

The Moderating Effect of Institutional Shareholders on the Relationship between Board Attributes and Auditor Selection among Listed Financial Service Firms in Nigeria

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Abstract

The study examines the moderating effect of institutional ownership on the relationship between board attributes and auditor selection among listed financial service firms in Nigeria. It investigated whether institutional shareholding moderate the relationship between board size, board independence, board gender diversity, board meeting attendance and auditor selection among listed financial firms in Nigeria. The study used secondary data extracted from the published financial statements of the sampled firms for the period 2007 to 2020. The population of the study consists of 53 listed financial service firms in Nigeria. The study adopts correlational research design using logistic regression as a tool of analysis. This study presents evidence that higher levels of institutional ownership strengthen the effect of board attributes (gender diversity and board meeting attendance) on auditor selection. Hence, the result implies that managers may face stringent monitoring when institutional investors, board gender diversity and board meeting attendance interacts. Such superior monitoring may compel managers to consider hiring an industry specialist auditor to audit the firm which leads to boosting the firm' value. The finding of this investigation has an important policy implication on enhancing sound corporate governance practices, particularly for firms operating in developing countries where the market for corporate control is ineffective.

Keywords: Auditor selection, Board attributes, Logistic Regression, Listed Financial Service Firms, Nigeria.

1.0 Introduction

The agency theory explicitly explains why monitoring mechanisms of external auditors and corporate governance are necessary in protecting the interest of shareholders of listed companies. This is principally due to the fact that they do not participate in day-to-day operation of a company, they solely depend on managers that appointed to manage company's operations. However, managers may not always act in the best interest of shareholders, this singular act of managers justified the need of a monitoring mechanisms in forms of a sound corporate governance and hiring a reputable external audit firm in order to safeguard the shareholder's interest. One of the corporate governance mechanisms is the oversight function of board on the integrity and reliability of financial statements as well as the quality of the external audit firm that provided the audit services which in essence mitigated or significantly reduced agent-principal conflict related issues. Therefore, it is expected that the probability of accounting frauds and window dressing will be equally eliminated or reasonable minimized.

The users of financial statements relied on the independent, professional and objective opinion of auditors in making their decision. This reliance is primarily based on the confidence which users have on the monitoring mechanisms in place which facilitate the selection of effective audit team. Auditor selection plays a crucial role in determining the quality of audit work and the quality of company's financial statements. The accounting literature posits that a key determinant of auditor selection is the need to reduce agency costs and the major reason for a company to hire an external auditor is to reduce

the information asymmetry present between company managers and shareholders. Fundamentally, for shareholders of public companies to confidently invest, they need objective, third-party verification of the quality of the management produced financial statements, and external auditors are hired to act as this objective third party. Also, regulators are of the view that effective corporate governance improves the ability of the board to oversee managers, external audits and financial statements for the shareholders' interest (Sarbanes-Oxley, 2002; UK Corporate Governance Code, 2010). Therefore, it is argued that effective board characteristics should improve the effectiveness of their oversight effort in mitigating agent-principal conflict by monitoring audit quality.

In Nigeria, most of the audit services of banks and insurance companies was carried out by big4 audit firms because there is little or no competition between big4 and non-big4 audit firms. This compelled majority of listed financial service firms to employ the services of 'Big Four' without alternative. For example, from 2007 to 2016, records have shown that 85% of the banks were audited by big4 audit firms. Notwithstanding the level of expertise of the firms, many financial scandals were recorded in the country. The unpleasant experience was partly attributed to weak regulation and poor supervision by professional accounting bodies which pave way for some of the audit firm to compromise for their own interest. On the part of corporate bodies, weak monitoring mechanisms is considered partly responsible for choosing non-expert audit firms or firms that compromise professional audit ethics. Many analysts have argued that companies' board attributes have a significant role in selecting an external auditor. The major board attributes discussed in the extant literature are in terms of board independence, size, diligence and gender diversity. It has been argued that these attributes play a significant role in determining the quality of audited financial statements that are prepared by management (Abidin et al., 2016).

Previous studies on relationship between board attributes and auditor selection have documented mixed results (Zengin et al., 2015; Ahmed & Ahmad, 2016; Alfraih, 2017). Empirical evidence obtained reveals that firms with effective board structure that are diligent in monitoring the companies' activity are more likely to hire a reputable and reliable auditor (Darmadi, 2016). Similarly, Srinidhi et al. (2014) argued that strongly governed firms are more likely to choose better-quality (specialist) auditors and to exhibit higher earnings quality than their counterpart firms. Several studies examined the relationship between corporate boards, auditing and financial reporting. Lai et.al (2014) for instance, have shown that a strong board effectively demands more effort from the auditors in order to protect the directors' capital, avoid liability, and promote shareholder interests. Thus, this study contributes to the current literature by assessing the effect of board characteristics on auditor selection in developing country that is characterized with less strictly legal environments and a unique governance structure that create different kinds of agency conflicts.

