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Board Characteristics and Audit Quality: The Moderating Role of Gender Diversity

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ABSTRACT
The incessant corporate scandals engulfing the corporate world today calls for great concern, also even the so-called big four recently have had their fair share of this blame too. Against this backdrop, we investigated to investigate the impact of board characteristics on audit quality of listed manufacturing firms in Nigeria. The study was driven by the positivist research philosophy and a deductive research approach using a multi-method quantitative research design. Descriptive and inferential statistics were employed to summarize the data and to draw inference on the population studied. We employed the Binary Probit Regression in testing the hypotheses stated. Findings revealed that board size had a positive and significant relationship on audit quality. The study found no evidence on the relationship between board independence, female gender on audit quality. The study also found no evidence on the moderating effect of the presence of a female on the board on the nexus between board independence and audit quality. The study concluded that board characteristics do not affect audit quality. Hence, we recommended that the Non-executive director on the board should be reduced in manufacturing firms to improve audit quality.
Keywords: Board independence, Female gender, Board size, Audit Quality, Binary Probit Regression.

1.1. INTRODUCTION

The current position of audit quality in recent times has not been pleasing to the ears of investors and other stakeholders of business organizations. This is as a result of the incessant corporate accounting scandals stunning the business world. In developed climes, recent accounting scandals that led to high profile corporate collapse of firms and the indictment of even the Big Four firms for example Patisserie Valerie (Grant Thornton), Carillion (KPMG), Conviviality (KPMG), Rolls-Royce (KPMG), BT (PriceWaterHouseCoopers), Mitie Group (Deloitte), BHS (PWC), Ted Baker (KPMG) and Quindell (KPMG) calls for great concern. Even in Nigeria, the accounting scandals of Cadbury Nigeria (Akintola Williams Deloitte) and more recently the case of Generic Electric has led to the nations loss of public confidence in doing business in the country as a result of bad reputation exhibited. The main reason for this corporate accounting scandals has been attributed to a firm's failure to obeying the provisions of the Nigerian code corporate governance (Aifuwa & Embele, 2019; Akhidime, 2015).

The Nigeria corporate governance code 2018 seeks to rebuild public trust and confidence in the Nigerian economy, thus facilitating increased trade and investment. Hence, the code recommends a unitary board

structure where Non-Executive Directors (NEDs) are expected to bring independent scrutiny to the board to ensuring that management acts in the best interest of shareholders and other stakeholders of the company. But a key argument which tends to truncate this fact is that the non-executive directors are selected by the same management – a practice which tends to endanger the sacred quality of board independence. Leaning on this exposition, the independence of the board is not fully ascertained, as very little can be said about the effectiveness of an independent board towards audit quality as the theoretical surmise is far from being displayed practically (Aifuwa & Embele, 2019).

Flowing from the problem of the director's independence is the issue of board gender diversity. Conventional boards have been criticized severally for promoting male dominance. The corporate board is currently dominated by male directors with little or no opportunity for female representation thereby forfeiting their impact, as they may introduce heterogeneity of ideas and experiences as well as reducing information asymmetry and the associated agency costs (Aifuwa & Embele, 2019). Female gender naturally has a gentle attitude and also, they can multitask which will help the board achieve high audit quality, however, in Nigeria, female representation in corporate boards has no statutory backing, despite the 1999 Federal Constitution, Chapter 2, Section 14(1) that made provision for gender equality (Ilaboya & Lodikero, 2017).

Finally, the lack of consensus on whether a small board is better than a large board calls for great concern. Both board sizes have their merits and demerits which affect the audit quality. Even, the Nigerian code of corporate governance 2018 did not specify the required number of directors that sit on the board. It only stated that the board should be of sufficient size to effectively undertake its functions section (see, Corporate governance code 2018, 2(2.1). Even as at that some scholars are of the stance that board size does not affect audit quality (Mustafa, Chen-Ahmad & Chandren, 2017; Ahmed & Che-Ahmad, 2016) and other believed that board size either positively (Khundhair, Khundhair, Al-Zubaidi & Raj, 2019; Ejeabasi, Nweze, Eze & Nez, 2015; Sakka & Jarboui, 2014; Al-Najjar, 2018) or negatively (Mustafa, Che-Ahmad & Chandren, 2018; Marjène & Azhaar, 2013) affect audit quality. Therefore, there is a need for more empirical work to be done.

