


Audit quality and accrual quality: Evidence from Saudi -listed firms



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ABSTRACT

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This research explores the association between audit quality and accrual quality. Drawing upon the self-interest perspective, previous theories on ownership and management contend that when shareholders are excluded from managerial responsibilities, it grants greater power to management, leading to potential benefits for themselves rather than prioritizing the interests of the business ownership, thereby influencing the firm's performance. The literature preceding this study suggests that auditors play a significant role in mitigating conflicts of interest between management and shareholders. By providing assurance engagement services, auditors positively impact the firm's accruals. This paper posits the hypothesis that clients benefiting from higher audit quality experience fewer agency problems, resulting in improved accrual quality for the firm. To test this hypothesis, the study collects data from the financial reports of non-financial Saudi firms listed on the Saudi Stock Exchange for the fiscal years spanning from 2015 to 2019. The paper employs various regression models, including random effect (RE) and Probit models, to assess accrual quality. Consistent with the expected outcomes, this paper reveals that firms audited by the Big four exhibit an accruals ratio of approximately 27.9% compared to firms audited by non-Big Four auditors. This paper contributes to the body of knowledge by showing the role of audit in the Middle East context in increasing firm's accruals, and investors can use the findings of this paper in their investment decisions.

Contribution/ Originality: This study increases knowledge regarding firms' accrual practices in Saudi Arabia, where there are a limited number of studies in the region. It also contributes to the development of models by linking the models of firms' accruals and auditors by applying a set of variables to examine how audits increase firms' accruals.

1. INTRODUCTION

The modern corporate landscape is characterized by a pivotal separation of ownership and management, with each faction being assigned distinct responsibilities and tasks. Management is chiefly tasked with fulfilling the organization's objectives, chiefly the maximization of owner wealth. The role of the owners is largely centered around providing financial capital, monitoring the organization's performance, and foreseeing the returns on their investment. However, this division of roles is not without its complexities. A divergence of interests often materializes between management and owners. The conflict of interest theory posits that managers, driven primarily by self-interest, can adopt practices that bolster their personal welfare, often to the detriment of the shareholders or the organization as a whole (Jensen & Meckling, 1976).

They might prioritize personal goals, such as career advancement or maximizing their pay, over aligning with the shareholders' objectives (Demsetz, 1983; Demsetz & Lehn, 1985). Indeed, managers can undertake risky projects, override controls, manipulate financial statements, and engage in other ethically questionable behaviors (Gay & Simnett, 2015; Hermanson, Smith, & Stephens, 2012). This prompts the implementation of various corporate governance mechanisms, including the appointment of an external auditor, to realign the interests of the managers with those of the shareholders (Cohen, Krishnamoorthy, & Wright, 2002; Johnstone & Bedard, 2001; Nikkinen & Sahlström, 2004; Sharma, Boo, & Sharma, 2008).

External auditors play a critical role in mitigating agency problems arising from self-interest among managers (Minnis, 2011; Minnis & Sutherland, 2017; Skaife & Warfield, 2003). They are mandated to review financial statements for their truth and fairness, ensure compliance with accounting standards and regulatory requirements, and assess the risk of management overriding internal controls (International Auditing and Assurance Standards Board, 2009a). Their vigilance helps in identifying manipulative practices in financial reporting and expressing these findings accurately in audit reports (Lopes, 2018).

However, there exists a disparity in audit quality, with auditors from larger partnerships demonstrating greater expertise, efficiency, and knowledge (Francis, Richard, & Vanstraelen, 2009). These auditors, equipped with industry-specific knowledge, are adept at assessing the reasonableness of accruals, identifying inaccuracies, and enhancing overall accrual quality. DeFond and Zhang (2014) define audit quality as the increased level of assurance that auditors provide in relation to financial reporting.

Prior studies demonstrate the relationship between audit quality and aspects like earnings management, fraud risks, and discretionary accruals. It shows that companies employing Big four audit firms are less likely to engage in earnings management (Imen & Anis, 2021; Lopes, 2018) have a lower occurrence of fraud (Chari, Belanès, & Lajmi, 2022; Humayun Kabir, Sharma, Islam, & Salat, 2011; Lajmi, Khiari, & Ouertani, 2021; Law, 2011), and have lower information asymmetry (Chang, D'Anna, Watson, & Wee, 2008; Cormier, Ledoux, Magnan, & Aerts, 2010; Kanagaretnam, Lobo, & Whalen, 2007). Furthermore, higher audit quality is associated with the reliable reporting of accruals (Becker, DeFond, Jiambalvo, & Subramanyam, 1998; Francis, Maydew, & Sparks, 1999) and a reduction in the manipulation of discretionary accruals (Krishnan, 2003). Furthermore, a large number of studies examine the relationships between auditor quality and firm performance and find that firms that contract with Big-Four audit firms measured by audit size have a better firm's performance measured by return on asset (ROA) and Tobin's Q (Ching, Teh, San, & Hoe, 2015; Farouk & Hassan, 2014; Fooladi & Shukor, 2012; Jusoh & Ahmad, 2013).

