EXTERNAL AUDIT QUALITY AND CLIENTS' CORPORATE GOVERNANCE MECHANISMS IN NIGERIA

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Abstract

This study examined influence of entity's corporate governance practices on independent external auditor quality, proxied with auditor industry specialization, in Nigeria. The explanatory research design was adopted. Data were sourced from annual reports and accounts of thirty five (35) quoted non-financial firms for 11 years from 2008 to 2018. Thereafter, panel regression analyses were employed as the estimating technique for the model specified. The empirical results revealed that independent external audit quality is positively influenced by the size of firm but negatively influenced by board Independence and proportion of female directors on board. Overall, aggregate explanatory variables as adopted in this study accounted for 50% changes in external audit quality. Though, these findings largely negate previous ones, they contribute to extant literatures and also provide further directions for future attempt at conducting research within emerging territories.

Keywords: *Audit quality, corporate governance, external audit, female gender, industry specialization*

JEL Classification: *M41; M42*

1. Introduction

There is no time auditing and accounting profession is under pressure to redeem its image than now. This apparent loss of confidence is consequent upon the loss of quality services rendered by its principal actors, that is, auditors. Okere, et. al. (2017) assert that an audited financial statement serves as a tool of information to the stakeholders and shareholders. However, the satisfaction of an audit service depends upon the quality of the audit which in turn determines the price paid/ payable. According to De Angelo (1981) cited in Soyemi, et. al. (2020), audit quality is described as the ability to detect misstatement and the willingness to report the irregularities uncovered during an audit engagement. It is a continuum which ranges between very low (poor) and very high (excellent). Audit provides users with credible financial report by verifying the accounting information prepared by the management. This can only be done if the audit quality is of high quality (Wisdom, et. al. 2018). Hence, any demand for audit quality is by extension a genuine quest for accurate and reliable financial information upon which the stock exchange operates. An effective corporate governance mechanism is an essential component, generally not only in terms of a nation's economic growth strategy, which is ultimately catered for through entrepreneurial activities of the firms, but also particularly in terms of investor confidence. Consequently, there is now an increasing call for tighter corporate governance control and reforms. Good corporate governance practices are essential, especially in developing and emerging nations as it brings about positive change and overall economic advancement. There is also evidence to suggest that good corporate governance promotes disclosure, transparency and accountability, variables which are said to be essential ingredients in promoting the affairs of many developing countries (La Porte, et. al. 2000). However, corporate governance practices require the various factors, tools, mechanism and process required to

oversee the overall activities of management incentive with that of the investor, for this role to be carried effectively by the management.

Corporate governance and audit quality are Siamese that influence financial reporting processes and the accuracy of the accounting information disclosed. There are copious studies [Ejeagbasi, et. al., (2015), Soyemi, et. al., (2017), Aribaba & Ahmodu (2017), Soyemi (2020)] relating corporate governance mechanisms to audit quality, with each studies having their own unique findings. Though, these findings are largely consistent with one another, there are a few inconsistencies noticeable. Besides, different proxies have been adopted to measure audit quality, among which audit fees and auditor are prominent. Industry specialization is another measure yet to be explored. Consequently, this study sought to examine the influence of corporate governance on audit quality, proxied with using Industry specialization among quoted non-financial firms in Nigeria. Studies that have done this are very scanty, especially in emerging economies. Nigeria provides a rich institutional context within which this type of study may be undertaken. Her corporate governance landscape is largely evolving as family-attachment is still prevalent, gender inequality on board appointments, lean board size and presence of a few financial literate on audit committees. In addition, the audit industry is largely populated with the international big4 audit firms in the light of very many indigenous professional practice firms spread across the country. There is little or no litigation risk as court cases against auditors are very scarce, perhaps, an out-of-court settlement may have been the order of the day. Furthermore, the Financial Reporting Council of Nigeria (FRCN) as industry watch-dog in charge of financial reporting processes and incidental matters share part of the blame. This agency may be too overwhelmed with its functions and duties. Unlike their activities in the wake of their establishment, for example, identification and publication of financial infractions and corporate governance breaches among entities like Alliance and General Insurance Limited/ Alliance and General Life Assurance Plc in its 2010 annual audited accounts, Stanbic IBTC Holding Plc on its accounts for years ended December, 2013 and 2014, etc., virtually nothing is heard of the agency. This is despite the existence of fines and penalties in FRC's annual accounts and audited accounts (2018 = N202.1 million, 2017 = N325 million, 2016 = N991.75 million, 2015 = N21.015 million, 2014 = N151.365 million). Beside the financial sector, there are noticeable corporate governance breaches in non-financial sectors as well. Cadbury Nigeria Plc, Oando and a host of others are prominent examples. In Cadbury's case, the Securities and Exchange Commission (SEC) imposed a fine of N21.2 million for overstating the company's accounts which was traceable to the duo of Chief Executive and financial executive director in quest to deceitfully achieve a target growth. With respect to Oando, SEC handed down varying sanctions ranging from monetary fines to suspension of key management executives as a result of corporate governance violations such as poor board oversight, irregular approval of directors' remunerations and abuses including false disclosures, internal control failures, etc. The auditors in both cases were sanctioned for providing poor cum low audit quality services. Consequently, a research of this nature on developing economy like Nigeria is not only desirable but necessary in other to provide empirical evidence towards explaining the influence of corporate governance mechanisms on audit quality.