This current study was motivated by a combination of the gap found in the literature. First, there exist inconsistent findings on the nexus between, board independence and audit quality; board size and audit quality. Secondly, the joint effect of board independence and female board gender on audit quality in Nigeria may not have been investigated in extant literature to the best of our knowledge. Thirdly, there is a dearth in the literature on the nexus between board characteristics and audit quality in Nigeria. This thus throws up a vista of opportunity to add to existing literature and for further research. Against the above backdrops, the following research questions were raised.

- **i.** What is the impact of board independence on audit quality?
- **ii.** What is the influence of female board gender on audit quality?
- **iii.** What is the effect of board size on audit quality?
- **iv.** What are the moderating effects of female board gender on the nexus between board independence and audit quality?

The remainder of the paper is organized as follows: Section two focuses on the literature review and hypotheses development. Section three addresses the methodology with an emphasis on the theoretical framework and model specification. Section four presents data analysis, interpretation, and discussion of findings. Section five concludes.

2. Literature Review and Hypotheses Development

2.1. Concept of Audit Quality

There is no universally accepted definition of the concept of audit quality. It could be referred to as the services performed by the auditor engaged by the clients' firm (Khudhair, et al 2019). In the view of DeAngelo (1981) audit quality is the market-assessed joint probability that a given auditor will discover a breach in the client accounting system and report this breach to the management of the firm. Titman and Truman (1986) see audit quality as the accuracy of the information reported by auditors. Perusing through their above definition, we can say that audit quality entails the activities of an auditor in carrying out his audit function effectively and efficiently in a way that will benefit both the management and stakeholders of an organization.

Firm nowadays are in desperate need of quality audit because they believe it would attract more investors which will subsequently improve on their performance significantly. Also, the various stakeholders of the firm will have high confidence and trust in them, bearing in mind the incessant accounting scandals rocking the corporate world (Ilaboya & Ohiokha, 2014). The reputation and experience of the accounting or audit firm hired by a firm to carry out an audit work are very keen on the attainment of quality audit reports. No wonder big firms tend to hire the big 4 accounting firms to carry out their statutory audit (Dabor & Benjamin, 2017). They believe that the Big Four auditors have a universal position to reveal any form of fraud or error.

Flowing from this exposition, scholars have used audit firm type in terms of the Big Four and Non-Big Four to proxy for audit quality (See Ilaboya & Ohiokha, 2014), while some used discretionary accruals (See, Dabor & Benjamin, 2017), auditor accuracy in terms of modified audit opinion (See, Sakka & Jarboui, 2014), and even industry specialist auditors (see, Mustafa, Chen-Ahmad & Chandren, 2018) as a measure for audit quality. All these measures are unique and could be used to accurately measure audit quality to an extent. This study utilized the proxy previously used by (Ilaboya & Ohiokha, 2014).

2.2. Concept of Board characteristics

The board of directors, usually referred to as the board is central in corporate governance and the highest governing body in an organization. The board is responsible for safeguarding the interest of different stakeholders through the dissemination of information, with the main aim to reduce information asymmetry problems and also to prevent opportunistic behavior in an organization (Aifuwa & Embele, 2019; Isa & Muhammad, 2015). Board characteristic is one of the internal corporate governance mechanisms, which expatiates on the features of the board (Aifuwa & Embele, 2019). The characteristics of the board include size, independence, diligence, diversity (age, gender, nationality, expertise, educational and functional background), and committee structure.

2.2.1. Board Independence and Audit Quality

According to Aifuwa and Embele (2019) an independent director as a non-executive, non-substantial shareholder of an organization whose interest or shareholding directly or indirectly does not exceed 0.1% of the organization's paid-up capital. Ong (2016) asserts that an independent director must not be previously employed or has no business or professional relationship with the organization. The fundamental responsibility of the director on the board is to reduce agency costs through the monitoring of the activities of management in the interest of shareholders (Hu & Loh, 2018). Independent directors are said to have stronger and extended engagement with wider groups of stakeholders (Ong, 2016). Akhidime (2015) asserts that a higher proportion of independent and non-executive directors on the board has the likelihood of inducing a more effective monitoring function which will lead to more reliable financial statements or reports.

