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## **AUDIT COMMITTEE ATTRIBUTES AND AUDITOR BRAND NAME OF LISTED COMPANIES IN NIGERIA**

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### **Abstract**

*This paper examines the effect of audit committee attributes on auditor brand name proxy by the Big 4. The study utilizes 88 listed firms in Nigeria through 440 firm-year observations ranging between the years 2012 to 2016. The data for the study were extracted from the firms' annual reports and Thompson Reuters Data Stream. A panel logistic regression was employed to estimate the model of the study. Consistent with complementary hypothesis the findings demonstrate that audit committee attributes (audit committee independence, audit committee financial accounting experts, audit committee legal expert, female audit committee member and audit committee stock ownership) are positively related to auditor brand name. The findings also support the substitution hypothesis perspectives by revealing an inverse relationship between audit committee meetings, audit committee tenure, audit committee chair and auditor brand name. Our findings offer an initial insight on the effect of audit committee legal expert, and audit committee stock ownership on auditor brand name. Thus, the findings can benefit existing and prospective shareholders who are the direct users of financial reports. This study can also help policy-makers and regulators by allowing them to better recognize the importance of these distinctive audit committee attributes in enhancing the quality of audits, which is one of the most vital elements of improving financial reporting quality.*

**Keywords:** *Audit committee, Audit quality, Audit size, Gender diversity, Ownership.*

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## Introduction

Auditing is a systematized and autonomous examination of accounts of an organization to ascertain the truth and fairness of the financial reports. Thus, auditing is expected to play a monitoring role by minimizing agency costs between management and corporates' stakeholders. Invariably auditors are assumed to act in investors' interests and aid financial statement users by confirming the reliability of financial reporting. This is because high-quality information is likely to lessen asymmetric information problems between the firm and its investors, and accordingly, cut the agency costs (Bushman & Smith, 2001).

Consequently, it is argued that an active audit committee demands for a higher external audit effort to protect firms' reputation, endorse shareholders' interest and reinforce the integrity of financial reporting (Carcello, Hermanson, Neal & Riley, 2002; Huang, 2006). The foregoing argument supports the complementary hypothesis of audit which presumes that external auditors play a pivotal role in corporate governance which functions as a complementary instrument for improving the legal protection of outside stakeholders (Huang, 2006; Choi & Wang, 2003). As a result, this reduces agency complicit between firm's insiders and external stakeholders. This is because the external stakeholders rely heavily on external auditors' monitoring efforts (Ball, Kothari, Robin, & Pope, 2000). The substitution hypothesis proposes that for some firms to have a high quality external auditing to serve as a substitute for legal protection, and to lessen agency conflicts between firms' internal and external stakeholders in a weak legal environment (Choi & Wang, 2003). Hence, such firms in a weak legal environment will have a higher demand for better audits than companies in strong legal environment (Gomes, 2000; Klapper & Love, 2004). In contrast, an inverse association between governance mechanisms and audit quality might be expected if good governance can substitute for external auditing, leading to a decline in audit

fees (Hay, Knechel, & Wong, 2006). From the above argument, it is expected that an effective audit committee will demand for greater level of assurance. This is likely by engaging Big 4 auditors to provide higher quality of auditing services which in turn improve the financial reporting quality.

Therefore, despite the foregoing arguments, the regulatory authorities and investors frequently interrogate the job of both audit committee and external auditors since the audited financial reports have been exposed to be fraudulent in many of the contemporary financial scandals such as Enron and WorldCom. Consequently, since the audit committee selects the external auditor while the external auditor reports to the audit committee, there is a likelihood that both the two monitoring devices may operate jointly to limit accounting manipulation and enhance financial reporting quality (Alves, 2013).

In light of the foregoing, this study is set to examine the influence of audit committee attributes in the selection of auditor brand name of listed companies in Nigeria. Thus the study is inspired by the recent instantaneous increase and dominance of Big 4 auditors in the Nigerian audit market, which directly affects the fees that is paid to the external auditors by their clients. Consequently, Nairametrics (2017) gathered that the Big 4 auditors earned about 6.4 billion Naira (equivalent to 20.3 million USD) in the auditing services of the 28 largest firms in Nigeria in 2016. However, the question of whether Big 4 auditors offer higher financial reporting quality than the non-Big 4 auditors has continued to be a debatable issue (Jiang, Wang, & Wang, 2018).