The rest of this paper progresses as follows: next section, that is, section 2 reviews literatures related to the subject matter, section 3 and 4 discuss methodology and empirical results respectively, while section 5 concludes the paper.

2. Literature Review

Audit quality has continuously escaped an exact definition that may be universally applied in all circumstances. Dresdner & Fischer (2020) while providing explanation on this opine that it (audit quality) is more of a 'concept' rather than a 'term'. Knechel (2016) posits that it is hardly observable but may be measured. Christensen, et. al. (2016) provide a description of the concept from two (2) perspectives, namely auditors and investors, each listing preferred attributes before an audit engagement can be christened as qualitative. These among others are compliance with GAAS, accurate and reliable financial statements, efficient audit planning, etc (auditors); training skills, competency, independent, etc (investors). However, one of the most frequently used definition is that offered by DeAngelo (1981) cited in Soyemi, et. al. (2017) as 'the market-assessed joint probability that a given auditor will both (a) discover a breach in the client's accounting system and (b) report the breach'. While the latter is referred to as auditor expertise, the latter is known as auditor independence. Whereas, a generally acceptable definition seems difficult, there is a consensus on measures used in extant literature. According to Gana & Lajmi (2011) cited in Riguen, et. al. (2018) these measures among others include auditor size (auditor-type), audit opinion, audit lag, audit

specialization, audit tenure and audit experience. The choice of audit specialization as a measure of audit quality for this study is as result of paucity of studies where such was adopted. Therefore, there is a growing trend among scholars [(Sari, 2018); (Badawy & Aly, 2018); (El-Deeb & Hegazy, 2016)] on the use of audit specialization alongside its association with provision of excellent and quality audit services to clients. Unlike other measures of audit quality, audit specialization adopts market share of auditors' industry specialist using total assets as basis.

Audit quality is a basic ingredient in enhancing the credibility of financial statements to users of accounting information (Wallace, 2004). Audit function plays a crucial role not only to monitor managerial actions but also to create a better information environment as well as to provide a secondary source of assurance against corporate failures. Nasrudin, et. al. (2017) identify three (3) external enforcers of good governance namely auditors, corporate advisers and regulators. Therefore, auditors are required to give appropriate assurance through their opinions on whether the firms' annual accounts have been properly drawn up and in compliance with approved standards, and if they portray a true and fair view of the firms' affairs. The auditor is said to carry out the corporate governance role to monitor firm's financial reporting process and they often serve as a watch dog.

Corporate Governance

La Porte, et al (2000) describe corporate governance as structure and processes by which business and companies affairs are controlled and managed, in order to establish a long term value by enhancing the performances of the firm and accountability, while considering the interest of their shareholders. It is said to be effective if it has the capacity to provide a structure that can work for the benefit of stakeholders through strict adherence to ethical standards and practices. Thus, it is the structure through which the objectives of the company are set and the means of attaining those objectives and monitoring performance are determined.

Corporate governance is effective in monitoring whether the outcomes are in accordance with plans and to motivate the organization to be fully informed in order to maintain the activity of the organization. Strong corporate governance requires an effective board. The board is responsible for determining the company's aims and objectives and putting strategic plans and policies needed to fulfil those aims in place. The role of the board also involves leading and controlling the company and providing entrepreneurial leadership of the company within a framework of prudent and effective controls which allows for appropriate assessment and management of risk. According to Lincoln & Adedoyin (2012), there are four (4) main functions of the board, namely (a) set the goal for corporations (b) appoint corporate chief executives (c) oversight of management plans for the acquisition; and (d) organization of financial and human resources towards attainment of the corporation's goals and finally review of the corporation's progress towards attaining its goals. This is in tandem to the view expressed by Epstein & Roy (2006) which posit that the Board of Directors must provide superior strategic guidance to ensure the company's corporate governance and an effective board ensures growth and prosperity, accountability of the company to its stakeholders and ensure the creation of highly qualified executive teams tasked with managing the company. For a board to be effective, it must be independent, that is, there should be a separation of ownership from management and avoidance of been unruly influenced by vested interest and to be free from any constraint that would prevent a correct course of action to be taken. Although it is evidenced that the presence of an outside director within a board is not ideal although (He, et. al. 2013), they can be more effective in the area of monitoring and management and enhancing financial reporting quality. A board with independent members is objective in decision making and it improves the monitoring and controlling activities over management. Also, the board is less likely to be effective and functional in financial reporting oversight due to the coordination and communication problems among board members in the large boards. Thus, a small board may be more effective and functional in performing its duties (Jensen, 1993).

3. Empirical Review

A few scholarly works have been reviewed in this section. They are categorized into developed, developing economies as well as studies conducted within Nigerian context.

3.1. Evidence from Developed Economies

Quick, et. al. (2018) examines effect of corporate governance mechanisms on audit quality (proxied with auditor choice between big4 and non-big4 binary variable) among listed German firms. Secondary data comprising of 432 dataset for 5 years covering 2010-2014 was collected from annual reports and accounts. A logistic regression analysis was adopted to estimate the model specified for the study. While board size and frequency of audit committee

meeting displayed positive and significant relationship with auditor choice, frequency of board meetings and compliance with code of corporate governance exhibited negative and significant association. In the United States, Lai, et. al. (2017) examines the influence of female gender on board of directors and audit committees on audit quality (proxied with industry specialist auditors and audit fees). Data culminating into 9,392 firm year observations for 11 years spanning 2001 to 2011. Multivariate OLS was adopted to estimate the models stated for the study. Findings from this study provides empirical evidence that female diversity on the board and audit committee positively and significantly influence selection of industry specialist auditors and payment of higher audit fees.