Empirical studies on the nexus between board independence and audit quality are few. Ilaboya and Ohiokha (2014) investigated the impact of audit firm characteristics on audit quality of eighteen (18) food and beverage firms listed on the Nigeria Stock Exchange. In their study, board independence was a control variable, evidenced by a positive relationship. Marjene and Azhaar (2013) studied the impact of board characteristics on external audit quality in Belgium. They also found a positive nexus between board independence and audit quality. However, studies of Akhidime (2015), Mustafa et al, (2018), Sakka and Jarboui (2014), Al-Najjar (2018) found no evidence on the nexus between board independence and audit quality. We, therefore, hypothesize that;

Ho_1: Board independence has no significant impact on audit quality

Also, leaning on the submission of Ilaboya and Lodikero (2017) that the presence of female directors in the board will improve board independence to reducing the likelihood of financial statement fraud, we, therefore, hypothesize that;

$Ho_{1a:}$ Female Board Gender has no significant effect on the nexus between board independence and audit quality

2.2.2. Female Board Gender and Audit Quality

Diversity in the board has been said to be linked to the tendency of risk acceptance and changes of auditors (Mustafa, Chen-Ahmad & Chandren, 2018). Female directors are believed to improve the efficiency of the board monitoring function; thus, they have a strong tendency of hiring a high-quality auditor to protect their reputation and sustain the confidence of the stakeholders of the organization (Ilaboya & Lodikero, 2017). Hiring quality auditors will improve a firm's internal control systems which significantly reduce information asymmetry and positively influence the reliability of accounting information (Simunic, 1980; Gul, Srinidhi & Tsul, 2008).

Notwithstanding the above assertions, scholars have submitted that female directors on the board of an organization do not influence audit quality (Mustafa, Chen-Ahmad & Chandren, 2017, 2018). They argued that female directors do not have a say in the selection of an organization's auditor. This could be a result of their little representation on the board. However, Gul et al (2008), Chapple, Law, Kent, and Routledge (2012) and Kuange (2011) submitted that the presence of female directors on the board has a positive and significant influence on audit quality. Hence, we hypothesize that;

Ho_2: Female board gender has no significant influence on audit quality

2.2.3. Board Size and Audit Quality

Board size is simply the total number of directors sitting in an organization's board at a particular time. It is often said to be an imperative element in determining the viability of the board (Khudhair, et al, 2019). Jensen and Mackling (1976) opined that the increment in the board size would enhance the organization's board adequacy to bolster the management in significantly reducing agency cost as a result of poor management. To an extent this increase would benefit the organization, however not when the number of directors is more than eight or seven (Jensen, 1993), which may likely be difficult to coordinate.

Undermining Jensen's (1993) advice, 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, Eisenberg, Sundgren, and Wells (1998), Balakrishnan, Billings and Kelly (2014), Hutchinson, Mack and Plaistow (2015) and Zona, Zatton, and Minichilli (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 is far from being settled. Scholars like Akhidime (2015), Khundhair et al (2019), Ejeabasi, et al (2015), Sakka and Jarboui (2014) and Al-Najjar (2018) reported a positive and significant relationship between board size and audit quality. Slightly different from this view, Mustafa et al (2018) and Marjène, Azhaar (2013) submitted that board size negatively affects audit quality. However, Mustafa et al (2017) and Ahmed and Che-Ahmad (2016) found no evidence on the nexus board size and audit quality. Therefore, we hypothesize that;

Ho_2: Board size has no significant effect on audit quality

2.2.4 Control variables

The study introduced two control variables – auditors' independence and firm size. Auditors independence is said to positively affect the quality of financial statements and audit quality (Aifuwa & Embele, 2019; Ilaboya & Ohiokha, 2014). Also, the size of the firms affects the audit quality, based on the fact that large firms tend to employ the services of the Big Four auditors than small firms (Aifuwa & Embele, 2019).