### **Literature Review and Hypothesis Development**

Audit committee plays a vital role in corporate governance practices by overseeing the quality of audits. Thus, an active audit committee that has pertinent expertise and which is independent of management, is presumed to enhance approaches to audits which enriches audit quality and in return increases financial reporting quality (Cohen, Krishnamoorthy & Wright, 2002; DeFond & Zhang, 2014; Sulaiman, 2017). For that, better auditing is vital for the steadfastness of the financial reports since it is assumed to safeguard the interest of the

investors and other stakeholders (Sulaiman, 2017). Prior studies on audit quality have argued that audit firm size denoted by Big 4 auditors is a strong surrogate for audit quality since larger auditors are expected to have strong enthusiasms and are more proficient to provide high quality audits (DeAngelo, 1981; DeFond & Zhang, 2014). Studies that have been conducted on the connection between audit committee and audit firm size support the complementary relationship between audit committee attributes and audit firm size (Akhalmeh, Agweda, & Ogunkuade, 2017; Ejeagbasi, Nweze, Ezech, & Nze, 2015; Jiraporn, Chintrakarn, Tong, & Treepongkaruna, 2018). This suggests that an active audit committee purchases a high quality audit in their demand for greater assurance. The above findings have been validated by the research conducted by Zhang, Zhou and Zhou (2007) who explore the influence of audit committee and audit independence. They demonstrate that effective audit committee enhances audit quality by engaging the Big 4 auditors.

### *Agency Theory*

The agency theory posits that monitoring devices align the interests of the management with the interests of owners in order to lessen the conflict of interest as well as any likely managers' opportunistic behaviours that could arise (Jensen & Meckling, 1976). Consequently, the management might be more focused in their own interests over the stockholders' interests of wealth maximizing which increases agency cost. Yet, agency cost arises because of the dissimilarities between ownership and the control from management leading to information asymmetry between the managers and the stockholders. Therefore, it has been affirmed that agency cost intensifies the demand for monitoring devices that will provide assurance of the managers' performance in harmony with the contract (Huang, 2006). Several governance mechanisms can be applied in aligning the interests of the stockholders and managers. These comprise internal mechanisms such as boards of directors, audit committee, and external mechanisms like the external auditors (Fama & Jensen, 1983). Therefore, a seamless combination of mechanisms which are being used, can be considered as a composite where the effectiveness of one device depends on the effectiveness of the other (Davis & Useem, 2002). As such, it is expected when the audit committee engages better auditors, that can curtail the opportunistic reporting by manager and thus enhance financial reporting quality (Defond & Jambalvo, 1991).

### *Institutional Theory*

Institutional theory supports how governance devices achieve formal roles that help to legitimise the communication amid the key players within the corporate governance. With reference to the institutional theory, the audit committee members will act to affirm to other institutions and that audit committees over time, will tend to become like the others within the similar industry. The audit committee members may have had similar experiences as well as the management. Thus the audit committees and the boards will fulfill an imperative signaling role to those outside the institution such as existing or potential shareholders by deliberating perceptions of reliance and proficiency in the workings of the audit committee (Cohen, Krishnamoorthy, & Wright, 2008). The institutional theory also has an unspecified prediction on whether the audit committee will be friends with managers or the auditor in disagreements that the auditors may have with managers. For instance, the audit committees habitually fulfill a key figurative role that in practice might lead the members to legitimize their roles by querying the management.

### *Audit Committee Size and Auditors Brand Name*

It has been argued that larger audit committee has a high likelihood of enriching its status and power in a firm, thus demanding a high quality audit (Kalbers & Fogarty, 1993). This has been confirmed by Akhalumeh et al. (2017) who studied the effect of corporate governance on audit quality in Nigeria. They find that the larger board is significantly and positively related to Big 4 auditors. This indicates that larger board requests for better audit assurance by purchasing the service of Big 4 auditors. In addition, Ejeagbasi et al. (2015) studied the effect of corporate governance and audit quality in Nigeria. They showed that larger board size is positively and significantly related to Big 4 auditors. They contend that larger boards demand for better audit assurance by employing Big 4 auditors. The result has validated the finding of Chen and Zhou (2007) who examined the influence of audit committee and board attributes on auditor change decisions by Andersen's clients. They showed that larger audit committee is more likely to engage the Big 4 auditors in the selection of successor auditors. In line with the foregoing, the study hypothesized that:

*H<sub>1</sub> Audit committee size has a positive significant relationship with Big 4 auditors.*

### ***Audit Committee Independence and Auditors Brand Name***

It has been argued that audit committee that is independent of management does not have a private or economic dependence on managers. Consequently, agency theory suggests that an independent audit committee may be more prepared to disagree with management on diverse issues (Abbott, Parker, Peters & Raghunandan, 2003; Carcello & Neal, 2003). Thus, throughout the evaluation of the audit program and results thereof, an independent audit committee may demand for a comprehensive audit scope in order to escape being connected to a financial misstatement and preserve reputational capital (Abbott et al., 2003; Carcello & Neal, 2003). The foregoing argument have been confirmed by a recent study of Jiraporn, Chintrakarn, Tong and Treepongkaruna (2018) who examined whether board independence can be substituted with external audit quality. They employed a sample of 14,000 firm-year observations for 18 years. They demonstrated that firms that have larger percentage of independent directors on the board have less chance of employing Big 4 auditors. This suggested that robust board with greater proportion of independence directors gain more active governance and thus do not require as much from external auditors. More so, Ejeagbasi et al. (2015) found that audit committee independence is positively and significantly linked to Big 4 auditors. This has been confirmed by Akhalumeh et al. (2017) who revealed that board independence is positively and significantly associated to Big 4 auditors. This indicates that larger percentage of independent directors in the audit committee demand for higher audit assurance by employing Big 4 auditors. In line with the foregoing arguments it is hypothesized that:

*H<sub>2</sub> Audit committee independence has a positive significant relationship with Big 4 auditors.*

### ***Audit Committee Meetings and Auditors Brand Name***

It has been argued that audit committee that meets at least twice biannually has more likelihood of engaging an industry specialist auditor (Abbott et al., 2003). Prior literature has shown that audit committee's frequent meeting is positively associated to audit quality

(Lee & Mande, 2005). The above arguments have been empirically confirmed by Chen and Zhou (2007) who showed that audit committee that meets frequently has a high likelihood of engaging Big 4 auditors in the selection of successor auditors. This is consistent with the notion that the audit committee that meets frequently are more likely to purchase high audit quality in their quest for greater assurance. In contrast, Sharma et al. (2009) found an inverse relationship between audit committee meetings and Big 4 auditors. Their finding supports the substitutional hypothesis of audit quality, which suggests that effective governance devices can serve as substitutes to external monitoring provided by external auditors. In line with the above argument the study hypothesized that:

*H<sub>3</sub> Audit committee meeting has a positive significant relationship with Big 4 auditors.*

#### ***Audit Committee Expertise and Auditors Brand Name***

The proponents of institutional theory have argued that a company's audit committee whose members have specific industry skill is linked to higher financial reporting quality. Accordingly, if managers and audit committee of such company work on the same board within the similar industry, this association may expand the committee's expertise and subsequently improve its general skill to act as effective monitors (Cohen et al., 2014). This has been confirmed by Kim, Kwak, Lim and Yu (2017) who demonstrated that audit committee financial accounting experts enhances audit quality. This suggests that increasing the proportion of financial accounting experts in audit committee brings about an additional increase in effort in order to enhance external monitoring. This has validated the finding of Chen and Zhou (2007) who revealed that proportion of financial expertise in audit committee increases the chance of selecting Big 4 auditors. In another development, it has been argued that legal experts serve as monitors rather than mere signal to financial reporting quality. This is because, Baxter and Cotter (2009) have affirmed that legal expertise on the company's audit committee significantly reduce the practice of earnings management and thus enhance audit quality. Therefore, their legal knowledge allows them to be more familiar with litigation threats relating to financial reporting issues. *H<sub>4</sub> Audit committee financial accounting expert has a positive significant relationship with Big 4 auditors.* *H<sub>5</sub> Audit committee legal expert has a positive significant relationship with Big 4 auditors.*

