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Effects of audit committee chair characteristics on audit quality: Empirical evidence from Saudi energy and materials sectors

Abdulaziz S. Al Naim

Accounting Department, Business School, King Faisal University, Al-Ahsa 31982, Saudi Arabia.
Email: asaudalnaim@kfu.edu.sa

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ABSTRACT

This study examines the effects of audit committee (AC) chair characteristics on audit quality in Saudi Arabia. This study applies logistic regression to investigate how AC chair independence, busyness, and expertise influence audit quality. The sample covers 282 firm-year observations of energy and materials companies listed on the Saudi stock exchange from 2017-2022. The results show a positive correlation between AC chair independence and expertise and higher audit quality, while a negative correlation exists with AC chair busyness. The results underscore the critical role of AC chair attributes in enhancing audit quality, aligning with findings from prior studies. The findings address a significant gap in how AC chair characteristics may affect audit quality in Saudi Arabia's unique context. The study's empirical contributions are particularly significant given the limited attention this topic has received in the context of a developing Middle Eastern economy. The analysis not only sheds light on the influence of AC chair characteristics but also provides actionable insights for optimizing audit committee structures to improve financial monitoring in light of ongoing Saudi reforms. The robust methodological framework and the consistency of the results with existing literature support the study's validity and reliability. The findings advocate for strategic enhancements in AC chair selection criteria to bolster audit quality amidst the evolving governance landscape in Saudi Arabia.

Contribution/ Originality: Saudi Arabia presents a unique context characterized by distinct political, legal, and cultural factors. This study offers novel insights into the relatively unexplored issue of AC chair characteristics on audit quality within the Saudi Arabian context, specifically examining how AC chair independence, busyness, and expertise relate to audit quality.

1. INTRODUCTION

The Audit Committee chairman (AC_chair) plays a crucial role within the audit committee, often being referred to as its "Chief Executive Officer (CEO)" (Ernst & Young, 2011). The effectiveness of an AC is heavily dependent on the chair's leadership, which includes establishing the committee's tone, work style, and agenda (KPMG, 2019). The chair's duties include comprehending the organization's culture, establishing clear expectations for committee members, and holding both management and auditors accountable. Due to their elevated level of accountability relative to other AC members, the chair is instrumental in overseeing financial reports and evaluating the effectiveness of AC (Bromilow & Keller, 2011).

Several studies, including those by Dhaliwal, Naiker, and Navissi (2010) and Krishnan (2005) suggest that AC characteristics, like independence, size, and expertise, are vital to its effectiveness and influence audit quality. Nonetheless, the AC_chair holds a pivotal role in assessing financial reporting quality. Tapestry Networks and Ernst & Young (EY) emphasize the importance of the AC_chair possessing ideal characteristics. They assert that the role of the audit committee chair is crucial, as members prefer a chair who is not only a financial expert meeting listing standards but also someone capable of engaging confidently with the Chief Financial Officer (CFO) and external auditors on accounting matters and who commands respect from both management and external parties (Tapestry Networks/Ernst & Young, 2013). Despite the chair's critical function in the AC (PricewaterhouseCoopers (PwC), 2020) the impact of the chair's qualities on the audit process and audit quality improvement is little known, particularly in emerging countries such as Saudi Arabia.

This study provides new insights into the relatively underexplored topic of how three key characteristics of the Audit Committee chairman (AC_chair) affect audit quality within the Saudi Arabian context. Specifically, it examines the impact of the AC_chair's independence, busyness, and expertise on audit quality. Saudi Arabia's economy is heavily reliant on hydrocarbon resources and material production, with oil contributing to more than 50% of the Gross Domestic Product GDP (Hasanov, Alkathiri, Alshahrani, & Alyamani, 2022). The energy and materials sectors are fundamental to the country's economic foundation. Additionally, companies within these sectors attract a significant portion of foreign investment into Saudi Arabia (Alkhathlan, Alkhateeb, Mahmood, & Bindabel, 2020) making the analysis of these major stocks particularly pertinent for investors. Therefore, this study focuses on listed firms in the Energy and Materials sectors to investigate the impact of audit committee chair characteristics on audit quality.

The study analyzes a sample of 228 firm-year observations over the period from 2017 and 2022, using a logit model to examine the effects of audit committee chair characteristics on audit quality. The findings of the study indicate that AC chair's busyness negatively affects audit quality, while AC chair's independence and expertise improve audit quality.

This study contributes to the existing literature in several ways. First, it extends prior research (e.g., (Al-Matari, 2022; Appuhami & Tashakor, 2017; Hassan, Hijazi, & Naser, 2017; Kim, Kwak, Lim, & Yu, 2017; Sierra García, Ruiz Barbadillo, & Orta Pérez, 2012; Sultana, Singh, & Rahman, 2019; Zalata, Tauringana, & Tingbani, 2018) that investigates the relationship between AC chair characteristics and audit quality. Unlike prior studies, this research is, to the best of our knowledge, the first to consider the influence of the AC chair's busyness, in addition to other characteristics, such as the AC chair's independence and expertise, on audit quality (represented by audit firm size, BIG4). Furthermore, this study uniquely investigates this association within the context of a developing country, specifically Saudi Arabia.

The paper proceeds as follows. Section 2 discusses the institutional background of Saudi Arabia. Section 3 reviews relevant literature and hypotheses. Section 4 outlines the methodology. Section 5 presents the results, while Section 6 discusses implications. Finally, Section 7 concludes by acknowledging limitations and suggesting future research directions.