3 METHODOLOGY

3.1 Theoretical framework and Model Specification

3.1.1 Theoretical Framework

Our study is hinged on the Agency theory of Jensen and Meckling (1976) with reinforcement from the Lipman-Blumen (1976) homosocial theory of sex roles to explain the influence of board characteristics on audit quality and the moderating effect of the presence of female directors on board independence in the attainment of high-quality audit in the board of listed manufacturing firms in Nigeria Stock Exchange. The

Agency theory explains the relationship between the principal (owners of the firm) and the agent (board of directors) (Aifuwa, Embele, & Saidu, 2018), in which the principal delegates work to the agent but not able to monitor the behavior of the agent (Hesselink, 2017). The theory is centered on the separation of ownership and control in the relationship between the principal and the agent. Based on the fact that the principal cannot continually oversee the behavior of agents as regards information disclosure, there could exist an agency problem that could lead to information asymmetry and opportunistic behavior.

Homosocial theory of sex roles, which describes social bonds between persons of the same gender without any sexual interest. This theory is deeply ingrained in the concept of hegemonic masculinity, which Carrigan, Connell, and Lee (1985) described as the legitimacy of the dominant male role in group dynamics. Scholars have often suggested that the inclusions of female in the board of an organization would booster the board independence (Ilaboya & Lodikero, 2017) which consequently lead to efficiency and effectiveness in the board's function. However, it is highly regrettable that the number of female genders present on the board is insignificant, there posing a problem gender inequality on the board. This drawback negates the United Nations Transformation Agenda on Gender equality. No wonder, Mustafa, Che-Ahmad, and Chandren (2018) found no relationship between the presence of female gender in the board and audit quality, also this evidence similar to the work of (Aifuwa & Embele, 2019) that the presence of a female in the board will not increase financial reporting quality. However, Ilaboya and Lodikero (2017) submitted that the presence of female directors on the board will reduce financial statement fraud. Therefore, this study proposes that a serving board with female directors may likely board independence which will in turn increase audit quality.

3.1.2 Model Specification

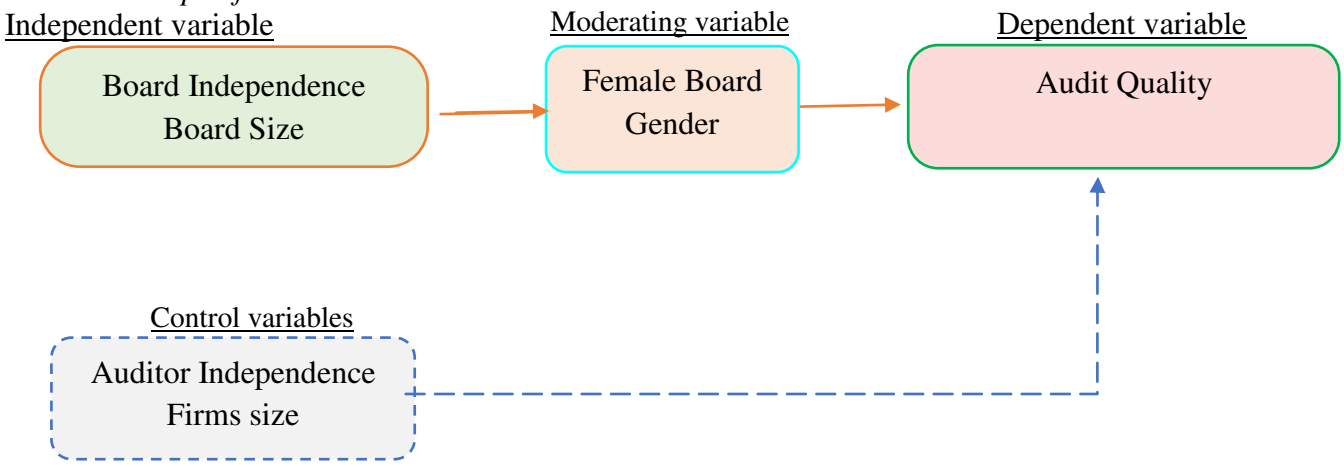


Figure 1: *Schematic Representation of variables of the study*

Our study adapted the model of Khudhair et al (2019) in explaining effect of board characteristics and audit committee characteristics on audit quality. Their model was stated as;