El-Dyasty and Elamer (2020) and Gerged et al. (2020) pointed out that despite the significance of audit market across the globe and numerous empirical literatures on auditor selection, there has been paucity research on determinants of auditor selection in less developed countries. This paper responds to these calls for research on auditor selection in a developing country symbolized with less strictly legal environments. Accordingly, other strands of studies examined the relationship between corporate governance attributes and auditor selection in both developed and developing economies (Quick et al., 2018; Alfraih, 2017; Abdel-Meguid et al., 2014; Cho & Wu, 2014; Srinidhi et al., 2014; Niskanen et al., 2011). The aim of those studies is to determine motivations for appointing an external audit firm in consideration of the firms' internal corporate governance structure. The studies concluded that selection of an external auditor is a complex decision and is subject to many conflicting factors.

However, none of these previous studies have examined the Nigeria market quantitatively, despite the changes in corporate governance structure in Nigeria and that emerging countries need separate analyses, also, there is a lacuna of research in the Nigeria context though, market structure and the Nigerian regulations and corporate governance systems may yield different results. The peculiarity of the Nigerian context could likely influence auditor selection. However, few studies have explored auditor selection issues in emerging economies. For example, in Nigeria, most of the empirical studies on auditor selection considered the relationship between board characteristics and auditors selection of non-financial listed firms in Nigeria for the period 2008 - 2013 (Abdulmalik et al., 2016); some focused on the effect of board meeting, board gender diversity on auditor selection (Ahmed & Ahmad, 2016) while others examined the influence of firm-specific characteristics on auditor selection through the administration of structured questionnaire (Olowookere & Inneh, 2016). Accordingly, Institutional investors are becoming indispensable tools in the financing decisions of listed firms in Nigeria. This is due to their vigorous role in the Nigerian capital market (Uche et.al 2016; Ozo & Arun, 2019). The institutional owners invest in both short-term and long-term securities traded on the Nigerian capital market. It is against this background that this study focuses on the effect of the monitoring mechanism on the auditor selections among listed financial firms in Nigeria.

2.0 Literature Review and Hypotheses Development

Board Size and Auditor Selection

Board size is simply the total number of directors sitting in a board of a company at a particular time. Agency theory advocates (for example, Jensen, 1993) posit a positive association between board size and overall board monitoring potentialities. Khudhaira et al. (2019) suggested that the board size of a company is an imperative element that determines the viability of the board. Jensen and Mackling (1976) opined that increase in the board size would enhance the firm's board adequacy in lowering agency cost as a result of poor management. Also, Akhtaruddin et al. (2009) affirmed that larger board with their collective expertise will be more capable of executing their duties and this will influence their choice of auditors. However, there is no consensus in the literature about board size, because a small group can easily reach a conclusion and engage in genuine interaction and arguments for the purpose of achieving the objectives of an organization.

MacDonald and Westphal (2013) argued that larger boards are capable of giving more time and effort to check the management's actions. Contrary to this notion and in support of Jensen's (1993) advice, Hutchinson et al. (2015), Balakrishnan et.al (2014), Zona et al. (2013) argued that the benefits of a higher level of monitoring by a huge board may be nullified because of poor decision making by a large board. Hence a small board is believed to alleviate the processing problems and effectively enhance board monitoring function. The argument whether a small board size or big board size is better in an organization still remained debatable which is far from being settled. Scholars like Khundhair et al. (2019), Al-Najjar (2018), Dweka et al. (2018), Ejeagbasi et al. (2015), Akhidime (2015), Sakka and Jarboui (2014) reported a positive and significant relationship between board size and audit quality. Slightly different from this view, Mustafa et al. (2018) and Marjène and Azhaar (2013) submitted that board size negatively affects auditor choice. However, Mustafa, Che-Ahmad and Chadron (2017) and Ahmed and Che-Ahmad (2016) found no evidence on the nexus between board size and audit quality. Therefore, we hypothesize that:

Ho₁: Board size has no significant effect on auditor selection among listed financial service firms in Nigeria.

Board independence and Auditor Selection

According to Signaling theory perspective, board of directors of a listed firms tend to hire the services of high-quality external auditors (for example, Big 4) to signal to the market their affirmation to high-quality, effective monitoring and controls. Sheidu et al. (2023) indicated that financial statements audited by independent and professional external auditor serves as a mechanism for addressing agency related problems. Non-executive directors are expected to behave in the same direction due to their ownership in the company as well as their motive of preserving their adept reputations (Wu, 2012). Alfraih (2017), Nnadi et al. (2016), Leung and Cheng (2014), Mahdavi et al. (2011), examined the effect board of independence on auditor selection in Kuwait, Morocco, China and Iran respectively. The studies documented that increasing the percentage of outside directors will increase the possibility of choosing high-quality audit firms. The findings provided evidence of positive relationship between the board independence and auditor selection which is consistent with agency theory. The findings of the study might not be the same if similar study is conducted in Nigeria. This could be due to regulatory and environmental differences which made the findings applicability difficult in Nigeria. Also, the findings might differ if similar study is conducted based on sector specific.

Nasrudin et al. (2017), Saeed et al. (2018) investigated the effect of board independence on auditor selection in Malaysia and Turkey for the period 2010 to 2015 and 2011 to 2015 respectively. Binary logistic regression was used to test the relationship between the explained and explanatory variables. The findings show that board independence proxied by the number of independent directors on the board is negative and significantly associated with choice of high-quality auditor. In addition, findings from the study might not be applicable to listed financial service firms in Nigeria generally due to different economic, regulatory and legal conditions faced by companies in the two countries. On the contrary, Ianniello et al. (2013) examined the influence of corporate governance on auditor selection of 667 sampled Italian listed companies for the period 2007 – 2010. The dependent variable auditor selection is proxied by Big 4 and non-Big 4 which takes the value (1) when the auditor is one of the Big 4 or the value (0) otherwise. It was found that board independence is not significant in determining auditor selection. Arising from this argument, the study hypothesized that:

H₀₂: Board independence has no significant effect on auditor selection among listed financial service firms in Nigeria.