Similarly, Ghafran & O'Sullivan (2017) conducts a comprehensive study on the effect of audit committee attributes on audit quality among FTSE350 companies in the United Kingdom. The study was based on a 991 firm/year observations as final sample comprises of a range between 246 (2007) and 249 (2010) as some companies were omitted owing to missing values. Data were gathered from various secondary sources ranging from companies' websites and DataStream. Findings from this study also support the hypothesis of direct relationship between corporate governance and audit quality. Specifically, audit committee expertise shows a positive and significant relationship with audit quality. However, this relationship was driven by non-accounting expertise. Drogalas, et. al. (2016) investigates the influence of governance mechanisms on internal control processes, a proxy for audit quality among companies listed on the Athens Stock Exchange. A survey methodology was adopted with questionnaire designed and administered. Thereafter, multiple regression analysis was conducted to estimate model for the study. The study provides evidence to support the influence of corporate governance attributes and audit quality as they exhibited positive and significant association with audit quality. Piot (2013) evaluates the impact of agency cost conflict (proxied with ownership diffusion and high Investment-Opportunity-Set) on audit quality (proxied with big6/non-big6, major national and local auditors) among listed French firms. The final sample of companies listed on the first and second tier of the Paris Exchange comprises of 285 observations. Findings from the study indicate a strong direct relationship between high Investment-Opportunity-Set and audit quality. There was no empirical evidential backing to the ownership-audit quality nexus among Fresh firms.

3.2. Evidence from Developing Economies

Widani & Bernawati (2020) examines the influence of corporate governance practices on audit quality as well as examining the moderating role of ownership concentration in the relationship thereof among 129 Indonesian quoted manufacturing companies for 2 years (2017-2018) were gathered from the selected companies' annual reports and accounts. Thereafter, moderated regression analysis was deployed as the estimating technique. Secondary data from 129 quoted manufacturing companies for 2 years (2017-2018) were gathered from the selected companies' annual reports and accounts. Thereafter, moderated regression analysis was deployed as the estimating technique. Results reveal no empirical evidence to support either the influence of corporate governance practices on audit quality or moderating role of ownership concentration, as none of the explanatory variables were significant. Sarhan, et. al. (2019) analyses the effect of corporate governance mechanisms (measured at country and firm levels) on audit quality (proxied with auditor choice and audit fees) among Middle Eastern and Northern African (MENA) countries. The final sample comprise of 20 non-financial firms listed on national stock exchanges of Egypt, Jordan, Oman, Saudi Arabia and UAE for 6 years from 2009 to 2014. This amounted to 600 data/firm observations. The stratified sampling technique was adopted. Both logit and OLS regression models were specified and estimated as appropriate. Findings from this study revealed an association between country-level corporate governance practices and audit quality. Board independence was positive and significantly related to engagement of big4 audit firm and payment of higher audit fees. Both logit and OLS regression models specified were significant and predicted 36% (pseudo R^2) and 72% of variations in audit quality across the MENA territories.

Further, Khudhair, et. al. (2019) examines the impact of corporate governance (internal and external) mechanism on audit quality (binary big4 versus non-big4) among listed non-financial Iraqi firms. Using firm/year observations of 168 comprising 42 Iraqi firms for 4 years (2014-2017), a logit model was specified and estimated as appropriate. Board size and audit committee independence displayed positive and significant association with audit quality. Firm size and leverage (control variables) also exhibited similar relationship with audit quality. With a pseudo R^2 value of 25%, the specified model was significant. AlQadasi & Abidin (2018) examines the twin-objective of substitute versus complementary role of internal corporate governance mechanisms and concentrated ownership on audit quality and whether these relationships are moderated by concentrated ownership. Secondary data composed of 544 listed non-financial Malaysian firms for 4 years covering 2009-2012 gathered from annual reports and Thomson financial

DataStream resident in the library of University Utara Malaysia was analysed using OLS with standard robust errors. This period tallies with massive reform era within the auditing environment. While there is strong evidence supporting a positive and significant influence of internal corporate governance and audit quality, ownership concentration exhibited negative and significant association with demand for audit services, indicative of a complementary role thereof. In addition, ownership concentration do not moderate this association in any way. Overall, the explanatory variables explain 68% of changes in audit quality. Suryanto, Thalassinos & Thalassinos (2017) provides empirical evidence as to influence of corporate governance on audit quality among listed Indonesian firms. Secondary data from 121 listed non-financial firms for 5 years from 2012-2016 were gathered from annual accounts of selected firms. Thereafter, logit model specified was estimated using multiple regression. While board size and audit committee independence exhibited negative and significant association, audit committee expertise, firm size and leverage (control variables) maintained a positive and significant relationship with audit quality. The model predicted 42% (pseudo R2) variations in demand for extensive services.