In functional form;

AUDQUAL = f (NEDAC, FENEDAC, BDSIZE, ACME, ROA, LEV)…….(1)

In econometric form;

$AUDQUAL = \alpha_0 + \beta_1 NEDAC + \beta_2 FENEDAC + \beta_3 BDSIZE + \beta_4 ACME + \beta_5 ROA + \beta_6 COMPSIZE + \beta_7 CFO + \beta_8 LEVERAGE + \varepsilon$……(2)

We expunged audit committee characteristics variables and some control variables used in their study. A board characteristics variable (female board gender) introduced and was used in moderating the nexus of

board independence and audit quality. Also, the relationship between the dependent and explanatory variables was controlled with auditors' independence and firm size. Therefore, our model is specified as;

In functional form;

AUDQ = f (BIND, FGNB, BSZE, AUDIND, FSZE)…….……(3)

In econometric form:

$AUDQ_{it} = \beta_0 + \beta_1 BIND_{it} + \beta_2 FGNB_{it} + \beta_3 BSZE_{it} + \beta_4 AUDIND_{it} + \beta_5 FSZE_{it} + \varepsilon_{it}$.....(4)

Introducing the moderating variable;

$AUDQ_{it} = \beta_0 + \beta_1 BIND_{it} + \beta_2 FGNB_{it} + \beta_3 BSZE_{it} + \beta_1 BIND_{it} * \beta_2 FGNB_{it} + \beta_4 AUDIND_{it} + \beta_5 FSZE_{it} + \varepsilon_{it}$……...(5)

Where:
AUDQ = Audit Quality;
β_0 = Constant;
BIND = Board Independence;
FGNB = Female Board Gender;
BSZE = Board Size;
AUDIND = Auditors Independence;
FSZE = Firm Size;
$\beta_1, \beta_2, \beta_3$ = Coefficient of explanatory variables
ε = Standard error
i = Cross sectional (Companies)
t= Time Series
A priori expectations in line with extant literature to be $\beta_1 > 0$; $\beta_2 = 0$, $\beta_3 < 0$

Table 1. *Measures of variables*

S/N	Variable	Type	Measurement	Supporting Scholars
1.	Audit Quality	Dependent	1 if the client is engaged with the service of Big Four auditor in a financial year, and 0, otherwise,	Khudhair et al (2019); Ilaboya & Ohiokha (2014)
2.	Board Independence	Explanatory	Percentage of independent and non-executive directors divided by the actual executives on the board yearly	Al-Najjar (2018); Sakka & Jarboui (2014) Aifuwa & Embele (2019)
3.	Female Board Gender	Explanatory	Percentage of female on the board	Aifuwa & Embele (2019), Mustafa et al (2018)
4.	Board Size	Explanatory	The total number of directors serving on the board of directors	Mustafa, et al (2018); Margined & Azhaar (2013)
5.	Auditor's independence	Control	The ratio of audit fee to the company's revenue	Ilaboya & Ohiokha (2014), Aifuwa & Embele (2019)
6.	Firm Size	Control	The natural logarithm of the total assets of the selected companies	Aifuwa & Embele (2019), (2018), Ilaboya & Lodikero (2017)

Source: Authors' Compilation, 2020

3.2 Research Methods

Our study adopted a quantitative research design. The design examines nexus between variables, which are measured numerically and analyzed using a range of statistical and graphical techniques (Saunders, Lewis & Thornhill, 2016). The population consisted of all listed firms in Nigeria Stock Exchange (169 listed companies as of 31st May 2018) while the target population was forty-three (43) manufacturing firms listed on the Nigerian stock exchange. The manufacturing sector was studied due to its emerging positive impact on the Nigerian economy. The sample size was scientifically derived using the Yamane's (1967) sample size formula, which yielded thirty-nine (39) from the target populations. The stratified random sampling technique was employed in selecting companies under each sector of the manufacturing industry (Consumer goods, industrial goods, and conglomerates sector) via a lottery system, to ensure that all sampled listed manufacturing firms have equal chances of being selected. Secondary data was hand-picked from the annual reports (2014-2019) of the sampled listed manufacturing firms to have enough periods to validate our generalization.