Drawing on these findings, this study posits that companies with a higher audit quality are likely to have a higher accrual quality. In other words, it assumes that when firms engage higher-quality auditors, it serves as a check on the opportunistic behavior of the management, leading to better accruals for the firm. The present study embarks on an uncharted journey by focusing its investigation on the Saudi Arabian market, setting it apart from previous studies such as Francis et al. (1999) and Francis and Wang (2008), which conducted their research in the U.S market, and Humayun Kabir et al. (2011) who examined the Bangladeshi market. Importantly, this research represents the first empirical exploration of the association between audit quality and accrual quality in the Middle Eastern context, specifically in the Kingdom of Saudi Arabia (K.S.A). The choice of K.S.A is informed by the country's rapid transformation under King Salman's leadership since 2015. Most notably, this transformation is characterized by the launch of the ambitious Vision 2030.

In order to conduct an accurate and robust examination of the relationship between audit quality and accrual quality, the selection of firms for this study's sample is subject to a strict set of criteria. These include, but are not limited to, the availability of comprehensive financial data, including audit and firm size metrics, and adherence to specified upper and lower ranges for all variables, and this set narrowed down the sample to 500 firm-year observations based on a balanced panel of data for the fiscal years ending between 2015 and 2019.

This study conducts a regression analysis of audit quality against accrual quality, utilizing multiple analytical methodologies, including pooled ordinary least squares (OLS), fixed effect (FE), and random effect (RE) models, as well as the Probit model. The results demonstrate a positive correlation between audit quality and the financial performance of the firm. This paper uses the pooled ordinary least squares (OLS) method and controls for firm characteristics to find that firms with higher audit quality have higher accrual quality ratios. These firms demonstrate an increase of 27.9% in their accrual compared to their counterparts. Furthermore, the research identifies a statistically significant inverse relationship between accrual quality (AQ) and cash ratios. The negative accrual quality coefficient suggests that firms with elevated accrual quality are more efficient in managing their cash policies and prevent unnecessary accumulation of cash. Comparable findings are presented when utilizing the fixed effect (FE) and random effect (RE) models.

These models illustrate a considerably significant positive influence of audit quality on accruals quality. Specifically, an audit quality coefficient of 0.283 (with a t-statistic of 0.058) indicates a 28% increase in accruals quality for firms audited by Big Four audit firms compared to their counterparts who engaged non-Big Four audit firms. The study further validates these results by applying the Tobit method. Specifically, an audit quality coefficient of 0.279 that is positive and statistically significant with respect to accruals quality is found with statistical significance at the 1% level. This statistical significance suggests that, with other factors held constant, firms with higher audit quality have a 27.9% improvement in their accruals. The outcomes of this study align with numerous academic investigations that substantiate the correlation between audit quality and a firm's performance, including that of its managers (Egbunike & Abiahu, 2017; Fooladi & Shukor, 2012; Francis et al., 1999; Humayun Kabir et al., 2011; Moutinho, Cerqueira, & Brandao, 2012). The structure of this paper is as follows: Section 2 features a comprehensive review of relevant literature and the development of the research hypothesis. Section 3 follows, which outlines the data used in the study. Section 4 outlines the research methodology employed. Subsequently, Section 5 articulates the empirical results and engages in a detailed discussion of these findings. Finally, Section 6 offers a conclusion to the research.

2. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

In modern companies, it has become imperative to separate ownership from management. After this separation, each of the two parties has different powers and tasks from the other. As for management, one of its most important tasks is to achieve the objectives of the establishment by maximizing the wealth of the owners. Owners, on the other hand, have the role of providing financial capital to the business in exchange for ownership or investment returns. Their role includes providing financing, monitoring the company's performance, and anticipating the return on their investment. As mentioned above, the role of management is to maximize the wealth of owners, but management is not always interested in maximizing the wealth of owners. This is because there is a conflict of interest. According to the conflict of interest theory, managers primarily act in ways that benefit or increase their own personal welfare (Jensen & Meckling, 1976; Ross, 1973).