2. INSTITUTIONAL BACKGROUND OF SAUDI ARABIA

Saudi Arabia has enacted significant corporate governance reforms for listed firms in recent years, introduced in 2017. The objectives were to align with international best practices, enhancing board responsibility, empowering shareholders, improving transparency and disclosure, and regaining investor confidence. The comprehensive reforms aim to transform Saudi standards to world-class quality to attract foreign investment, better protect minority investors, expand capital markets, and boost trust in Saudi companies-aligned with Vision 2030 goals.

Several considerations motivated these regulatory changes. Firstly, investor trust was damaged by high-profile corporate failures in Saudi Arabia in the late 2010s that were caused by weak governance and revealed insufficient board oversight and transparency (Habbash & Alghamdi, 2017). Secondly, Saudi Arabia's economy was still dominated by family conglomerates, causing minority investors to fear expropriation and requiring strengthened protections (Eulaiwi, Al-Hadi, Taylor, Al-Yahyaee, & Evans, 2016). Thirdly, adhering to global governance norms was vital for enhancing Saudi Arabia's capital markets and fostering corporate responsibility.

In 2017, Saudi regulators significantly increased the required openness and disclosures to investors about the roles, credentials, experience, and sector knowledge of business board members. This included defining the titles of degrees, certifications, organizations, jobs held, duties, and lengths of experience that, in accordance with Article 87, were to be made publicly known. These new regulations significantly increased mandatory transparency and disclosures provided to investors on corporate boards and management. Public disclosure of details on board member credentials, qualifications, experience, and expertise is mandatory. However, despite such disclosures, transparency in Saudi Arabia remains limited compared to developed markets, as families still control most boards.

Little research has examined whether Saudi Arabia's recent transparency improvements have enhanced oversight abilities of corporate boards and their committees. No study has specifically investigated if the enhanced 2017 governance disclosures have filtered down to strengthen audit committee chair monitoring and audit quality. Analyzing whether the increased transparency has impacted audit committee chair diligence and audit quality is an urgent research need. Therefore, this study aims to address this knowledge gap by assessing if heightened transparency has improved audit committee chair oversight of financial reporting and auditing. It focuses on how chair attributes like expertise, independence, and busyness may influence audit quality within Saudi Arabia's new transparency-focused regulations. This will provide important insights into whether reforms have led to superior audit committee governance, useful for policymakers in further developing regulations.

3. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

3.1. Audit Quality

Audit quality refers to auditors' ability to detect and accurately report material misstatements or omissions in financial statements (DeAngelo, 1981). Higher audit quality provides greater assurance to stakeholders regarding the reliability of financial information (Carcello & Nagy, 2004).

The abilities and independence of the auditors establish the quality of the audit. Auditors with higher competence, experience, and industry knowledge can better identify hazards, maintain skepticism, and withstand management pressure (Craswell, Francis, & Taylor, 1995). Recent research has consistently shown that large audit companies (Carson et al., 2013) and specialists (Garcia-Sanchez, Martínez-Ferrero, & García-Meca, 2017) deliver greater audit quality. Furthermore, corporate governance variables that improve audit committee effectiveness, such as experience, independence, diligence, and auditor relationships, raise audit quality (Bruynseels & Cardinaels, 2014; Cohen, Hoitash, Krishnamoorthy, & Wright, 2014).

The audit committee chairman is responsible for overseeing financial reporting and auditing to assure quality. The chairman's accounting and finance knowledge allows for a thorough evaluation of audit plans and statements (Abernathy, Beyer, Masli, & Stefaniak, 2014). Their understanding also allows for informed talks with management and auditors to demand sensible reporting. Furthermore, chairman independence from management is critical for unbiased monitoring and increased openness (Krishnan, 2005). However, excessive obligations may limit busy chairs' monitoring time (Sharma & Iselin, 2012).

Within Saudi Arabia's evolving governance landscape, examining how chairman expertise, busyness, and independence influence local audit quality provides insights into optimizing board structures. As Saudi regulators emphasize transparency to gain confidence, quality audits ensuring reliable reporting are imperative. Concentrated family ownership also raises agency concerns about controlling shareholders expropriating minority investors, which high-quality audits can constrain (Habbash & Alghamdi, 2017). Saudi Arabia's adoption of complex accounting and auditing standards necessitates competent, high-quality audits too. Empirical research in other nations shows audit committee chairman attributes such as expertise, experience, busyness, and independence impact audit quality. This gives helpful viewpoints for direct research within Saudi Arabia's context. Analyzing these relationships specifically for Saudi companies would meaningfully progress understanding of optimizing audit committee composition.

Numerous studies demonstrate associations between chairman characteristics and audit quality, despite the lack of direct examination of Saudi audit committee. For example, research in Australia shows a positive relationship between audit committee chairman accounting expertise and audit quality (Azizkhani, Hossain, & Nguyen, 2023; Sultana et al., 2019).

3.2. Audit Quality and Audit Committee Chairman Independence

Agency theory suggests audit committee chairman independence from management helps mitigate conflicts of interest and improves monitoring effectiveness (Fama & Jensen, 1983). The chair's autonomy enables impartial oversight of financial reporting and auditing. The effectiveness and efficiency of audit committees depend on having a strong, independent chairperson who has the confidence of external auditors and management (Abu Karky & AlHdaithat, 2019). The Saudi corporate governance (2017) stipulates that the audit committee chair must not concurrently serve as the chairperson of the board of directors and must remain independent to maintain objectivity when reviewing audit committee results and recommendations (Capital Market Authority, 2017). Holding multiple positions could lead to a concentration of power and increase the chair's workload, potentially causing stress. Due to the critical nature of this role, this independence requirement is mandatory under Saudi corporate governance.