3.3 Method of Data Analysis

The study employed both descriptive and inferential statistics. The descriptive statistics which include the means, Minimum, Maximum, Standard deviation was well presented in tables. The Binary Logistic Regression was selected to test our hypotheses because our dependent variable was measured on a dichotomous scale (Khudhair et al, 2019; Ilaboya & Ohiokha, 2014; Hosmer & Lemeshow, 2000; Wooldridge, 2013). The analysis was done using e-views 8.

4. DATA ANALYSIS, INTERPRETATION AND DISCUSSION OF FINDINGS

Our data were summarized using descriptive statistics and inference was drawn from them using the inferential statistic.

4.1. Univariate Analysis

Table 2: ***Descriptive Statistics***

	AUDQ	BIND	FGNB	BSZE	AUDIND	FSZE
Mean	0.371795	0.633897	0.125372	6.807692	0.007323	6.949884
Maximum	1.000000	0.888900	0.454500	8.000000	0.164200	10.00530
Minimum	0.000000	0.272700	0.000000	5.000000	0.000000	5.171500
Std. Dev.	0.484320	0.160355	0.131177	1.165208	0.019715	1.014100
Obs.	234	234	234	234	234	234

Source: Authors' computation, 2020

Table 2 above presents the summary statistics about the sample firms over the study period. Audit Quality had a mean of about 37.1%, having a high standard deviation of 48.4%, which depicts that the audit quality is low among firms in the manufacturing industry. It further tells us that the big 4 firms only audit about 37.1% of manufacturing firms investigated. The mean of board independence stood at about 63.4% having a standard deviation of 16% suggests that there is high independence amongst the member of the board, with a minimum and maximum value of about 21.3% and 88.8% respectively. The average percentage of female directors on the board stood at about 12.5%, having a standard deviation of 13% paints a picture that the number of female directors in the board is low, with a minimum and maximum value of 0 and 45.5% respectively. The average board size stood at about 7 times having a standard deviation of 1.17 simply depicts that the size of the board is large with the highest and lowest being 8 and 5 respectively. Penultimately, the mean of auditors' independence stood at about 0.7% with a high standard deviation of 1.9% suggests that auditor's independence in manufacturing firms is low. Finally, the mean of the firm size stood at N6,949,000,000. The minimum and maximum firm size recorded were N5,171,500 and N10,000,000,000.

Table 3: ***Linearity of Variables***

	AUDQ	BIND	FGNB	BSZE	AUDIND	FSZE
AUDQ	1.000000					
BIND	-0.013338	1.000000				
FGNB	-0.098849	-0.015752	1.000000			
BSZE	0.047679	0.022690	0.007259	1.000000		
AUDIND	-0.007325	0.021419	-0.067573	-0.042352	1.000000	
FSZE	0.038584	-0.108847	0.158289	-0.023772	0.014034	1.000000

Source: Authors' computation, 2020

Table 3 above presents the correlation of variables used in the study. The correlation coefficients are mixed with some variables reporting positive coefficients, for example (AUDQ and FSZE (0.038); BSZE and AUDQ (0.047); BIND and BSZE (0.022); BIND and AUDIND (0.021), while some had negative coefficients, for example, BIND and AUDQ (-0.013); AUDIND and AUDQ (-0.007); FGNB and BIND (-0.015). This association identified buttresses the point that our variables have a linear relationship. Furthermore, the strength of the relationship between variables measured by the Pearson product-moment correlation showed that the association between the variables is relatively small and was below the threshold of 0.80, suggesting the absence of the problem of multicollinearity in the predictor variables (Studenmund, 2000).

4.2 Multivariate Analyses

This section presents the result of the Hosmer-Lemeshow Test of Goodness fit and Binary Logistic Regression. Our hypotheses were tested at a 5% level of significance (that is, if p-value < 0.05 reject **Ho**, else do otherwise).