In the context of corporate governance, self-interest theory suggests that managers may prioritize their own interests over those of shareholders or the organization. In addition, managers may pursue personal goals, such as maximizing their pay, career advancement, or job security (Jensen & Meckling, 1976; Ross, 1973), that do not align with shareholders' goals (Demsetz, 1983; Demsetz & Lehn, 1985). Managers may also engage in morally hazardous behavior, take excessive risks, or enter into high-risk projects as the funds do not belong to them (Grossman & Hart, 1982). Additionally, managers may adopt specific accounting and financial policies that make the financial statements appear better than they actually are in order to obtain bonuses, and executives may also override control (Gay & Simnett, 2015). Pursuant to International Standard on Auditing No. 450. A1 (ISA 450. A1), the observed activity constitutes a material misstatement. This can be attributed to several causes, such as: (a) errors occurring during the collection or computational procedures that feed into the financial statement preparation; (b) inaccurate accounting estimates emerging from oversight or gross misinterpretation of factual data; and (c) managerial judgements

pertaining to accounting estimates deemed unreasonable by the auditor or the adoption and implementation of accounting policies considered unsuitable by the auditor (International Auditing and Assurance Standards Board, 2009b).

In addition, Hermanson et al. (2012) find that managers of firms with weaker internal control override the firm's controls, and such firms are more likely to have fraud cases. To reduce agency problems arising from the self-interest of the directors, corporate governance mechanisms are implemented, including pointing out an external auditor to align the interests of the directors with those of the shareholders (Cohen et al., 2002; Johnstone & Bedard, 2001; Nikkinen & Sahlström, 2004; Sharma et al., 2008). Therefore, several studies and standards provide evidence of the role of the external auditor in reducing agency problems arising from managers' self-interest. For example, the auditor must express an opinion on the truth and fairness of the financial statements prepared by the managers with an applicable financial reporting framework (International Auditing and Assurance Standards Board, 2009c). This includes the auditor evaluating whether the financial statements comply with relevant accounting standards, such as International Financial Reporting Standards (IFRS), as well as regulatory requirements imposed by government agencies or industry regulations.

Auditors also must assess the risk of management overriding internal controls. This is because when management overrides internal controls, they can intentionally manipulate the recognition or timing of accruals to achieve desired financial results. For example, they may inflate revenue recognition or understate expenses to boost reported earnings. This manipulation can distort the true financial performance and position of the organization, making it difficult for users of financial statements to make informed decisions. This is consistent with previous research that argues that audits are effective in identifying and detecting practices aimed at manipulating financial results, and these findings are accurately communicated in the audit reports (Lopes, 2018). Furthermore, according to International Standards on Auditing No. 315, auditors' various procedures and techniques to identify potential misstatements or fraud in financial statements (International Auditing and Assurance Standards Board, 2009d). They assess the adequacy of internal controls, perform substantive tests, analyze transactions and accounting estimates to detect any material misstatements or irregularities (Cohen & Hanno, 2000; Skaife & Warfield, 2003). These procedures are more likely to provide reassurances to stakeholders, but the quality of auditors can vary (DeFond & Zhang, 2014).

According to Francis and Yu (2009) auditors who work in large partnerships (Big-Four audit firms) have higher efficiency, experience, and knowledge than others because of the income sources of those companies. The competence, experience, and knowledge of auditors greatly influence their ability to assess the reasonableness of accruals. Well-trained auditors with relevant industry knowledge are better equipped to understand the intricacies of a company's operations, transactions, and accounting policies. This expertise allows them to assess the accuracy and appropriateness of entitlements, thereby improving the quality of entitlements (Gay & Simnett, 2015). As a result of training, these auditors will have a higher ability to detect errors and fraud since such firms are likely to have a higher audit plan that includes rigorous testing procedures, including an assessment of internal controls and objective tests that can identify inaccuracies or irregularities in accruals, thus enhancing the overall quality of accruals.

Based on the above theory, the role of audit, and given the two conflicting perspectives on the impact of the separation of ownership from management, various studies establish the relationships between audit quality, earnings management, fraud risks, and discretionary accruals. For example, Lopes (2018) studied the influence of audit quality on earnings management. Similar to this paper, the author uses a sample consisting of 4723 companies from 2013 to 2015 and applies a multiple linear regression. The author finds that firms contracting with Big four audit firms have a lower level of earnings management as compared to companies using non-Big 4 audit firm. Similar findings are provided by Imen and Anis (2021) who argue that the quality of an audit plays a moderating role in the relationship between the audit opinion and earnings management. According to Healy and Wahlen (1999) earnings management occurs when managers exercise their judgment in financial reporting and transaction structuring to alter financial

reports. The purpose of this -wrongdoing- is either to deceive certain stakeholders regarding the actual economic performance of the company or to influence contractual outcomes that rely on reported accounting figures. Hence, through close monitoring of management action, Jensen (1993) it is less likely for the management to engage in such action.