### ***Female Audit Committee Member and Auditors Brand Name***

It has been contended that female directors in the boards are more ready for board meetings than the male counterparts. Thus, high proportion of female directors may improve board actions and effectiveness (Huse & Solberg, 2006). Prior literature has showed that female audit committee members demand better audit efforts than their male colleagues. This has been empirically affirmed by Lai, Srinidhi and Tsui (2017) who showed that female directors in audit committee demand greater audit quality than the male directors in US firms. This is not surprising since liberal feminist theory suggests that if females would be given equal chances, males and females will develop their potential judiciously and more equally. Consequently, their psychological distinctions will decrease and later fade (Fischer et al., 1993). This has been confirmed by Aldamen et al. (2016) who suggest that a divergent gender in audit committee demands a higher quality audit in a high risk environment.

*H<sub>6</sub> Female audit committee member has a positive significant relationship with Big 4 auditors.*

### ***Audit Committee Stock Ownership and Auditors Brand Name***

The advocates of agency theory have argued that independent external auditors are demanded due to a desire to reduce agency cost arising from asymmetric information between stockholders and managers. This has been empirically confirmed by previous studies (DeFond, 1992; Menon & Williams, 1994). Prior literature on audit committee stock ownership has contended that larger percentage of shares possessed by audit committee significantly decreases the chance that the auditor provides a going concern report for economically troubled companies and auditor dismissal (Bronson, Carcello, Hollingsworth & Neal, 2009; Hamdan, Mushtaha & Al-Sartawi, 2013; Vafeas, 2005). In addition, Ejeagbasi et al. (2015) found that ownership concentration has a positive relationship with the Big 4 auditors. Furthermore Adam and Bala (2015) examined ownership structure and audit quality in Nigeria. Their study indicated that director's ownership has a positive significant association with audit quality of listed banks in Nigeria. They suggest that a higher percentage of directors' ownership enhance their monitoring role by providing greater audit assurance through engaging better auditors. In addition, with the foregoing, the study hypothesized that: *H<sub>7</sub> Audit committee stock ownership has a positive significant relationship with Big 4 auditors.*

### ***Audit Committee Tenure and Auditors Brand Name***

The proponents of agency theory have argued that the longer it takes for a director to serve on the board, the more informed he will be about the entity's practices and hence become more active in preventing the incidence of financial reporting fraud (Beasley, 1996; Hermalin & Weisbach, 1991; Vafeas 2005). This suggests that audit committee tenure has positive influence on audit quality. Moreover, it has been contended that the positive association of long serving directors on monitoring effectiveness compensates the negative association predominantly when it comes to overseeing financial reporting process. Thus resulting in long serving board members who are independent to managers could have greater governance quality since they might be more watchful with reputational capitals and thus acquire more audit efforts (Chan, Liu & Sun, 2013; Vafeas, 2003). This suggests the external audit might complement to audit committee governance and as a result, there might be a positive relationship between the percentage of long serving directors on the audit committee and audit fees. Thus, external auditors might price audit committee's effectiveness, for instance, audit committee's governance may substitute with external auditing. In addition, it has been contended that external auditors can devote fewer efforts on clients with a high percentage of long serving directors on the independent audit committee in circumstances where long tenure directors have superior monitoring effectiveness (Chan, Liu & Sun, 2013). This suggests that long tenure directors might have a lesser request for audit efforts. From the above argument, it is expected that long tenure directors may request fewer audit efforts. In the light of the foregoing arguments, the study hypothesized that:

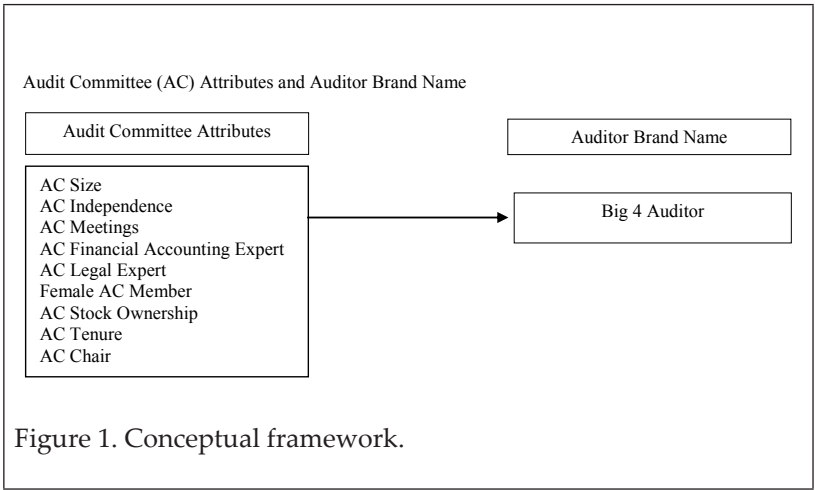
*H<sub>8</sub> Audit committee tenure has a positive significant relationship with Big 4 auditors.*

### ***Audit Committee Chair and Auditors Brand Name***

Previous studies on audit committee chair have established that audit committee chair gains control over audit committee, as they plan for the agendas and control the information flow (Sharma et al., 2009). This has been empirically confirmed by Bruynseels and Cardinaels (2014) who explored whether audit committee is

a manager’s watchdog or a personal colleague of the CEOs. They utilized a sample of listed firms for five years from 2004 to 2008. They revealed that audit committees who have social network to the CEO purchase less audit services and participate more in earnings management. They also suggested that the external auditors of such companies whose audit committee have social network with managers are less likely to provide going-concern opinions or to disclose internal control weakness. This has been confirmed by a recent study by Qu (2018) who showed that audit committee chair vary from ordinary members of the committee as they are commonly in charge of more official responsibilities including schedule for the committees’ meetings, setting the agenda, and collaborating with the internal and external auditors. In line with the above arguments the study hypothesized that:

*H<sub>9</sub> Audit committee chair has a positive significant relationship with Big 4 auditors.*



## Methodology

The population consist of 170 listed firms in the Nigerian Stock Exchange (NSE) as at 31<sup>st</sup> December 2016. From the total, 55 firms were identified as financial institutions thus; they had left out a total of 115 firms. Without considering the 15 firms that were delisted by

NSE in 2016, there were 100 firms left. Out of these 100 firms, 12 firms did not provide complete information. Therefore, a final sample of 88 firms was employed in this current study. The duration of this study ranged from 2012 to 2016. The data for the study were obtained from the annual reports of the listed firms and Thompson Reuters DataStream. Table 1 presents the description of how the sample was generated.

Table 1

*Sample Computation for Firms that Meet the Filtering Process*

Sample computation for year 2012 to 2016	Firms	Firm-year observations
Total population	170	850
Less:		
Financial Services	<u>55</u>	<u>275</u>
Total Non-financial Service Firms	115	575
Less:		
Firms Delisted by NSE IN 2016	15	75
Firms that did not provide complete information	<u>12</u>	<u>60</u>
Final sampled firms	<u>88</u>	<u>440</u>

Source. NSE, 2016

*Variable Measurement and Model Specification*

Various measurements have been employed as proxies for individual audit committee attributes. Some prior literature have used dummy variables zero and one (Cohen, Hoitash, Krishnamoorthy & Wright, 2014; Dhaliwal, Naiker & Navissi, 2010; Sultana, Mitchell & Zahn, 2013; Zaman, Hudaib & Haniffa, 2011). Other studies have employed aggregate numbers of individual surrogates or ratios of the surrogates to the total number of audit committee members (Nelson & Devi, 2013; Saleh, Iskandar, & Rahmat, 2007; Sultana, 2015). Consistent with prior studies (Abernathy et al., 2014; Xie et al., 2003; Klein, 2002; Krishnan et al., 2011; Yermack, 2004), this study employed an aggregate number of audit committee members in some of the committee's characteristics and ratios for some of the