Board Gender Diversity and Auditor Selection

Gender diversity strengthens the corporate governance for sound decision making. Board that is characterized by gender balance can therefore make better decision and associated with quality financial reporting since female directors are more ethically compliant. Hence, gender diversity may be associated with the integrity of financial statements (Sheidu et al., 2023). Lai (2017) examined whether the presence of female director in the U.S firms affect auditor selection, the study used observation from samples of U.S firms. The study after correcting for endogeneity and other board, firm and industry characteristics, posited that boards with female directors are likely to demand higher audit quality. This show that gender-diverse boards exhibit better attendance as documented in the accounting and auditing literature, for example Srinidhi et al. (2011), show that board gender diversity translates to higher earnings quality and Gul et al. (2011) also show that board diversity results in richer information environment. However, the above studies do not delve into the extent of how gender-diverse boards achieve higher and richer monitoring information environment than all-male boards in similar firms and what decisions and actions do they take that are different from those made by all-male boards?

Saeed et al. (2018) and Alfraih, (2017) examined the effect of board gender diversity on the choice of external auditor among Kuwait and Turkish listed firms for the periods 2011 to 2015 and 2013 respectively. The studies used logistic regression model to test the hypothesized associations between board gender diversity and auditor selection. The results show that board diversity has positive and significant impact on auditor selection. This implies that the higher the number of women on board the greater the likelihood that a big 4 audit firm is chosen among companies listed in Kuwait and Turkey. Owolabi and Thomas (2020) examined the effect of gender diversity on audit quality in deposit money banks (DMBs) in Nigeria. Secondary data were gathered from fifteen (15) listed deposit money banks for the period of twelve years (2007 - 2018). The data were processed using panel data estimator which was based on pooled regression model, fixed effect model and random effect model while the Hausman test were used to choose the better model. The result showed that gender diversity has negative and significant impact on audit quality at 5% level under fixed and random effects models. The weakness of the study emanates from the fact that an ordinary least square regression was used which might not have been appropriate considering the binary measurement of the dependent variable.

On the other hand, Quick et al. (2018) examined the relationship between board gender diversity on auditor selection among large German listed companies. The sample of the study consisted of 432 firm-year observations for the period of five years from 2010–2014. The findings from the logistic regression analysis suggest that the proportion of female supervisory board members does not exert a significant impact on auditor selection. Therefore, we hypothesized that:

Ho₃: Board Gender Diversity has no significant effect on auditor selection among listed financial service firms in Nigeria.

Board Activity and Auditor Selection

Formal meetings of the board of directors normally held at appropriate times to examine policy issues and major problems, such as financial problems. The board of directors as a key element of corporate governance, should manage the meetings based on their key responsibilities which is, among others, monitoring the financial reporting process and maintaining overall shareholders' interests. In effect, the effectiveness of the board of directors influences the monitoring mechanisms and auditor's selection. Kamardin and Haron (2011) found that a high percentage of board meetings symbolizes that the directors have knowledge of the corporations' activities and are able to monitor the implementation of the strategy in that corporation. However, Jensen (1993) posited that board meetings cannot be used in determining the effectiveness of the board because there are other factors such as length of the meeting that need to be considered. According to Villiers et al. (2011), the annual meetings frequency of board of directors is positively associated with the engagement of big four audit firms. As such, more diligent boards are likely to support the decision to acquire higher-quality audit services.

Okaro et al. (2015) empirically accessed the influence of corporate governance on audit quality. The dependent variable of the study is audit quality while independent variables are the board characteristics (Board size, Board independence, Board diligence). The data were analyzed using binary logistic regression model. The study found that greater board diligence impact positively on audit quality. However, finding of the study should be restricted to listed non- financial companies and might not be applicable to listed financial sector due to special regulations guiding their operations. Carcello and Neal (2000) posits that more diligent board demand a high-quality of the audit to attain the higher level of assurance. So, it is expected that a diligent board will demand closer scrutiny of financial reporting

process through high quality audit. Carcello et al. (2002) found that quality of audit work is associated with the number of board meetings. In addition to the number of board meetings, board diligence includes other aspects such as preparation before meetings, attentiveness and participation during meetings and post-meeting follow-up (Carcello et al. 2002). Based on this discussion, the study hypothesized that:

Ho₄: Board activity has no significant effect on auditor selection among listed financial service firms in Nigeria.

Institutional Ownership and Auditor Selection

Alfraih (2017) defined institutional ownership as a Proportion of ordinary shares held by institutional investors (who own at least 5% of shares) compared to total outstanding shares. The institutional investors, on average, are better informed than individual investors regarding firm financial position due to their large-scale development and analysis of timely and valuable firm-specific information. Institutional ownership are institutions with skills and ability to checkmate management and firms' operational activities and possess certain quality that differentiate them from other forms of owners as they have both human and material resources to influence management accounting policy choice as well as experience and expertise to strongly object auditors' position when they issue non-conforming financial statement (Shehu & Ahmed, 2012).

