), Peasnell et al. (2005) and Habbash (2015) find no relation between audit quality and AC member independence.

Regarding the Model 1 control variables, the table shows that audit quality is are significantly positively related to state ownership, institutional ownership and firm size at the 1%,

10%, and 5% levels, respectively. Thus, the ACs of firms with greater state and institutional ownership have a greater propensity to engage a Big-4 audit firm. This is consistent with the convergence of interest hypothesis whereby shareholders' and managers' interests are better aligned in such firms (Jensen and Meckling, 1976; Donaldson, 1990), and therefore managers will urge AC directors to engage a more prominent Big-4 audit firm to enhance audit quality. Further, larger firms will also seek to pursue higher audit quality by using a Big-4 audit firm, thereby seeking to assure greater audit quality, in line with the argument of Chen et al. (2013). The explanation for this observation is that larger firms are more closely monitored by a wider range of stakeholders, and discovering any issues with audit quality (such as fraud) would cause severe reputational damage to managers and undermine the firm's ongoing viability. The table also shows that audit quality has a significant negative relationship with firm leverage at the 1% level. One possible explanation here is that as financial risk increases with leverage, the cost of engaging a higher quality auditor may outweigh the advantages derived from reducing agency costs (Feltham et al., 1991), thereby leading to a greater probability of selecting a lower quality auditor. Indeed, the result is in accordance with evidence from Feltham et al. who report a negative relationship between audit quality and firm-specific risk.

Model 2, which investigates the relation between audit quality and AC effectiveness, reveals a negative but insignificant relationship. Thus, audit quality, as proxied by the engagement or otherwise of a Big-4 audit firm, is unaffected by overall audit effectiveness, a result in line with the findings of Habbash (2015). The Model 2 results concerning the control variables are qualitatively similar to those of Model 1, as audit quality is significantly positively related to state ownership, institutional ownership and firm size at the 5%, 1%, and 1% levels, respectively, though audit quality is unrelated to firm leverage Thus, again audit quality is improved in larger firms with state and institutional ownership.

To summarise, the regression models show that audit quality increases with audit committee educational level, state and institutional ownership, and firm size, while it falls with audit committee expertise and firm leverage. The results challenge our theoretical arguments as well as the conventional wisdom of global CG regulations and codes which propose that AC size, independence, and meeting frequency are the principal determinants of audit quality. The first three hypotheses of this study were thus rejected. Further, AC effectiveness, proxied by the composite measure, has little impact on the quality of the auditing process. In general, the results are consistent with institutional theory which argues that many organisational structures are only symbolic; firms create ACs solely for the purpose of complying with governance regulations and social responsibilities. In so doing, the AC is expected to have no real impact on either the reporting process or auditing quality (Meyer and Rowan, 1977; Kalbers and Fogarty, 1993) and its presence does not of itself give rise to an efficient control system (Sommer, 1991; Abbott and Parker, 2000). Thus, a central contribution of this study is that that the presence of an effective AC does not actually guarantee auditing process quality.

8. CONCLUSION

This study makes a valuable contribution to the extant literature by investigating whether key audit committee (AC) characteristics impact audit quality, as proxied by Big-4 audit firm engagement, in Saudi firms, a country for which there is little research in this field. Further, the study contributes towards the evaluation of the effectiveness of the Saudi CG Code as amended in 2017. The regression modelling shows that audit quality is positively related to AC educational background in accounting and finance, larger firms with higher state and institutional ownership, while a negative relation is found for AC expertise and firm leverage. However, audit quality is unrelated to the composite AC effectiveness measure, which contradicts our theoretical expectations as well as the basis for global CG regulations. Our results support institutional theory which proposes that many structures of the organization, such as the AC, are purely symbolic and are created merely to demonstrate CG regulation compliance rather than having any real impact on the reporting process or audit quality.

The results of this study present some key implications for CG regulators and other stakeholders. CG regulators should understand that the simple presence of an AC that meets baseline CG regulatory requirements does not automatically ensure its efficacy or improve auditing process quality. Therefore, boards and shareholders must continue to monitor and review AC decisions, particularly where they relate to auditor engagement, even where committees are, *prima facie*, deemed effective.

This study contributes to the extant body of research regarding the function of the audit committee in augmenting audit quality in an emerging economy setting, focusing on Saudi Arabia. The results may prove interesting to regulators, policy makers, academic researchers, accountants, financial experts, and audit practitioners in the Middle East and Arab region, especially those in the process of strengthening guidelines and characteristic requirements for efficacious audit committees. Moreover, this study provides evidence on the importance of the fundamental construct of audit quality and the important factors which drive it in listed firms in Saudi Arabia.

The study has several limitations. First, the wider literature confirms the effect of board characteristics on audit quality, while this study focuses more narrowly on AC characteristics given potential overlapping effects of AC and general board factors. Second, the study sample is comparatively small compared to other studies for developed countries, though this derives from a narrower market population.

Future research might extend analysis to studying the comparative impact of AC effectiveness on audit quality both before and after the revised Saudi CG Code of 2017. Further analysis may also extend to the relationship between AC efficacy and the internal audit, the efficiency of the firm's internal control system, real earnings management, and firm performance, given the paucity of academic research on these dynamics. Finally, the literature would benefit from an international study which compares countries in the

Middle East and/or Arab region many of which applied CG codes in recent years, such as Egypt, Jordon, and other GCC countries.

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