Using 73 developing countries across Africa, Asia, Europe, South America (excluding China, East Timor and Trinidad & Tobago), Beisland, Mersland, & Strøm (2015) investigates audit quality (proxied with big4 versus non-big4 binary and presence of internal control) and governance mechanisms (internal and external) among microfinance institutions (non-profit and otherwise). The probit model specified for the study was estimated using multivariate OLS for unequal/unbalanced 1,616 firm/year observations comprising 379 microfinance institutions for 9 years spanning from 2001 to 2009. Using big4/non-big4 dichotomous variable as proxy for audit quality, results reveal only CEO/Chair duality as negatively and significantly related with the model explaining 31% of variations in audit quality. Unlike, big4/non-big4 dichotomous variable, governance practices among studied MFBs appear positive and significantly related to audit quality. Both models are correctly specified explaining 31% and 20% (pseudo R2) of variations in audit quality respectively. Similar to other studies, Gajevszky, A. (2014) examines the effect of corporate governance attributes on audit quality among Romanian listed firms. Listed non-financial tiers I, II and III firms on the Bucharest Stock Exchange constitute the sample size for 5 years from 2008-2012. Thereafter, OLS was adopted as the estimating technique. A positive and significant relationship exist between existence of audit committee while a negative and significant association occur between CEO duality and institutional investors and audit quality. However, none of the control variables are related to audit quality. The model accounts for 34% differences in audit quality.

Shan (2014) examines the influence of internal corporate governance on audit quality among Chinese firms. 443 data/firm observations for 4 years (2002-2005) were gathered and analysed through OLS. A positive and significant relationship exist between foreign ownership and number of professional supervisors while a negative and significant association occur between board size and audit quality. Soliman & Abdel Salam (2013) conducts an investigation into the influence of corporate governance practices on audit quality among top 50 most active companies on the Egyptian Stock Exchange. Data on corporate governance measures such as board independence, CEO duality, audit committees, institutional investors and managerial ownership were gathered for 3 years from 2007-2009. The dependent variable being binary, logistic regression model was specified and estimated using OLS. With an adjusted R2 OF 84%, board independence and audit committee display positive and statistically significant association while CEO duality exhibited a negative and significant relationship with audit committee. However, there is no evidence linking institutional investors and managerial ownership with audit quality.

3.3. Evidence from Nigeria

Saidu, & Aifuwa (2020) examines board characteristics (board independence, size and female representation) as they affect audit quality among quoted manufacturing companies. A binary probit regression model was specified and estimated accordingly. Data comprises of 53 quoted manufacturing companies for 10 years from 2009-2018. Findings reveal that only board size appears positive and statistically significant in influencing audit quality. Further, female presence on the board do not play any moderating role in the relationship between board attributes and audit quality. In summary, the study concluded that board attributes do not influence audit quality. Ogoun & Perelayefa (2020) analyses the impact of board independence, proxied with CEO Duality on fostering excellent audit quality. Similar to other extant literatures, secondary data that are panel in nature were collected from 71 non-financial firms from 2008-2015. A logit model was adopted as audit quality was proxied with big4 versus non-big4 dichotomy variable. Overall, the model accounts for only 6% of changes in audit quality with board independence displaying a

negative and significant influence on demand for audit services. Soyemi (2020) provides empirical evidence as to the influence of internal corporate governance practices on choice of external auditor, proxied with the big4 versus non-big4 dichotomous variable. The specified model was estimated using a logistic regression on 27 purposely selected quoted non-financial firms for 7 years covering 2011-2017, culminating into 189 firm/year observations. Of the internal corporate governance variables selected, only board independence exhibited positive and significant relationship with demand for big4 auditors. A control variable, that is, firm size displayed similar results.

Using audit fees as proxy for audit quality, Mustapha, et. al. (2019) evaluates relationships among board independence, frequency of meeting and presence of female gender on the board thereof. Data were collected on 63 randomly selected quoted non-financial firms for 6 years running from 2012-2017. Multiple regression analysis was adopted to estimate the linear model specified for the study. The relationships between frequency of board meeting and presence of female directors on the board are positive and significant in relation to audit fees. Soyemi, Sanyaolu, & Salawu (2019) examines to what extent would corporate governance practices influence audit quality. Data were gathered from annual reports and audited accounts of 21 non-financial firms for 6 years covering 2012-2017. Thereafter, OLS regression was adopted to estimate the specified model. Hinged on the fixed effect regression estimates, the results reveal that board and audit committee independence exhibited negative and significant relationship with audit report lag, invariably, audit quality. Overall, the model explained 61% of total changes in audit report lag. Asiriuwa, Aronmwan, Uwuigbe, & Uwuigbe (2018) examines influence of audit committee attributes on audit quality among quoted non-financial firms. Data from a sample of 50 firms for 3 years, from 2012 to 2014 were collected from annual reports and accounts. Thereafter, logit model was estimated to determine the extent and significance of the relationship between audit quality and audit committees. Of the three (3) selected attributes of audit committee, only size of audit committee displays positive and significant relationship with the demand for audit services.