Tee et al. (2017) investigated the relationship between institutional monitoring, political connections and audit Fees among Malaysian firms for the period 2003 to 2011. The result of regression result reported a strong positive association between institutional ownership and audit fees. This result lends support to the audit demand perspective argument that institutional investors induce firm management to purchase more expensive audit services and expect higher quality from auditors. Similarly, Cho and Wu (2014) evaluated the effect of auditor in agency conflict on corporate governance of Taiwanese firms for the period 1998 to 2011. The empirical results show that the choice of high-quality auditor is positively associated with the number of shares of stock owned by the institutional investors for all groups. The result suggests that external governance mechanisms are another complementary approach towards diminishing agency costs. Also, Adam and Bala (2015) and Ashrafi et al. (2017) investigated the impact of ownership structures, managerial ownership and institutional ownership on audit quality of the Nigerian deposit money banks using secondary data source for the period 2007 to 2011. It was found that there is positive significant relationship between institutional and managerial shareholders with audit quality of the Nigerian deposit money banks.

Contrary to that, Azibi et al. (2010) examined the association between the characteristics of institutional investors and quality of audit after the Enron scandal, using French data. Empirical results show a negative statistically significant relationship between the choices of Big 4 auditor and French institutional investors after the Enron scandal. However, the study was conducted over a decade ago. With several developments that took place in the world's auditing system since then, a new study might produce different results. Similarly, Mahdavi et al. (2011) confirmed this finding after investigating the effect of corporate governance on auditor selection of Tehran Stock Exchange from 2004 - 2008 using logistic regression. The study documented a significant negative relationship between institutional ownership and choice of reputable auditor. Also, Nnadi et al. (2016) investigated the influence of corporate governance mechanisms on audit quality of Moroccan firms for the period 2010-2016. The study established a significant negative relation between the presence of institutional investors and choice for quality external auditor.

Abu et al. (2018) investigated the effect of institutional and block-holder Ownership on audit quality of listed manufacturing firms in Nigeria. A binary logit regression technique was used to examine the effect of institutional and block-holder ownership on audit quality. The data were extracted from published audited annual reports and accounts of 32 firms that represent the sample size of the study out of the total of 59 firms for 12 years period 2005-2016. The results show that institutional ownership has negative and significant effect on audit quality. Also, Zengin (2013) examined the effect of ownership structure on auditor selection of non-financial firms in Turkey for the period 2005-2009. The overall findings show that, firms' auditor selection in terms of Big-4 and audit firm industry specialization is affected by the ownership structure. The findings from the regression result of the first model indicate an insignificant positive relationship between institutional ownership and auditor selection represented by big4 auditor while the industry specialist model shows a positive and significant relationship between institutional ownership and auditor selection. Arising from this argument, the study hypothesized that:

Ho₅: Institutional ownership has no significant effect on the relationship between board attributes and auditor selection among listed financial service firms in Nigeria.

Conceptual Framework

The conceptual framework provides a pictorial relationship between component of board attributes, moderating variable and the dependent variable of the study. Conceptual framework is presented in figure 1.

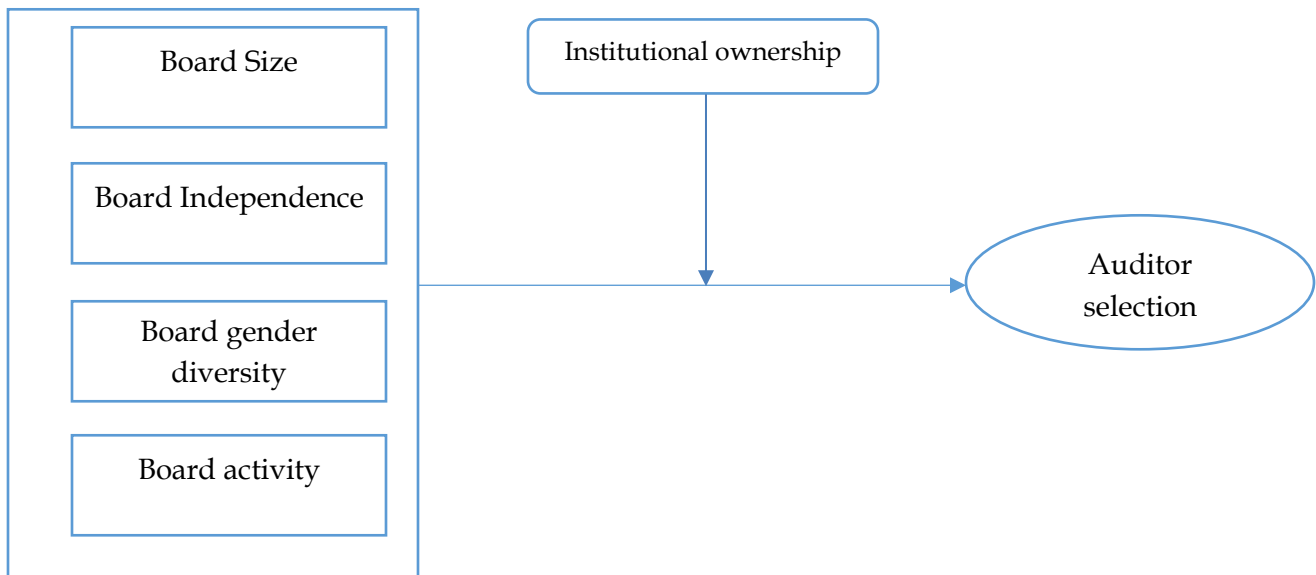


Figure 1. Conceptual framework

3.0 Methodology

This study adopted a descriptive research design. The design has supported the analysis, interpretation and description of the collected quantitative data of the study population. The population of the study consists of all the 53 listed financial service firms in Nigerian Exchange Group (NGX) as at 31st December