Extensive research shows audit committee independence is associated with higher financial reporting quality and enhanced audit quality. Prior studies point out that separating the audit committee chair and board chair roles encourages audit committees to strengthen monitoring, indicating higher diligence and scrutiny that improves audit quality (Appuhami & Tashakor, 2017; Hassan et al., 2017; Sierra García et al., 2012). Consequently, separating these two positions is crucial for the audit committee chair to devote more time to manage the committee's affairs, which in turn increases audit quality. Other research asserts the critical importance of having an independent AC chair. For instance, Chan, Liu, and Sun (2013) demonstrate that independent AC chairs in the US are effective in mitigating aggressive or fraudulent accounting practices. Similarly, Schmidt and Wilkins (2013) find that companies with independent chairs experience fewer financial misstatements in the US. Overall, these studies consistently reveal that independent chairs enhance monitoring, leading to higher audit quality and increased transparency in reporting, and the absence of management affiliation allows for unbiased oversight.

Given the concentrated family ownership and limited board independence in Saudi Arabia, the independence of the audit committee chair is particularly crucial (Habbash & Alghamdi, 2017). Independent chairs can help counter the controlling family's influence over reporting and protect minority shareholders. However, despite regulations requiring minimal board independence, Saudi boards remain largely dominated by insiders aligned with family owners (Eulaiwi et al., 2016). Ensuring true chair autonomy likely requires additional reforms to support their oversight capability. Minimal evidence currently examines how Saudi audit committee chairs' independence affects their capability to demand rigorous, high-quality audits.

Overall, theory and research suggest independent audit committee chairs are more likely to objectively evaluate statements, challenge aggressive accounting, and demand extensive auditing. Their lack of management or family affiliation enables impartial oversight. Therefore, the hypothesis is that independent audit committee chairs positively influence audit quality in Saudi listed firms. Therefore, the hypothesis is:

H_1: Independent audit committee chair is likely to positively influence audit quality in Saudi listed firms.

3.3. Audit Quality and Audit Committee Chairman Busyness

Previous research indicates that the monitoring capabilities and effectiveness of AC_chairs are significantly influenced by their experience and reputation, often measured by the number of AC positions they hold across different firms (Sultana et al., 2019). Holding multiple positions provides AC_chairs exposure to diverse governance practices, enhancing their knowledge (Ferris, Jagannathan, & Pritchard, 2003). According to some studies, AC members who hold multiple directorships have the potential to reduce earning management (Yang & Krishnan, 2005) and are also linked to higher audit fees and improved audit quality (Sultana et al., 2019).

However, excessive commitments can limit the time an AC chair dedicates to a specific firm, thereby constraining their oversight abilities (Jiraporn, Singh, & Lee, 2009). Some studies suggest that AC members holding multiple AC roles may demonstrate less effective monitoring due to being overextended and burdened with responsibilities (Carpenter & Westphal, 2001; Méndez, Pathan, & García, 2015). This overcommitment can lead to inadequate time for fulfilling AC chair duties, potentially resulting in diminished financial reporting and audit quality (Sharma & Iselin, 2012). Beasley, Carcello, Hermanson, and Neal (2009) highlight that when AC chairs are overcommitted by serving on numerous boards and committees, their interaction with internal and external auditors may decrease, adversely affecting the agenda-setting for AC meetings and the overall effectiveness of the AC's oversight. Additionally, studies by Hoitash and Hoitash (2009) and Al-Matari (2022) suggest that companies with overloaded audit committee members often face challenges in effectively executing their oversight responsibilities, as their excessive commitments hinder their governance capabilities.

While some findings suggest expertise benefits from multiple board appointments, other studies imply busyness may reduce chairs' monitoring time or lead to excessive tenure and familiarity with management. Given the conflicting evidence, it is necessary to investigate how the busyness of audit committee chairs affects audit quality, leading to the proposal of the following null hypothesis:

H_2: Busy audit committee chair is likely to influence audit quality in Saudi listed firms.

3.4. Audit Quality and Audit Committee Chairman Expertise

The audit committee is crucial in governance, particularly in overseeing financial reporting and external auditing processes (Kateb & Belgacem, 2023; Myers, Schmardebeck, & Slavov, 2021). Its primary objective is to ensure high-quality financial reporting and effective oversight of internal audits (Baatwah, Salleh, & Stewart, 2019; Beasley et al., 2009). These responsibilities are best fulfilled by independent managers who possess extensive accounting and financial expertise (Bani-Khalid, Alshira'h, & Alshirah, 2022). Agency theory suggests the committee helps mitigate agency costs by monitoring management, who may act opportunistically (Fama & Jensen, 1983). The presence of accounting experts on the committee enhances this oversight capability (Ghafran & O'Sullivan, 2017). Expertise in accounting standards, auditing processes, and financial reporting helps members identify issues and probe management and auditors more effectively (Khemakhem & Fontaine, 2019; Tanyi & Smith, 2015). This suggests accounting expertise is critical for the committee to fulfill monitoring duties.

Previous studies explore the impact of accounting expertise on AC from multiple perspectives. For instance, Zalata et al. (2018) demonstrate that AC members with accounting expertise play a crucial role in curbing earnings management within firms. Additionally, several studies indicate that financial expertise—both accounting and non-accounting—on the AC enhances the understanding of the audit process, audit risks, and auditing procedures. This expertise drives the demand for a higher level of assurance from external auditors, often leading to higher audit fees (Abbott, Parker, Peters, & Raghunandan, 2003; Bhuiyan, Rahman, & Sultana, 2020; Ghafran & O'Sullivan, 2017; Hoitash & Hoitash, 2009; Kim et al., 2017; Lai, Srinidhi, Gul, & Tsui, 2017). Moreover, evidence suggests that the presence of accounting expertise on ACs is strongly associated with the engagement of high-quality external auditors, such as Big 4 or industry specialist auditors (Kim et al., 2017). However, prior studies have focused on the overall committee rather than the expertise of AC chairs. As AC chair leads the committee, their individual expertise is essential. Some studies, such as Khemakhem and Fontaine (2019) and Sultana et al. (2019) indicate that specialized expertise, particularly in accounting, is crucial for audit committee chairs to effectively execute their duties and guide the committee. These arguments imply that accounting expertise may be the most critical skill for audit committee members. An AC chair possessing this expertise can enhance the committee's efficiency and effectiveness, leading to a deeper comprehension of the audit process.