Aribaba, & Ahmodu (2017) analyses the effect of corporate governance measures (board diligence, board independence, ownership concentration and managerial ownership) on audit quality, represented by audit fees. Secondary data were collected on 25 quoted non-financial firms for 6 years from 2011 to 2016 using their audited financial statement. The panel OLS was adopted to estimate the model for the study. Results reveal positive and significant relationship between board diligence and audit quality. Other measures of corporate governance do not display any significant association. Further, the specified model succeeded in explaining 59% of differences in audit quality. Focusing on the banking industry, Ejeagbasi, et. al. (2015) investigates the effects of corporate governance on audit quality, represented by the big4 versus non-big4 binary variable. Secondary data were gathered from annual reports and accounts of 11 commercial banks for 7 years (2007-2014). Thereafter, analysis was conducted using linear correlation with correlation coefficients taken as measure of association. Except for board composition, all other explanatory variables exhibited positive and significant association with audit quality. Overall, 38% variations in audit fees were owing to selected aggregates of explanatory variables for this study. Chukwunedu & Ogochukwu (2014) investigates perceptions of board effectiveness and their influence on audit quality. The survey method was adopted as sample size comprises of 52 of 300 chartered accountants that were expected in the Eastern zonal accountants' conference in 2013. Thereafter, a ranking approach and ANOVA were deployed. Overall, the paper provides empirical evidence on the positive and significant influence of board attributes effectiveness and audit quality with board diligence ranking high towards improving board effectiveness.

4. Theoretical Framework

The applicable theory for this work is the agency theory. The agency theory is most relevant to this study due to its link with corporate governance and audit. The board of directors are principal agents while owners, who have contributed resources, are principals. Therefore, focusing on board attributes such as size, independence, gender alongside its committees and their relationship with audit quality, as done in this study clearly justifies the adoption of agency theory. Audit(or) is a principal tool adopted by the principal to assist in reducing information asymmetry problem arising from the agency theory. Prior studies have extensively used the agency theory to explain the need for contractual relationship between shareholders and management. [Soyemi, Olufemi & Adeyemi (2020), Wisdom, Love et al (2018) Nasrudin, Mohamed & Shafie (2017)]. The agency theory provides a link with corporate governance that points that separation of ownership and control and the widespread of ownership. This agent possesses the required professional skills in the area of managing the corporation. Jensen and Meckling (1976)

describe agency theory has a legal fiction which serves as the link for contractual relationship among agent and principal whose aim is to maximize their interest. The activities of the firm arises as it delegate its activities and on mandate relationship which lead to principal and agent problem and information asymmetry. The need for this theory arises from the conflict between shareholders and managers (Watts & Zimmerman 1983) as a result of exertive conduct and opportunistic behavior displayed by the agent. The theory state that once principal assign duties to the agents, they often have problem controlling them because there seems to be a conflict of interest, where the goal of the agent differs from that of the shareholders and because the agents are better informed about the capacity and activities than the principal. Agency theory focuses on the ways principal tries to mitigate the control problem by selecting forms of monitoring and controlling their actions. A principal way is audit, where an independent external auditor is engaged to report on the credibility of financials rendered by management.

5. Data and Methods

This study adopted an ex-post facto research design since it is based on quantitative description of historical financial data. The population for this study includes 63 non-financial firms listed on the Nigerian stock exchange that are active and whose stocks are being traded and renders annual published report as at 31st December 2018. Thirty-five 35 firms, representing 56%, were chosen as sample for 11 years from 2008-2018 culminating to a total observation of three hundred and eighty-five (385) firm/year dataset.

5.1. Measurement of Variables

Table 1 provides definition and measurement of the dependent and independent variables as used in the study.

Table 1: Measurement of Variables

Variable	Definition	Measurement	Source(s)
Dependent Variable (Audit Quality)			
Variable	Definition	Measurement	Source(s)
IS	Industry Specialization	The market share of the audit firm measured by total assets divided by the total asset of firms in a specific industry multiplied by 100	Lai, et. al. (2017), Akhidime (2015)
Independent Variables (Corporate Governance)			
Variables	Definition	Measurement	Source(s)
BS	Board Size	The total number of board members on the board	Saidu, & Aifuwa (2020), Khudhair, Al-Zubaidi, & Raji (2019), Suryanto, Thalassinos & Thalassinos (2017), Beisland, Mersland, & Strøm (2015).
BI	Board Independence	Measured as the total number of independent and/or non-executive director divided by the total board size	Ogoun & Perelayefa (2020), Sarhan, Ntim, & Al-Najjar (2019), Ghafran & O'Sullivan (2017)
SAC	Size of Audit Committee	The total number of members in the audit committee	
IO	Institutional Ownership	A dichotomous variable that takes the value of 1 if the largest shareholder is an institution and 0 if otherwise	Soyemi (2020), AlQadasi & Abidin (2018), Gajevszky, A. (2014)
SGS	Share of gender on board	The total number of female directors on the board divided by the board size	Quick, et. al. (2018), Lai, Srinidhi, Gul & Tsui, (2017)
LEV	Leverage	The ratio of total liabilities of the firm to total assets	Soyemi (2020), Khudhair, Al-Zubaidi, & Raji (2019), Suryanto, Thalassinos & Thalassinos (2017), Akhidime (2015)

TA	Total Asset	The natural logarithm of a firm's total assets	Soyemi (2020), Khudhair, Al-Zubaidi, & Raji (2019), Suryanto, Thalassinos & Thalassinos (2017)