2020. Also, for a firm to be included in the study it must have its data available throughout the period under study, on the basis of this, twelve (12) firms were removed. Thus 41 out of 53 listed financial service firms in Nigeria that have their data available throughout the study period have satisfied this criterion. Therefore, the study adopted census approach in which all the 41 firms were used in the investigation. The data of this study was extracted from the annual reports of the sampled firms for the period of fourteen years (2007 to 2020). In view of the nature of the Dependent variable, the study used logistic regression as a tool of data analysis.

Variable Measurement

The industry specialist auditor was used as a proxy for the study dependent variable which is auditor selection. The formula this study adopted for calculating the audit firm industry market share is as used by Creswell and Taylor (1991) as having specialist auditor (based on market shares equal to or greater than 10%). The formula was also used to calculate auditor industry market share by Jiang et al. (2012). The independent and moderating variables are presented in Table 1.

Table 1: Measurement of Independent and Moderating Variables

Variable Type	Variable Name	Measurement	Source
Independent	Board Independence	Proportion of non-executive directors in the board	Farooq et al. (2018).
	Board Gender Diversity	Proportion of female directors in the board	Abdulmalik & Ahmed (2016).
	Board Activity	Percentage meeting attendance of the board	Ghosh (2019).
	Board Size	Total number of the firm directors	Salihi & Jibrin (2015).
Moderating	Institutional shareholding	Proportion of shares held by institutional stockholders in a firm	Azrul et al. (2016).

Source: Literature Review, 2023.

Model Specification

The model will evaluate and test for significance to establish the relationship between the explained and the explanatory variables. These variables are important corporate governance mechanisms that influence board decisions (Mainoma & Nasir, 2023).

$$\text{logit}(Y) = \ln \left[\frac{\pi}{1-\pi} \right] = \alpha + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_n X_n \dots \dots \dots (i)$$

$$\text{AUDS} = \beta_0 + \beta_1 \text{BSIZ}_{it} + \beta_2 \text{BIND}_{it} + \beta_3 \text{BGDD}_{it} + \beta_4 \text{BDLG}_{it} + \beta_5 \text{INOW}_{it} + \text{FSIZ}_{it} + \mu_{it} \dots \dots \dots (ii)$$

$$\text{AUDS}_{it} = \beta_0 + \beta_1 \text{BSIZ}_{it} + \beta_2 \text{BIND}_{it} + \beta_3 \text{BGDD}_{it} + \beta_4 \text{BMTA}_{it} + \beta_5 \text{INOW}_{it} + \text{FSIZ}_{it} + \beta_6 \text{BSIZ}_{it} * \text{INOW}_{it} + \beta_7 \text{BIND}_{it} * \text{INOW}_{it} + \beta_8 \text{BGDD}_{it} * \text{INOW}_{it} + \beta_9 \text{BMTA}_{it} * \text{INOW}_{it} + \mu_{it} \dots \dots \dots (iii)$$

Where:

AUDS = Auditor Selection

BSIZ = Board Size

BIND	=	Board Independence
BGDD	=	Board Gender Diversity
BDLG	=	Board Diligence
INOW	=	Institutional Ownership (Moderating variable)
FSIZ	=	Firm Size (Control variable)
β_0	=	Constant
$\beta_1 - \beta_5$	=	Beta coefficient of the independent variables
i	=	Financial Service Firms
t	=	Time
u_i	=	Error Term

4.0 Results and Discussion

Descriptive Statistics

The dependent variable is AUDS while the independent variables are: BSIZ, BIND, BGDD, BMTA, and INOW as moderating variable. In order to understand the distinctive characteristics of the data in terms of mean, standard deviation, minimum and maximum values, descriptive statistics was used. The summary statistics of the variables are presented in Table 2.

Table 2: Descriptive Statistics

	AUDS	BSIZ	BIND	BGDD	BMTA	INOW
Mean	0.1951	10.413	0.653	0.147	0.842	0.295
Maximum	1.0000	22.000	0.900	0.600	1.000	0.890
Minimum	0.0000	6.0000	0.130	0.000	0.000	0.000
Std. Dev.	0.3966	2.9880	0.129	0.117	0.154	0.203

Source: Stata output, 2023.

Table 2 elaborates auditor selection among listed financial firms in Nigeria. The mean value of AUDS computed from the descriptive statistics analysis is 0.1951 with standard deviation of 0.397 suggesting data deviation from the mean value by 0.397. The result deduced a wide dispersion between the mean and standard deviation. Thus, the value of mean and standard deviation inferred that, the points are not close to the average. Nevertheless, the value of mean indicated that the average auditor selection of 0.1951 among the sampled firms means 19.5% of the listed financial service firms selected an industry specialist auditor. The table however, revealed that the least value for auditor selection is 0 and highest of 1. This is evidence from the dichotomous nature of the explained variable. The average for the board size stood at approximately 10 with maximum and minimum value of 22 and 6 respectively. The Nigerian code of corporate governance NCCG (2018) recommended that the board should be of a sufficient size to effectively undertake and fulfil its business; to oversee, monitor, direct and control the Company's activities and be relative to the scale and complexity of its operations.