Given the AC chair's leadership position, their accounting expertise likely strengthens the committee's effectiveness further. An expert AC chair can better comprehend complex transactions and risks, which enhances the review of audit plans and statements. Their knowledge also empowers them to request additional procedures when unsatisfied. Therefore, AC chairs with greater financial reporting expertise are expected to contribute to higher audit quality in Saudi firms by leveraging their skills to meaningfully oversee the audit process. This study examines whether experts positively influence audit quality, strengthening monitoring within Saudi Arabia's evolving governance landscape. Therefore, the hypothesis is:

H_3: Experts who chair the audit committee are likely to positively influence audit quality in Saudi listed firms.

4. RESEARCH METHODOLOGY

This research investigates the impact of audit committee chairman characteristics on audit quality in the Saudi stock market. To accomplish this, a quantitative method utilizing publicly available secondary data is employed to test hypotheses and evaluate corporate information objectively measures governance practices and their correlations with audit quality in Saudi context.

4.1. Sample Selection and Data Collection

For this study, the period from 2017 to 2022 is chosen. In 2017, Saudi regulatory bodies introduced several amendments to improve the business environment in the Saudi market, including the new Saudi corporate governance regulations. These new regulations mandate higher levels of disclosure and transparency compared to the previous governance framework, which did not require firms to disclose audit committee (AC) characteristics—an essential aspect of this study. The enhanced disclosure in corporate annual reports of Saudi firms aligns with international corporate governance standards, such as the Organisation for Economic Co-operation and Development (OECD) principles (Boshnak, 2022). Therefore, beginning the study in 2017 ensures that all relevant information regarding AC characteristics is available. This study focuses on two sectors that are considered the main sectors in Saudi Arabia. The energy and materials sectors are fundamental to the country's economic foundation. Saudi Arabia's economy is heavily reliant on hydrocarbon resources and material production, with oil contributing to more than 50% of the GDP (Hasanov et al., 2022). Companies within these sectors attract a significant portion of foreign investment into Saudi Arabia (Alkhathlan et al., 2020) making the analysis of these major stocks particularly pertinent for investors. Therefore, this study focuses on listed firms in the energy and materials sectors to investigate the impact of audit committee chair characteristics on audit quality. The sample comprises 47 non-financial Saudi firms listed during 2017-2022, providing a balanced panel dataset of 282 firm-year observations. All governance data was collected manually from annual reports. Financial data was derived from Bloomberg.

4.2. Analytical Techniques

This study conducts panel regression analysis to examine the effect of audit committee chair characteristics on audit quality in the Saudi Energy and Materials sectors. The firm measures audit quality by appointing a Big 4 auditor, a commonly used proxy (DeAngelo, 1981). The key independent variables are chairman expertise, independence, and busyness. Based on prior academic studies Abbott and Parker (2000); Azizkhani et al. (2023); Fung, Gul, and Krishnan (2012); Lai et al. (2017) and Li, Xie, and Zhou (2010) a logit model is used to analyze the association between Big 4 auditor choice as a signal of higher audit quality and audit committee chairman characteristics. This enables assessing how AC chair's expertise, independence, and busyness influence the likelihood of appointing a Big 4 auditor considered indicative of audit quality. The model specification is as follows:

$$BIG4_{it} = \beta_0 + \beta_1 AC\_Chair\_IND_{it} + \beta_2 AC\_Chair\_BUSY_{it} + \beta_3 AC\_Chair\_EXP_{it} + \beta_4 ACI_{it} + \beta_5 ACS_{it} + \beta_6 ACM_{it} + \beta_7 ACFEMALE_{it} + \beta_8 BODI_{it} + \beta_9 BODS_{it} + \beta_{10} BODM_{it} + \beta_{11} PIF_{it} + \beta_{12} LEV_{it} + \beta_{13} ROA + \beta_{14} FSIZE_{it} + \varepsilon_{it}$$

4.3. Measurements of the Variables

When a Big 4 accounting firm audits a firm, the binary variable known as BIG4, which serves as proxy for audit quality, equals 1. Otherwise, it equals 0. Numerous studies, including DeAngelo (1981); Francis (2004) and Hoitash, Markelevich, and Barragato (2007) have highlighted using the size of an audit firm, especially Big 4 status, as a key indicator of superior audit quality. Prior studies have extensively used the Big 4 classification as a marker of superior audit quality, citing these businesses' market reputation, worldwide scope, and international presence.

The binary variable AC_Chair_IND, which equals 1 if Saudi listing standards consider the chairman independent and 0 otherwise, captures the chairman's independence. Independence is determined by the absence of executive or material relationships that could undermine objectivity (Dhaliwal et al., 2010; Khurram & Zhang, 2019; Leung, Richardson, & Jaggi, 2014). In Saudi Arabia, an independent director is someone who does not occupy an executive role in the firm and has no substantial family or business ties to it (Al-Matari, Al-Swidi, Fadzil, & Al-Matari, 2012; Lutfi et al., 2022). This regulatory standard allows for an objective classification of independent and non-independent audit committee chairmen. AC_Chair_BUSY is a dummy variable that measures the chairman's activity. It is set to 1 if the chairman serves on two or more other public business boards at the same time and to 0 otherwise. Because of the limited number of overall board seats in Saudi Arabia, having two or more directorships in other public firms is a good indicator of the chairman's busyness (AlShetwi, 2020; Omer, Aljaaidi, & Nasser, 2020).