5.2. Model Specification

The study model was adapted from Karaibrahimglu (2013). Unlike that of Karaibrahimglu (2013), this study uses 5 measures of corporate governance and 2 control variables to assess their impact on industry specialization dimension of auditor choice of non-financial firms in Nigeria. The functional representation form of the linear relationship between the independent and dependent variable can be presented as follows:

$$IS_{it} = \beta_0 + \beta_1 BSIZE_{it} + \beta_2 BIND_{it} + \beta_3 IO_{it} + \beta_4 SAC_{it} + \beta_5 SGS_{it} + \beta_6 LEV_{it} + \beta_7 TA_{it} + \pounds_{it} \text{ ------------- 1.1}$$

Where: IS   = Industry Specialisation
BSIZE   = Board size
BIND   = Board independence
IO   = Institutional ownership
SAC   = Size audit committee
SGS   = Share of gender on supervisory board role.
TA   = Total assets
LEV   = Leverage
$\pounds$ = Error term

The panel OLS is the estimation technique that is adopted to estimate the model as specified for this study. The regression was conducted for pooled, fixed and random effects and formal test criteria were as carried out for selecting the estimates upon which this present study was based.

6. Results

This section presents the descriptive statistics for continuous variables of the data used for the study. The results of the descriptive statistics are presented in table 2.

Table 2: Descriptive Statistics for Continuous Variables

Variables	Mean	Std. Dev.	Min.	Max.
IS	17.2130	23.7366	0.18	100
BSIZE	9.1220	2.4448	3	17
BIND	17.5571	23.9737	0	80
SAC	5.6623	0.9102	2	8
SGS	12.3977	14.4947	0	91
LEV	2.1705	2.1077	0.5210	20.0438
FSIZE	N63,700,000	111,000,000	N585,298	N645,000,000

Source: Data Analysis Output (Stata 15)

The average value for the Industry Specialization (IS) is 17.21%, with a standard deviation of 23.73, with 0.18 and 100 as respective minimum and maximum values. The board size displays an average of 9 members, with a standard deviation of 2.44, while the minimum and maximum values stood at 3 and 17 respectively. This reveals that among sampled non- financial firms, the average number of directors on board is 9 which range from 3 to 17 directors. In a similar vein, 18% or 2 directors were independent, non-executive with a standard deviation of 23.97 and a range

between 0% (minimum) and 80% (maximum). The total number of members comprising the audit committee (SAC) amounts to 6, with a standard deviation of 0.9102, while having 2 and 8 as the minimum and maximum values respectively. The Share of Gender on Board (SGS) has an average mean of 12 percent, with a standard deviation of 14.4947, while 0% and 91% are the respective minimum and maximum values. This findings support previous studies from Lincoln & Adedoyin (2012). This may be as a result of so many factors such as traditional and cultural factors.

As regards the control variables, leverage (LEV) displays an average value of 2% with a standard deviation of 2.108. It ranges from 5% and 20% being the respective minimum and maximum values. The firm size, proxied with total assets (TA) displays a mean value of N63.7 million, with a standard deviation of 111, 000,000 while having N585,298 and N645 million as the minimum and maximum values respectively. In other to reduce the magnitude and huge range noticeable in the dependent variable (industry specialisation) and total assets (a measure of firm size), the natural logarithms were computed and adopted for multivariate regression purposes. Table 3 further presents the descriptive statistics for the only categorical variable, which is institutional ownership, used in this study.

Table 3: Descriptive Statistics for Categorical Variable

Institutional Ownership (INST_OW)	Frequency	%	Cum. %
0	50	12.99	12.99
1	335	87.01	100.00

Source: Data Analysis Output (Stata 15)

Of the 385 data/firm observations, 335 (87%) show the presence of institutional owners while there were absence of institutional investors in 50 observations (13%). According to DeFond et al., (2000), this circumstance of monopolist shareholding has essentially usually led to poor corporate governance practices and raised serious concerns by investors, professionals, regulators and the public. This is typical of the corporate environment in Nigeria, as reported by Soyemi, et al (2020).

7. Correlation Analysis

Table 4 displays the correlation matrix among variables used in the study. First is the association of industry specialization and independent variables and second, the association among independent variables.

Table 4: Correlation Matrix

	lnIS	BS	BI	SAC	SGS	IO	LEV	lnTA
LnIS	1.000							
BS	0.281	1.000						
BI	-0.016	0.132	1.000					
SAC	0.141	0.441	0.155	1.000				
SGS	0.016	0.122	-0.090	0.143	1.000			
IO	0.052	0.092	-0.132	0.061	0.077	1.000		
LEV	-0.205	0.045	-0.044	0.088	-0.117	0.032	1.000	
lnTA	0.649	0.412	0.052	0.182	0.058	0.178	-0.153	1.000

Source: Data Analysis Output (Stata 15)

From table 4, it is evidenced that board size (BS) is positively correlated with industry specialization at 1% level of significance. Board independence (BI) is negatively correlated with industry specialization but not significant. Size of audit committee (SAC) is positively correlated with industry specialization at 1% level of significance. Share of gender on board (SGS) is positively correlated with industry specialization at 5% level of significance. Institutional ownership (IO) is positively correlated with industry specialization, but not significant. Leverage (LEV) is negatively correlated with industry specialization at 1% level of significance. Total assets (TA) are positively correlated with

industry specialization at 1% level of significance. In addition, none of the correlation coefficients are large enough to pose a multicolinearity problem.