The board independence has a mean value of 0.653 with 0.129 standard deviation suggesting small disparity between board independence among the sampled firms. However, it can be inferred that the data point is close to the average. Also, the mean value indicated that, the average board independence among the sampled firms is 65.3%. This means non-executive directors of the sampled firms are the majority. These is attributed to the nature and business line of the sampled firms which is financial services and are likely to have many attributes in common. The table also, shows that the minimum board independence is 13% with maximum of 90%. The minimum value of 13% suggests that the

sampled firms have not fully complied with the SEC’s revised CCG which states that all boards of listed firms in Nigeria should consist of a mix of executive and non- executive directors and the majority of board members must be non- executive directors.

The statistics with respect to BGDD revealed mean value of 0.147 with 0.117 standard deviation signifying that within the period of the study, the firms have an insignificant disparity in their BGDD. As such, it can be deduced from the mean and standard deviation that the points are close to the average and the data responses are fairly uniform. From the dispersion, however, it can be inferred that financial service firms in Nigeria on the average maintained the level of their board gender diversity. The descriptive also shows that the sampled firms have a lowest and highest BGDD of 0 and 0.6 sequentially. This signifies that some of the sampled firms have no single female director on their board which can be perceived as gender bias and may likely be a factor why some companies selected an inferior auditor. Also, the statistics indicates that while many firms included female on their board, still, their representation is quite low. Thus, their impact might be very minimal. From the table, the mean value of board meeting activity is 0.842 and has a standard deviation of 0.154. Based on the average and standard deviation, it can be inferred that the data responses are fairly uniform. From the result, it can be deduced that 90% of the board members actively attends board meetings of listed financial service firms in Nigeria. It was also shown from the table that, the minimum meeting attendance among the listed financial service firms in Nigeria is 0 with 1 being the highest signifying that while some board members of listed financial firms have 100% attendance of meeting some have recorded zero percent meeting attendance.

Also, the result from table 2 reveals that the descriptive statistics of INOW shows an average of 0.295 with 0.203 standard deviation. This implies that from the value of standard deviation, the responses of the study data are fairly not uniform in view of the fact that the variation is significant. This means that the institutional ownership or indirect holding in the holding structure of listed financial service firms in Nigeria during the period of the study is not widely spread. The institutional ownership among the sampled firms is as low as 0% and as high as 89%.

Correlation Analysis

The Pearson analysis of correlation shows the relationship between the independent and the dependent variables and also the relationship among all pairs of explanatory variables themselves. The analysis is convenient in detecting the degree or extent of relationship among all independent variables as unduly correlation could result to multicollinearity, which could consequently result to a misleading findings and conclusions. Table 3 presents the correlation matrix for all the variables.

Table 3: Correlation Coefficients

Variables	AUDS	BSIZ	BIND	BGDD	BMTA	INOW	FSIZ
AUDS	1						
BSIZ	0.11	1					
BIND	-0.22	-0.313	1				
BGDD	0.04	0.075	0.013	1			
BMTA	0.028	0.202	-0.264	-0.146	1		
INOW	0.069	-0.016	0.053	0.206	-0.137	1	
FSIZ	0.298	0.532	-0.152	0.072	0.156	0.039	1

Source: Stata Output, 2023.

From Table 3, it is observed that the correlation of independent variables is between -0.26 and 0.53. There is no relationship among the independent variables that is huge enough (higher than 0.7) to constitute data multicollinearity problem (Hassan, 2011). The extent of the relationship among all the independent variables is therefore slightest and insignificant. The result from the table reveals a positive correlation coefficient between BSIZ and auditor selection (0.11) of listed Nigerian financial service firms during the period of investigation. The positive relationship between board size and auditor selection of the sampled firms is an indication that board size is associated with increase in demand for selecting an industry specialist auditor. This relationship is not surprise because as the size of the board increases, it is expected that there monitoring effectiveness will improve resulting to increase for the demand of hiring an industry specialist auditor.

The result from the table reveals a negative correlation coefficient between BIND and auditor selection (-0.22). The negative relationship between board independence and auditor selection of the sampled firms is an indication that board independence is associated with decrease in demand for selecting an industry specialist auditor. This relationship is not surprise because as the number of non-executive directors increases, it is expected that there monitoring effectiveness will improve resulting to decrease for the demand of hiring an industry specialist auditor. In contrast, a weak positive association between BGDD and auditor selection of the sampled firms (0.04) was reported. The direct relationship between BGDD and auditor selection of the sampled firms is an indication that BGDD is associated with an increase demand for selecting an industry specialist auditor. The positive association could be due to diligence monitoring function of female directors.

The Table also reveals a positive correlation between BMTA and auditor selection of the sampled firms (0.028). The direct relationship between BDLG and auditor selection is an indication that BMTA is associated with an increase demand for hiring an industry specialist auditor. This implies that higher proportion of board meeting attendance would enhance early detection of problem which may require an immediate action to be taken; this may increase the tendency of hiring an industry specialist auditor. The table also reveals a positive but weak correlation coefficient between INOW and auditor selection of the sampled firms (0.069). The positive association between INOW and auditor selection is because institutional shareholders have advantages in terms of knowledge, experience and technical know-how which serves as a very good monitoring tool. This implies that the growth of INOW will results to increase demand for hiring an industry specialist auditor.