With regards to the influence of audit quality on fraud risk, Chaari et al. (2022) investigate the effect of audit quality measured by audit fees on reducing fraud risk. After regressing a sample of 5,613 US-listed public firms, they find that firms with higher audit quality have less fraud occurrences. In addition, the study of Lajmi et al. (2021) aims to investigate how audit quality influences the probability of accounting fraud in companies listed on the Tunisian stock market from 2014 to 2018. Through logit panel regression analysis, the study demonstrates that two significant factors, namely the audit firm's affiliation with one of the Big audit firm and the rotation of external auditors, play a crucial role in mitigating instances of fraud. Li and Ma (2020) find that audit quality is negatively and significantly associated with financial misstatements, using a sample of Chinese firms. Furthermore, earlier papers discovered an inverse correlation between the enhanced quality of corporate governance exercised by external auditors and the probability of fraudulent activities transpiring within the corporation (Beasley, Carcello, & Hermanson, 1999; Law, 2011).

With regards to the influence of audit quality on discretionary accruals, Francis et al. (1999) argue about the significance of higher audit quality firms in ensuring the reliable reporting of accruals. They find that firms audited by larger audit firm exhibit higher levels of total accruals and tend to have lower amounts of estimated discretionary accruals. Similarly, Becker et al. (1998) examine the relationship between audit quality and discretionary accruals. The study reveals that firms audited by non-Big Six auditors exhibit higher mean and median values of the absolute value of discretionary accruals. This finding is similar to the results of Francis and Wang (2008) who used a large sample of 42 firms and found that abnormal accruals differ among big and non-big audit firms, while Krishnan (2003) found that discretionary accruals are greater for firms audited by the Big four. Similar to this paper, Humayun Kabir et al. (2011) argue that higher audit quality measured by auditor size increases the quality of accrual in Bangladesh. After using ordinary least squares regressions to regress 382 firm-year observations for fiscal years 2000-2003, they find that clients of Big 4 affiliates have higher absolute accrual estimation errors and have higher income-increasing accruals than clients of non-big four auditors.

The above results may indicate that the presence of larger audit firms may act as a reputational mechanism. These firms establish a reputation for providing high-quality audits and exercising strict oversight. As a result, managers of firms audited by Big 4 firms may feel greater pressure to adhere to accounting standards and regulations, knowing that any attempts to manipulate or engage in aggressive discretionary accruals may be scrutinized and identified during the audit process. This increased scrutiny and the potential consequences of reputational damage may deter managers from engaging in excessive discretionary accruals, leading to lower amounts of estimated discretionary accruals in firms audited by larger audit firms.

Based on the above discussion, this research expects firms with higher audit quality to have higher accrual quality; the opportunistic behavior of management is control, resulting in a better firm's accrual, which leads to the following hypothesis:

Hypothesis. Firms audited by higher audit quality have higher accrual quality.

3. DATA AND VARIABLES

3.1. Data

This study represents a pioneering endeavor conducted in the Saudi Arabian market, distinguishing it from prior research endeavors such as Francis et al. (1999) and Francis and Wang (2008) investigation in the U.S. market, and Humayun Kabir et al. (2011) examination in the Bangladesh market. Remarkably, this study is the first of its kind in the Middle East to empirically explore the association between audit quality and accrual quality. The research

specifically focuses on the unique context of the Kingdom of Saudi Arabia (K.S.A). The selection of the K.S.A setting is substantiated by King Salman's assumption of the throne in 2015 and subsequent comprehensive developmental endeavors, exemplified by the launch of the Kingdom's Vision 2030. The Vision 2030 entails multifaceted goals encompassing corporate governance enhancement, investor protection, financial market liberalization, promotion of competition, reduction of monopolistic practices, and the adoption of international auditing standards, among other objectives. These extensive reforms across various domains are anticipated to engender positive ramifications for the K.S.A. business environment. Consequently, the study's temporal scope encompasses the period in which these transformative reforms are introduced. The data for this study ends in the year 2019, given that COVID-19 began around this period of time and affected many aspects of life, including companies and their performance. Therefore, adding the years of COVID-19 is more likely to provide results that differ from those obtained before COVID-19.

To examine the relationship between audit quality and accrual quality, this research mandates the fulfillment of specific criteria by the selected firm sample. These criteria entail ensuring that the variables fall within the upper and lower ranges of all variables to mitigate the impact of extreme values on the dataset. Moreover, the sample must possess comprehensive data encompassing financial measurements as well as audit and firm size metrics. Additionally, the inclusion of firms listed in the Nomu - Parallel Market is avoided to maintain sample homogeneity. Furthermore, the selected firms must demonstrate data continuity throughout the designated sample period. As a consequence of adhering to these rigorous requirements, the initial sample of 150 firms is reduced to a final sample size of 100 firms for fiscal years ending 2015 – 2019. Consequently, the resulting dataset for analysis comprises a balanced panel, encompassing 500 firm-year observations.