7.1. Variance Inflation Factor (VIF)

Further, Table 5 presents the Variance Inflation Factor (VIF) for explanatory variables used in this study. This is to corroborate the absence of the incidence of multicolinearity as seen in table 4.

Table 5: VIF Estimates

Variable	VIF	1/VIF
BS	1.47	0.679
SAC	1.29	0.777
LnTA	1.28	0.779
LEV	1.07	0.931
BI	1.07	0.933
SGS	1.06	0.939
IO	1.06	0.941
Mean VIF	1.19	

Source: Data Analysis Output (Stata 15)

With an average VIF value of 1.19 and VIF for individual explanatory variables ranging from 1.06 (IO) to 1.47 (BS), alongside TV also between 0.679 (minimum) and 0.941 (maximum), it is further confirmed that there is no multicolinearity problems among the independent variables.

7.2. Multivariate Regression Analyses

Table 6 presents the estimates for the multivariate regression analyses for pooled as well as fixed and random effects.

Table 6: Multivariate Regression Results for Pooled, Fixed and Random Effects OLS

Variables	Pooled		Random		Fixed	
DV=lnIS	Coef.	t-value	Coef.	z-value	Coef.	t-value
BS	0.177	0.62	-0.011	-0.51	-0.018	-0.80
BI	-0.005	-1.98***	-0.005	-2.22**	-0.005	-2.18**
SAC	0.079	1.10	0.104	1.36	0.097	1.20
SGS	-0.005	-1.18	-0.005	-1.55	-0.005	-1.48***
IO	-0.304	-1.72***	-0.005	-0.02	0.048	0.16
LEV	-0.086	-3.04*	-0.017	-0.94	-0.014	-0.79
LnTA	0.599	14.47*	0.364	9.02*	0.330	7.81*
Const.	-8.159	-11.66	-4.478	-5.35	-3.856	-4.38
Adj. R^2	0.435		0.495		0.484	
F/Wals (p-value)	43.18 (0.000)		90.80 (0.000)		9.88 (0.000)	
L-M test	941.27 (0.000)					
Hausman test			12.36 (0.0894)			

Source: Data Analysis Output (Stata 15)

First is the determination of the estimates upon which the study is based. There are three models (pooled, fixed and random effects), each with its estimates. The L-M test assists in comparing the pooled and random effects, while the Hausman test compares fixed and random effects. Specifically, while the L-M test (941.27; $p<0.05$) indicates support for random effects, Hausman test (12.36; $p>0.05$) supports random effects but also may be interpreted as being in

support of fixed effects (12.36; p<0.1). Therefore, both the fixed and random effects are valid estimates for this study. Though, both have closely similar results.

The adjusted R2 is 50% (48% for fixed effects) indicating that 50% changes in industry spaecialisation is influenced by the totality of the explanatory variables as contained in this paper. The Wald chi2 value is 90.80; p>0.05 (9.88; p>0.05 F-statistic for fixed effects), being significant at 5% level, showing that, the models are adequate and correctly specified. As regards individual explanatory variables, board size, board independence, proportion of female directors on board, institutional ownership and leverage displayed negative influence on industry specialization while size of audit committee and firm size exhibit positive relationship. However, only that of board independence (-0.005; p<0.1) and firm size (0.364; p<0.05) are statistically significant with proportion of female directors on board (-0.005; p<0.05) added under fixed effects.

7.3. Diagnostics Tests

Table 7 shows the results of heteroscedasticity tests computed.

Table 7: Heteroscedasticity Tests

Bresch-Pagan/ Cook-Weisberg Test for Heteroscedasticity	
Ho	Constant variance
Variables:	Fitted values of lnIS
$Chi^2(1)$	109.86
Prob> Chi^2	0.0000
White Test for Heteroscedasticity	
Ho	Homoscedasticity
Hi	Unrestricted Heteroscedasticity
$Chi^2(34)$	223.06
Prob> Chi^2	0.0000

Source: Data Analysis Output (Stata 15)

Both Bresch-Pagan/ Cook-Weisberg and White Tests indicate presence of heteroscedasticity. To surmount this, the robust multivariate regression analyses for pooled, fixed and random effects OLS was computed. The estimates are as presented in table 8.

Table 8: Multivariate Regression Results for Pooled, Fixed and Random Effects OLS (Robust)

Variables	Pooled		Random		Fixed	
DV=lnIS	Coef.	t-value	Coef.	z-value	Coef.	t-value
BS	0.177	0.73	-0.011	-0.50	-0.018	-0.73
BI	-0.005	-1.89***	-0.005	-2.48**	-0.005	-2.41**
SAC	0.079	1.02	0.104	0.86	0.097	0.76
SGS	-0.005	-1.22	-0.005	-1.22	-0.005	-1.17
IO	-0.304	-1.23	-0.005	-0.02	0.048	0.64
LEV	-0.086	-4.80*	-0.017	-0.92	-0.014	-0.75
LnTA	0.599	12.70*	0.364	7.70*	0.330	5.03*
Const.	-8.159	-9.02	-4.478	-4.42	-3.856	-3.14
R^2	0.445		0.495		0.484	
F/Wals (p-value)	56.65 (0.000)		87.68 (0.000)		8.64 (0.000)	

Source: Data Analysis Output (Stata 15)

The results as shown in table 8 clearly show one of the great advantages of panel data as it has both time and cross sectional dimensions. This is evidenced in the estimates as they appear not to be significantly different from the non-robust estimates, alongside adjusted coefficient of determinations and number of statistically significant variables.