Logistic Regression Results and analysis

The summary of logistic regression results of the two models is presented and analyzed. It presented the causal relationship between explained and explanatory variables as well as moderating effect of the moderator.

Table 4: Logistic Regression Result (Model 1 and 2)

variable	Coeff	Z-val.	Prob	Coeff.	Z-val.	Prob.
Constant	-9.7723	-5.05	0.000	-12.4176	-4.38	0.000
BSIZ	-0.1035	-2.34	0.019	-0.1322	-1.78	0.075
BIND	-5.3299	-5.19	0.000	-7.4988	-3.46	0.001
BGDD	0.3359	0.33	0.741	3.7177	1.98	0.048
BMTA	-1.3032	-1.7	0.089	3.4734	1.81	0.070
INOW	0.969	1.74	0.082	5.4514	0.91	0.361
FSIZ	1.6047	6.58	0.000	1.5664	6.27	0.000
BSIZINOW				0.0965	0.55	0.581
BINDINOW				7.2497	1.20	0.232
BGDDINOW				-11.4297	-2.30	0.021
BMTAINOW				-9.7903	-2.60	0.008
<i>R</i> ²	0.1434			0.1688		
LR chi2	81.27			95.65		
Prob> chi2	0.000			0.000		
Specified %	81.27			81.22		

Source: Stata Output, 2023.

From Table 4 and 5 the summarized models and estimated logistic regression relationship, substituting the coefficient of the variable in regression equations gives the following:

$$\text{AUDS} = -12.857 - 2.188\text{BIND} + 2.172\text{BGDD} + 0.061\text{BDLG} + 6.712\text{MGOW} + 1.119\text{INOW} - 1.439\text{ACIN} + 0.265\text{ACDL} + 4.105\text{ACEX} + 1.079\text{FSIZ} \text{ (Model 1)}$$

$$\text{AUDS} = -12.857 - 2.188\text{BIND} + 2.172\text{BGDD} + 0.061\text{BDLG} + 6.712\text{MGOW} + 1.119\text{INOW} - 1.439\text{ACIN} + 0.265\text{ACDL} + 4.105\text{ACEX} + 1.079\text{FSIZ} \text{ (Moderated Model)}$$

Table 4 and 5 reveals a pseudo *R*² of 14.34% and 16.88% respectively. The values which represent the coefficient of multiple determination of the two models, this implies that 14.3% and 16.9% of the total variation in the outcome variable (auditor selection) of listed financial firms in Nigeria is jointly explained by the explanatory variables (board size, board independence, board gender diversity, board meeting attendance, institutional ownership and firm size) and correctly classified 81.36% and 82.4% for model 1&2 respectively. This implies that the percentage accuracy in the classification of the models is 81.36% and 82.4%.

The LR chi² (6) and LR chi² (10) values of 81.27 and 95.65 respectively which are both significant at 1% indicates that the two models are fit to explain the relationship expressed in the study models and further suggest that the explanatory variables are properly selected, combined and used. Furthermore, the Hosmer-Lameshow Goodness of Fit Test for the two models are 12.40 and 13.42 with corresponding significance level of 0.134 for model 1 and 0.098 for model 2. We can say that Hosmer and Lemeshow goodness of fit test indicates that our model suits the data well since the significance levels are greater than 0.05 (0.134 and 0.098). We therefore conclude that the models are fit for the study and there is no specification error.

Board Size and Auditor Selection

Results in Model 1, Table 4 (coefficient -0.1035, Z-value -5.05, P-value 0.000) indicates that board size (BSIZ) significantly influences auditor selection. The study therefore rejects the null hypothesis which states that board size has no significant effect on auditor selection among listed financial service firms in Nigeria. The result is in line with Mustafa, Che-Ahmad and Chandren, (2018) and Marjène, Azhaar (2013) who submitted that board size negatively affects auditor choice. However, this is in contrast to the findings of Khundhair et al. (2019), Al-Najjar (2018), Dweka, Mardawi and Abdeljawad (2018), Ejeagbasi, Nweze and Ezeh (2015), Akhidime (2015), Sakka and Jarboui (2014) who reported a positive and significant relationship between board size and auditor selection. The results in Model 2, Table 5 (coefficient value 0.0965, Z-value 0.55, P-value 0.581) signifies that INOW has insignificant moderating effect on the relationship between board size and auditor selection. Therefore, we fail to reject the null hypothesis which states that institutional ownership has no significant moderating effect on the relationship between board size and auditor selection among listed financial service firms in Nigeria. The finding of this study indicates that the introduction of institutional ownership as a monitoring mechanism which serves as a moderator, has an undue influence on the relationship between board size and auditor selection.