Table 1. All measurements of explanatory variables.

Variables	Name of the variables	Acronym	Measurement
Dependent variable	Audit firm size	*Big4*	The audit firm profile in the big four or not. (1 = Big four and 0 = others)
Independent variables	The independence of audit committee chairman	*AC_chair_IND*	Dummy variables for independence of the audit committee chairman. (1 = Independent and 0 = others)
	The busyness of audit committee chairman	*AC_chair_BUSY*	The number of members who hold two or more board appointments scaled by the total number of members on the committee.
	The expertise of audit committee chairman	*AC_chair_EXP*	The number of members who hold financial qualifications scaled by the total number of members on the committee.
Control variables	Audit committee independence	*ACI*	The proportion of independent directors to total BOD members
	Audit committee size	*ACS*	Total number of audit committee members
	Audit committee meetings	*ACM*	Total number of audit committee meetings in the annual year
	Gender diversity in audit committee	*ACFEMALE*	Dummy variables for existence of female members in audit committee (1,0)
	Board independence	*BODI*	The proportion of independent directors to total board members
	Board size	*BODS*	Total number of board members
	Board meetings	*BODM*	Total number of board meetings in the annual year
	Saudi public investment fund	*PIF*	The proportion of shares owned by the public investment fund (PIF) of Saudi Arabia to a total of ordinary share
	Leverage	*LEV*	Measured from the ratio of debt to total assets
	Return on assets	*ROA*	The percentage of firm's profit to total assets
	Firm size	*FSIZE*	The size of the firm measured from the natural log of total assets

AC_Chair_EXP measures the audit committee chairman's financial expertise as a binary variable, with 1 indicating professional accounting qualification or experience as an accountant or CFO and 0 otherwise. This technique builds on previous research by Azizkhani et al. (2023) and Dhaliwal et al. (2010) which reflected regulatory definitions of accounting expertise. Additionally, full audit committee and board of directors' characteristics are included as controls, such as independence ratio, size, and meeting frequency, based on prior studies such as Azizkhani et al. (2023); Bruynseels and Cardinaels (2014); Cassell, Myers, Schmardebeck, and Zhou (2018); Hanlon, Khedmati, and Lim (2019) and Free, Trotman, and Trotman (2021). Controlling for these attributes allows assessing the specific impact of chairman traits on audit quality. Table 1 displays a summary of all measurements used in this study.

4.4. Robustness tests

To ensure our findings' robustness in the effect of AC chair characteristics on audit quality, we applied the Generalized Method of Moments (GMM) technique. The GMM method addresses potential endogeneity issues resulting from unobserved heterogeneity and simultaneity biases (Arellano & Bond, 1991). Endogeneity can distort empirical results, leading to biased and inconsistent estimates (Wooldridge, 2010). In this study, endogeneity might arise from omitted variable bias, measurement error, or reverse causality between AC chair characteristics and audit quality. To make sure that parameter estimates are accurate, the GMM method uses instrumental variables that are linked to the endogenous regressors but not to the error terms (Blundell & Bond, 1998). By incorporating lagged dependent variables as instruments, GMM enhances the robustness of our estimates.

In addition to GMM method, this research carries out tests of robustness to scrutinize the sensitivity of the model with respect to different metrics for the variables in question. For the purpose of this analysis, a substitute indicator for firm size (FSIZE2) is used. FSIZE2 is measured from the natural log of total sales. The outcome from this alternative test is detailed in Section 5.1.

5. RESULTS AND ANALYSIS

The descriptive statistics presented in Table 2 give an overview of the 282 firm-year observations making up the sample for this analysis. The outcome variable of audit quality, represented by audit firm size (BIG4), shows 43.62% of the sample companies used a Big 4 auditor. Examining the main independent variables capturing audit committee chair traits, chair independence (AC_Chair_IND) displayed reasonably high average values of 0.78, signifying that most chairs were independent board members. However, the range of 0 to 1 shows some variation across the sample. Chair busyness (AC_Chair_BUSY) averaged 0.41, reflecting that around 40% of chairs served on multiple boards. Finally, chair expertise (AC_Chair_EXP) averaged 0.44, suggesting moderate financial proficiency among chairs.

Among the audit committee controls, independence (ACIND) averaged 77.28%, meeting common thresholds for independence. Committee size (ACSIZE) averaged 3.54 members, conforming to regulatory requirements. Meeting frequency (ACMEETING) averaged 5.36 times annually. Gender diversity (ACFEMALE) was extremely low, with women comprising only 3% of audit committee members on average.

For board controls, independence (BODIND) aligned closely with the audit committee at 77.28% independent directors. Board size (BODSIZE) averaged 7.76 members. Meeting frequency (BODMEET) averaged 5.92 times annually. The control variable of politically influenced firms (PIF) showed an average of 11.74% of chairpersons with political connections. Firm size (FSIZE) and leverage (LEV) exhibited reasonable variation. Profitability (ROA) averaged 4.5%, indicating sample firms were moderately profitable on average.

To sum up, the descriptive statistics show that the main independent and control variables are diverse enough to use regression analysis to look at how they relate to audit quality. The sample comprises a blend of companies exhibiting variation in auditor selection, audit committee composition, board features, and financial characteristics.

The correlation coefficients presented in Table 3 give initial insight into the relationships between the variables. There were positive and statistically significant correlations detected between audit quality (BIG4) and both audit committee chairman expertise (AC_Chair_EXP) and independence (AC_Chair_IND). In contrast, audit committee chairman busyness (AC_Chair_BUSY) exhibited a negative correlation with audit quality (BIG4).