While that of random effect mirrors that given in table 6, the proportion of female directors on the board (-0.005; p>0.05) is dropped as in the case of fixed bringing the results mimicking each other. However, errors are greatly reduced.

7.4. Discussion of Findings

While the findings from this study appear to be consistent with previous scholarly works, there are notable inconsistencies, as well. First, it is noteworthy to state that estimates from both fixed and random effects are valid, depending upon their p-values which fall within acceptance regions of 0.05 and 0.01 respectively. Consequently, board independence and proportion of female gender are inversely and significantly related to the engagement of industry specialists. This is in addition to firm size (though a control variable) that exhibited a positive and significant association with audit quality.

On the presence of independent, non-executive directors on boards of entities, this is consistent with findings from Nigerian studies such as Ogoun & Perelayefa (2020), Soyemi, et. al., (2019) and Ejeagbasi, et. al., (2015). These studies adopted audit fees, audit report lag and big4/non-big4 as proxies for audit quality respectively. Besides, a few others conducted from other jurisdictions that reported similar results include Chintrakarn, et. al. (2017) in the US and Khalil & Ozkan (2016) within Egyptian context. This position can be justified on the premise of agency theory that maintains that as a result of the separation between ownership and management, management tends to pursue their objectives which typically contradict that of shareholders. Nevertheless, there are inconsistencies with studies conducted by Soyemi (2020), Sarhan, et. al., (2019), Ghafran & O'Sullivan (2017), Soliman & Abdel Salam (2013). While Soyemi (2020) and Soliman & Abdel Salam (2013) are studies conducted within Nigerian and Egyptian contexts, Sarhan, et. al., (2019) involve Middle East and North African (MENA) countries of Egypt, Jordan, Oman, Saudi Arabia and United Arab Emirates (UAE). These studies found positive and significant relationship between board independence and audit quality. However, Saidu, & Aifuwa (2020) and Widani & Bernawati (2020) reported no significant relationship on audit quality.

Recently, the need to appoint female directors on the supervisory board of directors became trendy, hence attracting scholars' attention (Lai, Srinidhi, Gul & Tsui, 2017). This study found a negative and significant influence of female directors on engagement of industry specialist auditors, hence audit quality. Though a rare position evidenced in literatures (Lai, et. al., 2017) except as reported by Bhuiyan, Rahman & Sultana (2020) who reports a negation of positive impact of female directors whose image is tainted. No doubt, this may be a pointer for further research, especially within Nigerian context. These findings contradict that from studies such as Quick, et. al. (2018), Mustafa, et. al., (2017) and Lai, et. al. (2017). While audit quality was measured with choice of auditors in the former, audit fees and industry specialization (similar to the present study) are proxies adopted by the latter to whom gender diversity was positive and significantly related.

Regarding control variables, this study also included capital structure (leverage) and size (total assets) of firms in the model specified for estimation. Only firm size exhibited positive and significant association with audit quality. There seem to be consensus on this area as many previous studies tend to report similar findings with abysmal few reporting a contrary view. These include Ogoun & Perelayefa (2020), Soyemi (2020), Sarhan et al (2019), Khudhair et al (2019), Ghafran & O'Sullivan (2017), Suryanto et al (2017) and Gajevszky (2014) to mention a few. This trend is not surprising as audit engagement is largely documented to have been related to size, complexity and risk [Soyemi (2015a), Soyemi (2015b), Kikhia (2015)]. However, there were inconsistencies as reported in study by Quick, et al (2018).

8. Conclusions

The study examined effect of corporate governance practices on audit quality, proxied with industry specialization among quoted non-financial firms in Nigeria. The study revealed that engagement of industry specialist auditors is negatively influenced by board independence and proportion of female directors on board but positively influenced by size of the firm. No doubt, this paper has provided further empirical evidence towards understanding the nexus between audit quality and corporate governance practices, thereby contributing to extant literatures, especially with respect to developing economies. In addition, these findings have theoretical and practical implications. The agency theory is the underlying theory for this study. It proposes an existence of information asymmetry owing to separation between management and shareholders, hence, tactically recommends the engagement of tools and techniques (for

example, audit) to reduce the incidence of information asymmetry. While findings from this study appear to be inconsistent with agency theory, plausible evidence is provided in support of the hypothesis that individual firms choose their ideal board composition depending upon varying mechanism adopted in managing their agency conflict. However, there are a few limitations which may hinder the overt generalisations of findings therein. These may also indicate direction for future studies in this area. First, the proxy adopted to measure audit quality, that is, industry specialisation. This is a rare measure, unlike audit fees and big4 versus non-big4 auditor-type, which is often used in extant literatures. In fact, this paper appears to be one of the few that is adopting such measure, especially in emerging economies like Nigeria. Second, the Nigerian context characterized with emerging corporate governance landscape, existence of low appointment of female gender into corporate boards, high family-tied corporations (despite public quotations) and low litigation risk for auditors. Lastly, the attendant limitations associated with estimation techniques adopted herein, though efforts were made to surmount a few, but a total absence may not be possible.

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