3.2. Variables

Proceeding from the conflict of interest theory presented by Jensen and Meckling (1976) which argues that due to the presence of opportunistic behavior exhibited by company management, such as asset misappropriation, engagement in high-risk projects, and instances of fraud (Gay & Simnett, 2015; Grossman & Hart, 1982; Jensen & Meckling, 1976; Ross, 1973) the significance of effective corporate governance becomes paramount (Cohen et al., 2002; Johnstone & Bedard, 2001; Sharma et al., 2008). Within the corporate governance framework, auditors play a crucial role in curbing opportunistic behavior (Skaife & Warfield, 2003). They provide assurance services on financial reports prepared by management, evaluate the internal control environment, assess the risk of fraudulent activities, and engage in communication with investors (Lopes, 2018; Skaife & Warfield, 2003). These measures are expected to alleviate agency problems, particularly when auditors possess attributes such as experience, training, competence, and independence, all of which contribute to higher audit quality (DeFond & Zhang, 2014; Francis & Yu, 2009). Therefore, this research endeavors to examine the impact of audit quality on accrual quality. In doing so, the present study employs accruals quality as the dependent variable, utilizing the method proposed by Dechow and Dichev (2002).

To gauge the quality of accruals, this research entails deriving residuals from alterations in working capital and anticipated cash flow from operations. This is consistent with a number of studies, including Darjezi (2016) and García-Teruel, Martínez-Solano, and Sánchez-Ballesta (2009) who argue about the role accruals play in earnings. The primary independent variable under investigation is audit quality, which is operationalized using several proxies, including audit firm size, auditor experience, audit fees, auditor turnover, and auditors' independence (Humayun Kabir et al., 2011; Matoke & Omwenga, 2016; Rezee, Espahbodi, Espahbodi, & Espahbodi, 2012; Woodland, Reynolds, & Scholar, 2003). Building upon previous studies such as Becker et al. (1998), Francis et al. (1999) and Fooladi and Shukor (2012) this research adopts audit firm size as an indicator of auditing quality. Larger audit firms are presumed to possess greater expertise, competence, training, and independence in comparison to their counterparts (Francis & Yu, 2009). The binary variable is assigned a value of 1 if the auditor belongs to one of the Big four audit firms and 0

otherwise. Furthermore, to assess the influence of audit quality on accrual quality, this study incorporates a set of control variables.

These variables are derived from prior research in the domains of corporate governance, audit quality, earnings management, and accrual quality. The inclusion of control variables serves multiple purposes, including the reduction of potential bias by isolating the specific impact of audit quality on accrual quality. Additionally, these variables contribute to the generalizability of the findings as they help uncover underlying relationships that hold true across diverse populations or contexts. For example, regarding firm size, the proposition is advanced that large firms are more predisposed to encounter elevated agency costs, stemming from the breadth and expansion of their operations and commercial ventures. To elucidate, sizable corporations frequently engage in (1) multifarious business activities that are likely to span extensive geographic boundaries, (2) employ a voluminous workforce, (3) conduct a multitude of transactions, and (4) offer a broad array of products. These factors cumulatively impede the feasibility of exerting efficacious managerial control over all facets of the company's operations (Cho, 2002; Goodwin-Stewart & Kent, 2006). The control variables used in this paper include the firm's cash holdings (*CASH*), firm's size (*Size*), long-term debt (*LTDETA*), leverage (*LEV*), return on asset (*ROA*), and growth rate (*Gr*).

Table 1. Variable, notation, and definitions.

Variable name	Acronym	Definition and measurement
Dependent variables		
Accrual quality	<i>AQ</i>	Residuals from alterations in working capital and anticipated cash flow from operations
Independent variables		
Audit quality	<i>BIG</i>	Dummy variable, which takes the value of 1 if the audit firm is one of the Big 4 audit firms, and 0 otherwise
Control variables		
Firm's cash holdings	<i>CASH</i>	Long-term debt divided by firm total assets
Firm size	<i>F size</i>	Natural logarithm of total assets on the given firm at fiscal year-end
Long-term debt	<i>LTDETA</i>	
Firm leverage	<i>LEV</i>	Ratio of total liabilities to total assets
Return on assets	<i>ROA</i>	Firm net income by firm total assets at fiscal year-end
Growth rate	<i>Gr</i>	Rate in sales over the previous fiscal year minus 1

4. METHODS

This study posits the hypothesis that audit quality has a positive influence on the levels of accrual quality. Specifically, it proposes that firms engaging one of the Big four audit firms exhibit accrual quality. To measure accrual quality, this paper applies model (1) which is proposed by Dechow and Dichev (2002). The degree to which current working capital accruals match up with operating cash flows from previous, present, and future periods is a common way to evaluate the quality of accruals (García-Teruel et al., 2009). In this particular model, the regression analysis is employed to examine the relationship between current working capital accruals and cash flow from operations. The model investigates the impact of cash flows from the previous fiscal year (CFO_{t-1}), the current year (CFO_t), and the subsequent fiscal year (CFO_{t+1}) on current working capital accruals, with all values adjusted by average total assets. To determine the working capital accruals (WCA_{it}) for a specific firm i in year t , the following calculation is applied:

$$WCA_{it} = (\Delta CA - Cash - \Delta CL + \Delta Debt)$$

Here, ΔCA represents the change in current assets, *Cash* denotes the change in cash and cash equivalents, ΔCL signifies the change in current liabilities, and $\Delta Debt$ represents the change in short-term bank debt. The cash flow from operations for a specific firm i in year t , $t-1$, or $t+1$ can be computed using the formula:

$$CFO_{it} = NIBE - TA$$

NIBE is the net income before one-time items, and *TA* is the total accruals, which are found by dividing the difference between working capital accruals (WCA_{it}) and depreciation and amortisation expenses (Dep_{it}) for the same

time period. To find the deflation of the cash flow from operations and working capital accruals by average total assets, you divide the amounts by the average total assets for those times. The primary objective of this model is to examine the degree of alignment between working capital accruals and cash flows from operations in prior, current, and future periods. Through this analysis, the model assesses the quality of accruals.

Based on (1) the work of Verbeek and Nijman (1992) and Terrell (1999) (2) given the study's objective to establish a causal relationship between corporate governance mechanisms, namely audit quality, (3) the chosen mechanism of corporate governance (i.e., audit quality) is uncorrelated with other covariates included in the model, (4) the study incorporates longitudinal observations obtained over multiple time periods for the same firms, (5) the data adheres to the assumption of normal distribution, and (6) the dependent variable is continuous and unbounded, this research employs ordinary least squares regressions as the statistical method of analysis. This includes the use of the (OLS), fixed effect (FE), random effect (RE) model, and probit model as presented in Section 4.1 below. The use of these models is consistent with similar research. For example, Humayun Kabir et al. (2011) use ordinary least squares regression to study the influence of auditor size on accrual quality. In doing so, this paper proposes Equation 1 and 2 in Section 4.2 below. Details of the research methods are provided as follows:

$$(i) \frac{WCA_{it}}{AvgAsset_{it}} = \beta_0 + \beta_1 \frac{CFO_{i,t-1}}{AvgAsset_{it}} + \beta_2 \frac{CFO_{i,t}}{AvgAsset_{it}} + \beta_3 \frac{CFO_{i,t+1}}{AvgAsset_{it}} + \varepsilon_{it} \quad (1)$$

4.1. Models

WCA_{it} is working capital accruals of firm i in year t , CFO_{it} , CFO_{t-1} and CFO_{t+1} signify cash flow from operations of firm i in years t , $t-1$ and $t+1$. $AvgAssets$ is average total assets, and $Cash$ is calculated as the ratio of cash and marketable securities to total assets.

(ii) Audit quality and *accrual quality* (AQ): A linear regression & A Probit model

$$AQ_{it} = \alpha_0 + \alpha_1 BIG_{it} + \alpha_2 x_{it} + \Upsilon_t + \zeta_t + \varepsilon_{it} \quad (2)$$

Where AQ_{it} is the dependent variable used in the paper. It shows the quality of firm's accrual. BIG_{it} is the main independent variable, showing if a firm had its financial statements audited by Big four audit firms peers non-big four. x_{it} is a vector of control variables, including firm's cash holdings (*CASH*), firm's size (*Size*), long-term debt (*LTDETA*), leverage (*LEV*), return on asset (*ROA*), and growth rate (*Gr*). All variables are defined in Table 1. α_0 is the constant term; α_1 captures the effect of higher audit quality on accrual quality; α_2 captures the effects of the control variables on accrual quality; Υ_i captures the firm-fixed effect, and ζ_t captures the year fixed effect. The index i denotes individual firm-year observations ($i=1, 2, \dots, 500$), t denotes time period ($t = 2015, 2016, 2017, 2018, 2019$), and ε_{it} denotes the error term.

5. RESULTS

5.1. Descriptive Statistics

Table 2 encapsulates the descriptive statistics for the study's sample, including the mean, standard deviation, and the minimum and maximum values of all variables. The average accruals quality across the sample stands at 0.0001013, or 0.01%, with a maximum and minimum value of 2.060 and -2.038, respectively. Negative accruals within the sample may suggest that these firms struggle with meeting short-term liabilities relative to current assets. Such a scenario could be indicative of opportunistic managerial practices and might signal deficiencies in the firm's client evaluation policies, debt policies, and overall asset utilization. Conversely, positive accruals could reflect more effective asset utilization and transparent, high-standard practices for client evaluation and debt management.