Table 4: ***Hosmer-Lemeshow Test of Goodness of Fit***

Goodness-of-Fit Evaluation for Binary Specification
Andrews and Hosmer-Lemeshow Tests

	Quantile of Risk		Dep=0		Dep=1		Total
	Low	High	Actual	Expect	Actual	Expect	Obs
1	0.2131	0.2757	16	17.3480	7	5.65202	23
2	0.2765	0.3126	18	16.2462	5	6.75383	23
3	0.3128	0.3353	18	16.1998	6	7.80017	24
4	0.3355	0.3478	16	15.1314	7	7.86862	23
5	0.3479	0.3669	12	15.3922	12	8.60783	24
6	0.3673	0.3840	17	14.3420	6	8.65798	23
7	0.3841	0.4020	11	13.9457	12	9.05429	23
8	0.4027	0.4259	13	14.0870	11	9.91303	24
9	0.4269	0.4711	16	12.7396	7	10.2604	23
10	0.4711	0.6077	10	11.5750	14	12.4250	24
		Total	147	147.007	87	86.9932	234

H-L Statistic	9.2932	Prob. Chi-Sq(8)	0.3182
Andrews Statistic	10.5395	Prob. Chi-Sq(10)	0.3945

Source: Authors' computation, 2020

Table 4 presents the result of the Hosmer-Lemeshow test and Andrews' statistics of the goodness of fit. The difference between both statistics is not large, which means that our model is sufficiently fitted (Hosmer-Lemeshow, 1989; Andrews, 1988a, 1988b). Buttressing this fact, the Chi-square estimation of the goodness of fit for both test reported, H-L(8) = 9.293, p = 0.318 & A(10) = 10.539, p = 0.395 show that there is no evidence of poor fit which means the regression model is correctly specified (Green, 2008).

Table 4: ***Results of the Binary Probit Least Squares***

Dependent Variable: AUDQ
Method: ML - Binary Probit (Quadratic hill climbing)
Date: 02/20/20 Time: 13:21
Sample: 2014 2019
Included observations: 234
Convergence achieved after 5 iterations
Covariance matrix computed using second derivatives

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	0.146517	0.909686	0.161063	0.8720
BIND	-0.793670	0.731639	-1.084783	0.2780
FGNB	-6.884692	4.044671	-1.702164	0.0887
BSZE	5.449367	1.172414	4.647988	0.0232
FGNB*BIND	8.705030	5.986129	1.454200	0.1459
AUDIND	-1.507384	4.359159	-0.345797	0.7295
FSZE	0.078330	0.085012	0.921396	0.3568

McFadden R-squared	0.018614	Mean dependent var	0.371795
S.D. dependent var	0.484320	S.E. of regression	0.484575
Akaike info criterion	1.355070	Sum squared resid	53.30262
Schwarz criterion	1.458435	Log-likelihood	-151.5432
Hannan-Quinn criteria.	1.396747	Deviance	303.0865
Restr. deviance	308.8351	Restr. log likelihood	-154.4175
LR statistic	24.03398	Avg. log likelihood	-0.647621
Prob(LR statistic)	0.012357		

Obs with Dep=0	147	Total obs	234
Obs with Dep=1	87		

Source: Authors' computation, 2020

The result of Binary Probit Least Squares as presented in Table4 shows that there exists an insignificant and negative relationship between Board independence and Audit Quality, $Z(1, 233)$ = -1.08, β_1 = -0.79, p = 0.278. This implies that a unit increase in the percentage of independent and non-executive directors on the board will not reduce the likelihood of quality in audit by -1.08. The result failed to reject the null hypothesis that board independence has no significant impact on audit quality. The presence of females in the board was found to be negatively related to audit quality, however, not statistically significant, $Z(1, 233)$ = -1.70, β_2 = -6.88, p = 0.08. This simply means that the presence of female directors sitting on the board will not likely reduce the audit quality by -6.88. Hence, we fail to reject the null hypothesis that the female board gender has no significant influence on audit quality.

In total dissonance with the above findings in the previous hypothesis tested, there is evidence of a positive and significant relationship between board size and audit quality, $Z(1, 233)$ = 4.65, β_3 = 5.45, p = 0.02. This

suggests that a unit increase in the number of members on the board will increase the audit quality. The study, therefore, rejects the null hypothesis that Board size has no significant effect on audit quality.