Board Independence and Auditor Selection

The results reveals that there is significant effect between board independence (BIND) and Auditor selection as indicated in Model 1, Table 4 (coefficient -5.33, Z-value -2.34, P-value 0.019). It implies that for every 1 unit increase in BIND, the probability of selecting an industry specialist auditor will reduce by -5.33. The null hypothesis which states that board independence has no significant effect on auditor selection among listed financial service firms in Nigeria is therefore rejected. The result is in agreement with Nasrudin et al. (2017) and Saeed, Che-Ahmad and Chandren (2018) who found significant negative effect between BSIZ and AUDS. However, the outcome of the study is not in line with the results of Alfraih (2017), Nnadi et al. (2016), Leung and Cheng (2014), Mahdavi, Maharlouie, Ebrahimi and Sarikhani (2011) who discovered a positive significant effect between BIND and AUDS. Having a parameter estimate of 7.25, Z-value 1.2, P-value 0.232, this signifies that a unit increase in the moderating effect of INOW on BIND will lead to 7.25 increase in AUDS. This study, thus, fails to reject the null hypothesis which presumes that INOW has no significant influence on the link between BIND and AUDS. The results indicate that the interaction of institutional investors has insignificant effect on the relationship between BIND and AUDS at all level.

Board Gender Diversity and Auditor Selection

Results in Model 1, Table 4 (coefficient 0.336, Z-value 0.33, P-value 0.741) indicates that board gender diversity (BGDD) has insignificant effect on auditor selection. The study therefore rejects the null hypothesis which states that BGDD has no significant effect on auditor selection among listed financial service firms in Nigeria. The result is in line with the findings of Quick et al. (2018) who suggest that the proportion of female supervisory board members does not exert a significant impact on auditor selection. However, this is in contrast to the findings of Saeed, Che-Ahmad and Chandren (2018) and Alfraih (2017) who documented that board gender diversity has positive and significant impact on auditor selection and Owolabi and Thomas, (2020) who found significant negative relationship between BGDD and AUDS. On the other hand, the moderating effect of INOW on the relationship between BGDD and AUDS in Model 2, Table 5 revealed a coefficient of -11.43, Z-value -2.3, P-value 0.021. The result implies that a unit increase in the interaction effect of INOW on the BGDD leads to -11.43 decrease AUDS. This indicates

a significant negative moderating effect of INOW on BGDD and AUDS at 5% significant level. This provides the justification for rejecting the null hypothesis which proposes that INOW has no significant moderating influence on the link between BGDD and AUDS among listed financial service firms in Nigeria

Board Meeting Attendance and Auditor Selection

The result in table 4 depicts that BMTA of the listed financial firms has a coefficient of -1.3032 Z-value of 0.425, P-value of -1.7 and is significant at 10%. This means that BMTA is negatively and significantly influences the auditor selection of listed financial firms in Nigeria. It also connotes that when there is an increase in the level of board meeting attendance by one point, the probability of selecting an industry specialist auditor will decrease by -1.303. The result shows that an inverse significant relationship exists between BMTA and AUDS of the selected firms. This finding provides sufficient evidence for rejecting hypothesis which states that board meeting attendance has significant effect on auditor selection among listed financial firms. The result contradicts Okaro, Okafor & Okoye (2015) Carcello et al. (2002), Chen et al. (2006), Krishnan and Visvanathan (2009), Bricks and Chidambaram (2010), Kamardin and Haron (2011) and Okaro et al. (2015) and Villiers et al. (2011) who found that greater board diligence impact positively on audit quality. This result provides the justification for rejecting the null hypothesis which proposes that BMTA has no significant influence on AUDS.

On the other hand, the moderating effect of INOW on the relationship between BMTA and AUDS in Model 2, Table 5 revealed a coefficient of -9.7903, Z-value -2.66, P-value 0.008. The result implies that a unit increase in the interaction effect of INOW on the BMTA leads to -9.7 decrease in AUDS. This indicates a significant negative moderating effect of INOW on BMTA and AUDS at 1% significant level. This provides the justification for rejecting the null hypothesis which proposes that INOW has no significant moderating influence on the relationship between BMTA and AUDS among listed financial service firms in Nigeria.

5.0 Conclusion and Recommendations

This study investigated the moderating effect of institutional ownership on the relationship between board attributes and auditor selection among listed financial service firms in Nigeria. The study analyzed the balanced panel data of 41 Nigerian listed financial service firms for 14 years (2007-2020) using logistic regression technique. This study presents evidence that higher levels of institutional ownership strengthen the effect of board gender diversity and board meeting attendance of the firms. Hence, this finding implies that gender diverse board, coupled with the greater board meeting attendance may enhance the selection of an industry specialist auditor among listed financial service firms in Nigeria.

Furthermore, our analysis in this study provides new insight into the corporate governance literature in the following ways. Firstly, the evidence from this investigation demonstrated that the interaction between institutional ownership and board attributes might serve as a viable corporate governance mechanism that can reduce the agency cost incurred as a result of hiring of an external auditor. Likewise, this study contributes to the existing studies by providing a fresh perspective on the determinants of auditor selection. More importantly, evidence emanating from this research has some implications on the policy decisions of the Nigerian listed financial service firms. Firms should embrace institutional ownership and equally regulatory authorities in Nigeria such as SEC should come out with a policy that will mandate female representation on the board of listed companies in Nigeria. This is because board gender diversity influences the auditor selection among listed financial firms in Nigeria as evident by the significant interaction between board gender diversity and auditor selection. This suggests that



inclusion of female on the board will improve the board monitoring function because female directors are found to be more conservative with respect to the entire financial reporting process than their male counterpart. This will invariably impact the board demand for an industry specialist auditor.

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