Among the control variables, firm size and profitability showed positive correlations with audit quality, while leverage did not have a significant correlation. It is reassuring that all correlation values were below 0.8, reducing concerns about potential multicollinearity issues in the later regression analysis. These preliminary correlation results provide unadjusted evidence that aligns with the hypothesized positive relationships between audit committee chair expertise and independence and audit quality. However, unexpected directions emerged for some of the control variable correlations, contradicting assumptions.

Table 4 shows the results of a logistic regression analysis. The findings reveal a positive and significant coefficient for chairman independence (AC_Chair_IND) (B=3.775, p<0.001), affirming hypothesis H1, which posited a positive relationship between independence and audit quality. This positive coefficient suggests that independent chairmen enhance monitoring effectiveness, thereby increasing the likelihood of retaining a Big 4 auditor. Conversely, the coefficient for chairman busyness (AC_Chair_BUSY) is negative and significant (B=-1.100, p=0.023), supporting hypothesis H2, which anticipated a significant negative relationship. This implies that chairmen who serve on multiple boards are less effective in ensuring high audit quality. Additionally, the coefficient for chairman expertise (AC_Chair_EXP) is positive and significant (B=1.507, p=0.002), corroborating hypothesis H3, which proposed a positive association between expertise and audit quality. The positive coefficient indicates that audit committees chaired by individuals with relevant expertise are more likely to demand and secure higher-quality Big 4 auditors compared to those chaired by non-experts.

Among control variables, firm size (FSIZE) positively and significantly predicted Big 4 auditor choice, with large firms more likely to require quality audits. Additionally, there is a positive and significant correlation between leverage (LEV) and return on assets (ROA) and Big 4 auditor choice. No other controls were significant, contrasting assumptions. The limited significant effects beyond the chairman's characteristics highlight their importance in driving Big 4 selection in Saudi firms. Overall, the results provide support for the hypotheses that expertise and independence improve while busyness reduces audit quality. The findings emphasize these chairman attributes significantly impact audit quality in Saudi listed firms.

Table 2. Descriptive statistics for audit quality, audit committee chairman characteristics (Independence, busyness, and expertise), audit committee characteristics, board of directors characteristics, and other control variables.

Variables	N	Minimum	Maximum	Mean	Std. deviation
Panel A: Audit quality					
Audit firm size (BIG4)	282	0.00	1.00	0.43	0.50
Panel B: Audit committee chairman characteristics					
Audit committee chairman independence (AC_chair_IND)	282	0.00	1.00	0.78	0.42
Audit committee chairman busyness (AC_chair_BUSY)	282	0.00	1.00	0.41	0.49
Audit committee chairman expertise (AC_chair_EXP)	282	0.00	1.00	0.44	0.49
Panel C: Other control variables					
Audit committee independence (ACI)	282	25.00	100.00	77.28	22.23
Audit committee size (ACS)	282	2.00	7.00	3.54	0.76
Audit committee meeting (ACM)	282	2.00	13.00	5.36	1.68
Audit committee gender diversity (ACFEMALE)	282	0.00	1.00	0.03	0.18
Board of directors independence (BODI)	282	25.00	100.00	77.28	22.23
Board of directors size (BODS)	282	25.00	100.00	77.28	22.23
Board of directors meeting (BODM)	282	25.00	100.00	77.28	22.23
PIF	282	0.00	90.19	11.74	22.21
Firm size (FSIZE)	282	2.39	9.36	6.02	0.97
Leverage (LEV)	282	0.00	9.54	0.69	1.22
Return on assets (ROA)	282	-0.21	0.39	0.45	0.07

Table 3. Correlation coefficients between the variables of the study.

Variables	BIG_4	AC_chair_IND	AC_chair_BUSY	AC_chair_EXP	ACI	ACS	ACM	ACFEMALE	BODI	BODS	BODM	PIF	FSIZE	ROA	LEV
BIG_4	1														
AC_chair_IND	0.01	1													
AC_chair_BUSY	-0.01	-0.03	1												
AC_chair_EXP	-0.03	-0.01	-0.02	1											
ACI	-0.28**	0.50**	-0.06	0.23**	1										
ACS	0.29**	-0.11	0.12*	0.02	-0.27**	1									
ACM	0.05	-0.07	-0.07	0.17**	0.07	-0.06	1								
ACFEMALE	0.17**	0.1	0.22**	-0.04	-0.24**	0.22**	-0.11	1							
BODI	-0.25**	0.29**	-0.08	0.03	0.38**	-0.17**	0.02	-0.11	1						
BODS	0.36**	-0.13*	0.17**	-0.19**	-0.38**	0.40**	0.08	0.25**	-0.19**	1					
BODM	0.04	0.07	0.07	0.05	0.04	0.14*	0.19**	0.1	0.07	0.04	1				
PIF	0.49**	-0.08	0.06	-0.15*	-0.25**	0.45**	0.02	0.40**	-0.29**	0.30**	0.05	1			
SIZE	0.56**	-0.13*	0.12*	-0.14*	-0.33**	0.46**	0.02	0.37**	-0.27**	0.53**	0.05	0.81**	1		
ROA	0.28**	0	0.17**	0.02	-0.07	0.26**	0.12*	0.30**	-0.06	0.24**	0.11	0.35**	0.30**	1	
LEV	-0.01	0.14*	0.02	-0.01	0.06	-0.04	0.02	-0.07	0.22**	-0.13*	0.11	-0.03	0.05	-0.33**	1

Note: ** and * Correlations are significant at the 0.01 level and 0.05 level respectively(2-tailed).

Table 4. Summary of the results of the logistic regression of audit committee chairman characteristics (Expertise, busyness, and independence) on audit quality proxy (Audit firm size).