The joints effect of the presence of female gender on the board and the nexus between board independence and audit quality exhibited a positive but insignificant association. This simply indicates that the inclusion of more female gender in the board will not increase the boards' independence which will in turn lead fail to improve audit quality, $Z(1, 233) = 1.45$, $\beta_4 = 8.71$, $p = 0.145$. Therefore, there this joint effect will not increase audit quality by 8.71. We failed to reject the null hypothesis that female Board Gender has no significant effect on the nexus between board independence and audit quality.

In addition to our explanatory variables, two control variables introduced; Auditors independence and Firm size. Both of them provided no evidence on the relationship with audit quality, $Z(1, 233) = -0.35$, $\beta_4 = -1.51$, $p = 0.73$, and $Z(1, 233) = 0.92$, $\beta_5 = 0.07$, $p = 0.35$ respectively. The McFadden R-squared stood at 0.019 suggesting that about 1.9% of the systematic variation in the dependent variable was explained by the independent variables. LR statistics value of 24.034 was statistically significant at 5% - all slope coefficients except the constants are zero, this simply implies the joint significance of our model in the study.

4.2 DISCUSSION OF FINDINGS

The objective of this study was to investigate the impact of board characteristics on audit quality. Our study was theoretically hinged on the Agency theory with reinforcement from the Lipman-Blumen (1976) homosocial theory of sex roles to explain the influence of board characteristics on audit quality and the moderating effect of the presence of female directors on board independence, which led to the study's model specification. We focused on the listed manufacturing companies in Nigeria. Preliminary analysis which included descriptive statistics and inferential statistics was conducted. The Binary Probit Regression result revealed mixed evidence on the subject matter, consistent with our model expectations (a priori expectations) and was in dissonance with our theoretical framework.

Board independence had no significant impact on audit quality of listed manufacturing firms in Nigeria. This implies that independent and non-executive directors have no impact on audit quality. This finding is consistent with the works of Akhidime (2015), Mustafa et al, (2018), Sakka and Jarboui (2014), Al-Najjar (2018) who found no evidence on the nexus between board independence and audit quality. However, slightly deviates from the finding of Ilaboya and Ohiokha (2014) and Marjene and Azhaar (2013) who found a positive and significant relationship between board independence and audit quality.

Secondly, we discovered that the presence of the female gender in the board does not improve the audit quality. Our submission is in line with the works of Mustafa, Chen-Ahmad & Chandren, 2017, 2018), but in dissonance with works of Gul, Srinidhi and Tsul (2008), Chapple, Law, Kent, and Routledge (2012) and Kuange (2011) who submitted that female directors in the board have a positive and significant influence on audit quality.

Thirdly, we found out that board size had a positive and significant effect on audit quality. That is to say, an increase in board size will lead to increased audit quality. This submission is consistent with the works of Akhidime (2015), Khundhair et al (2019), Ejeabasi, Nweze, Eze and Nez (2015), Sakka and Jarboui (2014) and Al-Najjar (2018) but in dissonance with the work of Mustafa et al (2018) and Marjène, Azhaar (2013) submitted that board size negatively affects audit quality, and Mustafa et al (2017) and Ahmed and Che-Ahmad (2016) who found no evidence on the nexus board size and audit quality. The joints effect of the presence of female gender on the board and the nexus between board independence and audit quality exhibited a positive but insignificant association. This evidence partially corroborates with our theoretical framework of the Homosocial theory of sex roles, which describes social bonds between persons of the same gender without any sexual interest.

5. CONCLUSION AND RECOMMENDATIONS

Based on the findings of the study, we concluded that board characteristics have do not have an impact on audit quality in Nigeria. Although the presence of female gender in the board has a positive but insignificant influence on the nexus between board independence and audit quality, there is a need for supporting the

increase in the number of female gender on the board. Therefore, based on the findings of the study, we recommended that;

1. Non-executive director on the board should be reduced in manufacturing firms to improve audit quality;
2. Female gender in the board should be encouraged as well as creating enabling environment for them to control their quota to achieving their agency role;
3. The regulatory authorities should look into required board size, in a bid of adopting a large board size;
4. The moderating role of female gender in the board is unique in enhancing the boards' independence, hence more female should be added to the board of manufacturing firms in Nigeria.

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