The sample companies exhibit significant audit activity, with an average audit volume of 0.451. This suggests that nearly half of the companies in the sample are engaged with large audit firms, while the remainder contract with smaller audit firms. Consequently, the variable of firm audit size in the sample is roughly split between the Big four audits and non-Big Four audits, enhancing the normal distribution of the data. In terms of the Cash Asset Ratio, this

study employs the methodology established by Ozkan and Ozkan (2004) which calculates the ratio of cash and marketable securities to total assets. The average cash ratio across the sample companies is 0.193 (19.3%), with the minimum and maximum values being 0 and 1.913 (191.3%), respectively.

This could suggest a strong liquidity position among the firms. The average firm size, based on the logarithm of total sales, is 0.951, with the smallest and largest sizes being 0.036 and 1.050, respectively. This suggests that the firms within the study are relatively large. The average long-term debt to total assets ratio is 0.215 (21.5%), with a maximum of 4.9 (49%). This signifies that, on average, a company has 0.215 SAR of long-term debt for every SAR in assets. The average interest rate is 0.504 (50%), with the range spanning from 0.000 to 6.669. This indicates that the companies in the sample carry a high level of risk but may also show a propensity for expansion and new project initiation. The average Return on Assets is 0.030 (3%), with the minimum and maximum values being -0.350 and 0.451, respectively. This may reflect varying degrees of efficiency in asset utilization by firms' managers for profit generation. Finally, with an average growth rate of 0.746 (74%), it suggests that the firms in the sample are on an upward trajectory in terms of profit generation.

Table 2. Descriptive statistics.

Variable	Obs.	Mean	Std. dev.	Min.	Max.
AQ	500	0.000	0.393	-2.038	2.060
BIG	500	0.451	0.499	0.000	1.000
CASH	500	0.193	0.256	0.000	1.913
Size	500	0.951	0.036	0.775	1.050
LTDETA	500	0.215	0.500	0.000	4.915
LEV	500	0.504	0.841	0.000	6.669
ROA	500	0.030	0.157	-0.350	0.451
Gr	500	0.746	9.222	-1.000	128.117

Note: This table presents the descriptive statistics of all variables in the model. It reports means of individual variables, followed by standard deviation, minimum, and maximum values. The definition of variables is provided in Table 1.

5.2. Empirical Results

This section delineates and scrutinizes the empirical findings regarding the influence of audit quality on accruals quality, derived from a comprehensive sample of 500 observations listed on the Saudi Stock Exchange during 2015 to 2019. This study postulates that the divergence of ownership from management instigates corporate managers to potentially exploit the firm for personal gains. It further contends that auditors of higher quality are inclined to mitigate this managerial predisposition, courtesy of their supervisory and oversight capacities within the firm. To empirically validate this hypothesis, the study incorporates several methodologies, including Ordinary Least Squares (OLS), Fixed Effects (FE), and Tobit models. The respective findings are delineated in Panels A, B, and C. The OLS model, calculated using panel data and Stata 13 statistical data analysis software, demonstrates an adequate fit, with approximately 18% of the variance in accruals quality accounted for by the variance in the independent variable.

In line with Hypothesis 1, Table 3 elucidates a positive correlation between audit quality and accruals quality. Utilizing the OLS approach to pooled data, it is apparent that firms with higher audit quality exhibit enhanced accruals quality. Specifically, an audit quality coefficient of 0.279 is positively and significantly related to the accrual's quality, with statistical significance at the 1% level (column [1]). This signifies that firms with higher audit quality tend to have a better accruals quality ratio. Holding other factors constant, firms with elevated audit quality witnessed a 27.9% increase in their accrual's quality. This finding corroborates existing theories and prior research suggesting that auditors play a pivotal role in curtailing fraudulent activities, enhancing internal control quality, reducing managerial exploitation of firm assets, and ensuring the comprehensive accuracy of financial statements. These functions are likely to positively affect the firm's performance, including its accruals.

Furthermore, the study discerns a statistically significant negative relationship at the 1% level (column [1]) between accruals quality and cash ratios. A negative accruals quality coefficient of -0.270 implies that firms with

higher accrual quality exhibit more proficient monetary policy management and avoid unnecessary cash hoarding. Essentially, firms with higher audit quality tend to enhance their control environment through effective management oversight, which subsequently influences asset management and augments owner wealth. The study also finds the remaining control variables to be statistically insignificant with regards to accruals quality.

The study reassesses the findings utilizing the fixed-effect (FE) method. As opposed to the coefficient of 0.279 in column [1], column [2] demonstrates a stronger, more significant, and positive impact of audit quality on accruals quality. Specifically, an audit quality coefficient of 0.283 (with a t statistic of 0.058) indicates a 28% increase in accruals quality for firms with Big four audit compared to their counterparts that engaged with non-Big four audit firms. Concerning the cash ratio, the findings derived from the fixed effect (FE) method remain consistent with the OLS results, i.e., higher accruals quality correlates with lower cash ratios, with a cash ratio coefficient of -0.251 on accruals quality that is statistically significant at the 1% level with a t-statistic of 0.105. The study additionally reevaluates the findings using the Tobit method. The outcomes from this model echo the results presented in Panels A and B. Specifically, an audit quality coefficient of 0.279 is positive and significant with respect to the accruals quality, with statistical significance at the 1% level (column [c]). This statistical significance implies that - holding other factors constant - firms with higher audit quality have a 27.9% improvement in their accruals. Concerning cash ratios, Panel C reports similar outcomes to Panels A and B using the OLS or FE models, demonstrating a statistically significant negative correlation between accruals quality and the cash ratios.