Variables in the equation						
Logistic model variables	**Coefficients β**	**S.E.**	**Wald**	**Degrees of freedom**	**Significance level.**	**Exp(B)**
AC_chair_IND	3.76**	0.79	22.84	1.00	<0.00	43.61
AC_chair_BUSY	-1.10*	0.48	5.17	1.00	0.02	3.01
AC_chair_EXP	1.51**	0.48	9.74	1.00	0.00	4.51
ACI	-0.06**	0.02	17.88	1.00	<0.00	0.94
ACSI	-0.52	0.29	3.24	1.00	0.07	0.59
ACM	-0.08	0.14	0.33	1.00	0.57	0.93
ACFEMALE	-0.50	1.54	0.105	1.00	0.75	0.61
BODI	-0.00	0.02	0.102	1.00	0.75	0.99
BODS	0.17	0.17	1.09	1.00	0.30	1.20
BODM	-0.00	0.16	0.00	1.00	0.95	0.99
PIF	0.06	0.03	6.43	1.00	0.01	1.06
ROA	15.83**	4.64	11.64	1.00	<0.00	7505232.14
LEV	0.36*	0.19	3.76	1.00	0.05	1.44
FSIZE	3.69**	0.69	28.87	1.00	<0.00	40.27
Constant	-23.548**	4.656	25.576	1.00	<.001	0.00
Cox & Snell R square = 0.541						
Nagelkerke R square = 0.726						
Chi-square = 219.822						

Note: * and ** indicate a significance at the 0.05 and 0.01 level respectively. All variables are defined in Table 1.

Table 5. Summary of the results of robustness analysis to address endogeneity: The generalized method of moments (GMM) technique.

Variables in the equation				
Logistic model variables	**Coefficients β**	**S.E.**	**t-statistic**	**Significance level**
AC_chair_IND	0.285**	0.092	3.090	0.002
AC_chair_BUSY	-0.165**	0.058	-2.860	0.005
AC_chair_EXP	0.101*	0.049	2.046	0.042
ACI	-0.006**	0.002	-2.658	0.009
ACS	-0.024	0.038	-0.637	0.524
ACM	0.010	0.012	0.856	0.393
ACFEMALE	-0.579**	0.222	-2.605	0.010
BODI	-0.004*	0.002	-2.387	0.017
BODS	0.006	0.010	0.574	0.566
BODM	0.002	0.021	0.108	0.914
PIF	0.002	0.003	1.046	0.558
ROA	0.491	0.224	2.189	0.297
LEV	0.009*	0.016	0.587	0.030
FSIZE	0.333**	0.080	4.151	0.000
Constant	-1.425**	0.441	-3.228	0.001
Adjusted R^2 = 39.57% Prob of Hansen J-test = 14.29% Sample size = 235				

Note: * and ** indicate a significance at the 0.05 and 0.01 level respectively. All variables are defined in Table 1.

5.1. Robustness Test

5.1.1. Generalized Method of Moments (GMM)

We applied the Generalized Method of Moments (GMM) technique as a robustness of our findings. The results of the GMM analysis are summarized in Table 5. The results remained qualitatively similar; the audit committee chairman independence variable (AC_Chair_IND) had a positive and significant coefficient, consistent with the primary model. The audit committee chairman expertise variable (AC_Chair_EXP) also had a positive and significant coefficient, aligned with the main findings. Additionally, the audit committee chairman busyness variable (AC_Chair_BUSY) had a negative and significant coefficient, conforming to the main results. This provides assurance that the conclusions are robust to using alternative proxies for the firm size control variable. These findings emphasize the importance of audit committee chairman expertise, independence, and busyness as drivers of audit quality in Saudi listed firms. The Adjusted R^2 of 39.58% indicates that the model explains a significant portion of the variance in audit quality. The Prob of Hansen J-test of 14.29% is not significant, which confirms the validity of the instruments used in the GMM estimation, suggesting no over-identification issues.

5.1.2. Alternative Measure Test

In addition to GMM, robustness tests were performed using an alternative measure for firm size - the natural logarithm of total sales (FSIZE2)-to assess the sensitivity of the model. The results are consistent with main findings and GMM, when firm size was measured as FSIZE2 rather than total assets (FSIZE). When we measured firm size as FSIZE2 rather than total assets (FSIZE), the results were qualitatively similar.

6. DISCUSSION

This study investigates whether the characteristics of AC chairs are associated with audit quality. Specifically, we examine the effect of the AC_chair's independence, busyness, and expertise on audit quality. The findings show a positive and significant association between AC chair independence and audit quality in the Saudi firms. This result is consistent with Bruynseels and Cardinaels (2014) and Krishnan (2005) who assert independence mitigates conflicts of interest and strengthens governance. Also, our finding is in line with Sierra García et al. (2012); Appuhami and Tashakor (2017) and Hassan et al. (2017) view that an independent AC chair encourages audit committees to strengthen monitoring, indicating higher diligence and scrutiny that improves audit quality.

Our findings indicate a significant negative relationship between the busyness of AC chair and audit quality. This outcome contrasts with the results of several studies, including those by Ferris et al. (2003); Sultana et al. (2019) and Yang and Krishnan (2005) which suggest that busy AC chairs positively influence firm performance due to the experience and reputation they gain from serving on multiple boards. However, our findings align with the perspectives of Carpenter and Westphal (2001); Méndez et al. (2015); Hoitash and Hoitash (2009) and Al-Matari (2022) which assert that excessive commitments can restrict the time an audit committee (AC) chair can devote to a particular firm. This limitation in oversight capacity can lead to a decline in audit quality due to the insufficient time available to adequately perform AC chair responsibilities. Our findings, which indicate a positive relationship between AC chair expertise and audit quality, are consistent with previous studies such as those by Zalata et al. (2018); Bhuiyan et al. (2020); Ghafran and O'Sullivan (2017); Kim et al. (2017) and Lai et al. (2017). These studies demonstrate that financial expertise enhances oversight and governance outcomes. The results suggest that the increased transparency and disclosures mandated by recent Saudi reforms have led to genuine improvements in governance. Specifically, AC chairs with financial expertise seem better equipped to understand complex transactions, critically assess financial reports, and demand more rigorous auditing. This underscores how regulatory changes can bolster oversight even in environments where concentrated family ownership might otherwise hinder board independence in Saudi firms.

In the context of Saudi Arabia, few studies examine the relationship between AC chair expertise and audit quality. In a study by Habbash and Alghamdi (2017) they analyze overall board financial expertise in Saudi firms without isolating the audit committee chairman's impact. This study addresses the research gap on how Saudi audit committee chairs' expertise influences audit quality. The findings suggest Saudi Arabia's 2017 reforms mandating enhanced transparency and disclosure of directors' credentials have filtered down to enable more informed evaluation of chairmen's capabilities. This appears to facilitate greater audit quality. The results conform to global survey evidence indicating audit committee chairs view expertise as essential for effectively leading oversight (Sultana et al., 2019).

The link between AC chair independence and improved audit quality aligns with numerous international studies that demonstrate how independence reduces conflicts of interest and enhances governance practices (Bruynseels & Cardinaels, 2014; Krishnan, 2005). Furthermore, research has validated that an independent AC chair is crucial for maintaining the quality and effectiveness of the committee’s operations, including responsibilities such as setting agendas, leading meetings, and coordinating with external auditors (Abernathy et al., 2014; Furqaan, Annuar, Hamdan, & Rashid, 2019; KPMG, 2019). However, concentrated family ownership typically limits board independence within Saudi firms (Habbash & Alghamdi, 2017). Yet, this study indicates independent Saudi audit committee chairmen still positively influence audit quality, suggesting independence remains a vital attribute enabling impartial oversight even in family-controlled firms. This implies the emphasis on transparency regarding directors' backgrounds and affiliations in Saudi Arabia's 2017 reforms has filtered down to improve monitoring effectiveness. However, the insignificant result for overall board independence aligns with evidence that merely satisfying regulatory requirements does not guarantee actual oversight when families still dominate Saudi boards (Habbash & Alghamdi, 2017). This demonstrates divergence between form and function, as appointments can meet independence rules yet lack monitoring substance. The results align with prior studies demonstrating benefits of independent AC chairs. For example, Bruynseels and Cardinaels (2014) show independent audit committees curb earnings management in Belgium. Krishnan (2005) finds independence is associated with appointing industry expert auditors in the US. These findings substantiate agency theory arguments about the vital monitoring role of an autonomous chairman (Fama & Jensen, 1983). Overall, this study demonstrates AC chair expertise and independence are key drivers of audit quality in Saudi firms, while busyness impairs effectiveness. The results provide nuanced insights into Saudi corporate governance dynamics, emphasizing the importance of assessing whether transparency reforms have improved substantive oversight.

7. CONCLUSION

This study examines the effects of AC chair characteristics on audit quality within Saudi Arabia. The findings indicate that both AC chair expertise and independence are positively associated with higher audit quality in Saudi firms. This aligns with other studies evidence on the oversight benefits of knowledge and autonomy (Bruynseels & Cardinaels, 2014; Krishnan & Visvanathan, 2008). However, busyness of the AC chair negatively impacts audit quality. This finding is in agreement with studies by Méndez et al. (2015); Hoitash and Hoitash (2009) and Al-Matari (2022) which indicate that directors holding multiple positions often cannot fulfill their responsibilities effectively due to limited time, resulting in a decrease in audit quality. The findings of this study address a significant gap regarding how AC chair characteristics may affect audit quality in Saudi Arabia's unique context. Specifically, the study examines the impact of the AC chair's busyness, along with their independence and expertise, on audit quality measured by Big 4. It also contributes to the field of corporate governance by empirically demonstrating how the characteristics of the AC chair can influence audit quality within a developing Middle Eastern context.

The results of this study provide valuable insights for Saudi regulators in improving corporate governance and enhancing the effectiveness of ACs to ensure high audit quality. Mandated disclosures regarding expertise and independence seem to have enhanced oversight in the Saudi context. However, the observed negative relationship between AC chair busyness and audit quality should raise concerns and pressure Saudi regulators to find solutions to mitigate this issue. The findings of this study can guide Saudi regulators in customizing reforms. By enhancing disclosures and mitigating busyness, they can improve monitoring to support high audit quality, as Saudi Arabia aims for transparent capital markets.

It also serves to inform stakeholders and investors about the reliability of audited reports from Saudi companies. These findings align with the objectives of Saudi Vision 2030, which aims to attract foreign direct investment by bolstering governance and transparency (Vision 2030, 2024). By clarifying the relationship between AC chair characteristics and audit quality, the study highlights a crucial aspect of the evolving governance landscape in Saudi Arabia. It enables investors to better assess the rigor of financial reporting oversight and the reliability of audited information based on the attributes of AC chairs. Several limitations of this study should be acknowledged. First, the sample was restricted to only two sectors (energy and materials) in Saudi Arabia, which may limit the generalizability of the findings. Second, audit quality was assessed using a single proxy—Big 4. Future research could explore additional proxies to provide a more comprehensive evaluation. Third, the focus on a single country, while beneficial for controlling institutional factors, may restrict the applicability of the results beyond Saudi Arabia. This approach has the advantage of maintaining constant national institutional contexts. Future studies could extend the analysis to other countries in the Middle East and Gulf region that share some institutional similarities but differ in regulations and governance. Overall, while the single-country focus has its merits, testing the generalizability of these findings in other contexts is an important direction for future research.

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