Table 3. Estimates of audit quality on accruals quality.

Variable	OLS	FE	Tobit
	[1]	[2]	[3]
BIG	0.279*** (0.058)	0.283*** (0.058)	0.279*** (0.057)
CASH	-0.270*** 0.105	-0.251*** (0.105)	-0.269*** (0.103)
Size	-0.339 0.694	-0.207 (0.696)	-0.346 (0.683)
LTDETA	-0.063* 0.079	-0.049* (0.079)	-0.062* (0.078)
LEV	0.072** 0.048	0.060** (0.047)	0.071** (0.047)
ROA	0.040 0.179	0.027 (0.179)	0.040 (0.177)
Gr	-0.001 0.003	-0.002 (0.003)	-0.001 (0.003)
Intercept	0.236	0.081	0.329
Year effects	Yes	Yes	Yes
Industry effects	Yes	Yes	Yes
R-squared	0.2079	0.2153	0.201
Observations	500	500	500

Note: Panel A reports the main results of OLS estimation of Equation 2 on the relationship audit quality and accruals quality. Panel B reports the results of FE while panel (3) reports the results of Tobit estimation. Individual variables are reported in both Panels, followed by standard errors in parentheses. The dependent variable accruals quality and independent variable is audit quality. Standard errors are in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

6. CONCLUSIONS

This research set out to investigate the relationship between audit quality and accrual quality in the context of the Saudi Arabian market and provide valuable insights that affirm the existing theoretical framework while introducing important implications for practitioners and policy makers. This investigation of the aforementioned relationship holds significant scholarly and practical relevance due to the observed tendency among corporate managers to utilize their entrusted authority to further their personal interests, often disregarding the welfare of the company's owners (Jensen & Meckling, 1976; Jerzemowska, 2006; Ross, 1973). Because of this, auditors play a very

important role because they can make financial statements more trustworthy and reliable, which reduces agency problems (Lopes, 2018; Skaife & Warfield, 2003).

In order to empirically examine the association between audit quality and accrual quality, this study employs various analytical models and acquires financial data from the fiscal years 2015 to 2019, focusing specifically on Saudi listed companies. The findings of this paper support the study's hypothesis that there is a positive and statistically significant relationship between audit quality and accrual quality. It shows that firms with higher audit quality have better accrual quality ratios when using multiple robust regression analyses with pooled OLS, FE, RE, and Tobit models. Specifically, firms audited by Big four audit firms experience a substantial increase in their accrual quality – a remarkable 27.9% in comparison to their counterparts audited by non-Big four firms. This demonstrates the effective role that these auditors have played in reducing management opportunism, ensuring compliance with accounting standards, and ultimately helping to create a healthier, more accountable corporate landscape. It's been found before that audit quality raises the quality of accruals (Humayun Kabir et al., 2011) lowers the quality of earnings management and discretionary accruals (Becker et al., 1998; Francis et al., 1999; Imen & Anis, 2021; Lopes, 2018) and increases fraud cases (Chaari et al., 2022; Lajmi et al., 2021).

The negative correlation identified between accruals quality and cash ratios is also noteworthy. Firms demonstrating higher accrual quality seem to have more efficient cash management policies, thereby avoiding unnecessary cash accumulation. This finding illuminates the possible effects of accrual quality on firms' liquidity decisions, providing an avenue for future research. Moreover, the unique Saudi Arabian setting of this study contributes to the existing body of knowledge by offering the first empirical exploration of the audit-accrual relationship in the Middle Eastern context. This provides a new lens through which to examine this relationship, accounting for the socio-cultural and regulatory idiosyncrasies that characterize different global contexts. While this study provides new insights, it also invites further research.

Future studies could explore the interaction between audit quality, accrual quality, and other corporate governance mechanisms within Saudi Arabian or other Middle Eastern contexts. It would also be worthwhile to investigate if the relationship holds true across different sectors or varies with firm size, growth, and maturity. The results of this study underline the crucial role of audit quality in ensuring accrual quality, which further emphasizes the importance of engaging high-quality auditors in safeguarding corporate accountability and transparency. These findings have significant implications for corporate governance strategies, auditor selection processes, and regulatory frameworks not only within the Kingdom of Saudi Arabia, but potentially in other emerging economies as well.

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