committees' attributes to the aggregate numbers of the committees' members. Following AlQadasi and Abidin (2018), Bala, Amran and Shaari (2018), Sani, Latif & Al-Dhamari (2018) and Zhang et al. (2007), auditor brand name is measured as a dummy variable 1 when a firm is audited by Big 4 auditors and 0 when a firm is audited by a non-Big 4 auditors. The study used some variables as a control for the company's specific characteristics and governance characteristics that have been employed by prior studies (Abernathy et al., 2014; Badolato et al., 2014; Beasley, 1996; Garba & Mohamed 2018; Krishnan et al., 2011; Saleh et al., 2007; Sultana, 2015). To ensure precision, the control variables of this study included firm size (FS), leverage (LEV), firm age (FAGE), board financial expertise (BF), board independence (BI) and sales growth (SGROWTH). Following Krishnan et al. (2011) and Badolato et al. (2014), we controlled two governance characteristics which are the board expertise and the board which have been affirmed to have a significant effect on monitoring effectiveness and endorsing financial reporting process (Carcello & Neal, 2003; Klein, 2002). Therefore, the study expected that the board expertise has a positive significant influence with Big 4 auditors. Additionally, it has been confirmed that a larger proportion of independent directors on the boards increases the likelihood of audit quality (Alves, 2014; 2005; Klein, 2002). Consistent with the above arguments, the study has projected a positive and significant association between board independence and Big 4 auditors.

Similarly, the study also controlled the firm size which was proxied by the natural logarithm of total assets and, leverage was proxied by the total debt to total equity ratio. It has been contended that larger companies are linked to higher financial reporting quality as they are more closely supervised in the market (Bala & Kumai, 2015; Klein, 2002). Thus, we expect a positive significant association between firm size and Big 4 auditors. Furthermore, prior literature showed that highly leveraged companies are connected with a higher level of asymmetric timeliness of accruals which, in return, reduces the quality of financial reporting process (Klein, 2002; Krishnan et al., 2011; Sultana et al., 2013). In line with (Bala, Amran & Shaari, 2018) and Chen et al. (2010) we expect a positive association between sales growth and Big 4 auditors. Finally, consistent with Leung, Srinidhi and Xie (2017), we controlled for Firm age and has presumed a positive association between older firms and Big 4 auditors. The details of measurement of variables and their definitions are presented in Table 2.

Table 2

*Summary of Independent Variable Measurement*

Variable	Hypotheses	Acronyms	Measurement
Independent variables			
AC Size	H <sub>1</sub>	ACSIZ	Aggregate number of audit committee members
AC Independence	H <sub>2</sub>	ACIDP	Proportion of independent non-executive directors in audit
AC Meetings	H <sub>3</sub>	ACMET	Frequency of meetings held by audit committee
AC Financial Accounting Experts	H <sub>4</sub>	ACFAEX	Ration of audit committee members who qualified as professional accountants with certificates Association of National Accountants of Nigeria, Institute of Chartered Accountants of Nigeria or their equivalent to the total number of audit committee members
AC Legal Expert	H <sub>5</sub>	ACLEX	Ration of audit committee members with legal backgrounds; Bachelors of Laws, Masters in Laws, members of Nigerian Bar Association to the total number of audit committee members
Female AC Member	H <sub>6</sub>	FACME	Proportion of female directors on audit committee
AC Stock Ownership	H <sub>7</sub>	ACSOW	Aggregate number of shares held by audit committee members
AC Tenure	H <sub>8</sub>	ACTNR	Average tenure of audit committee members

(continued)

Variable	Hypotheses	Acronyms	Measurement
AC Chair	H <sub>9</sub>	ACCHR	Dummy variable computed as one if the audit committee is chaired by a shareholder and zero otherwise
Dependent Variable			
Auditor Brand Name		AUBRN	Dummy variable computed as one if a firm is audited by big 4 and zero otherwise
Control Variables			
Board Expertise		BFEX	Proportion of board members with financial knowledge
Board Independence		BID	Proportion of independent directors on the board
Firm Size		FSIZ	Natural logarithm of total asset
Leverage		LEVR	Long-term debt to total equity
Firm Age		FAGE	Computed as year of observation minus year of listing
Sales Growth		SGROWTH	Change in sales divided by sales in previous year

## Model Specification

The hypotheses of the study were tested using the following logistic model:

$$\begin{aligned}
 \text{AUBRN} = & \beta_0 + \beta_1 \text{ACSIZ}_{it} + \beta_2 \text{ACIDP}_{it} + \beta_3 \text{ACMET}_{it} + \beta_4 \text{ACFAEX}_{it} \\
 & + \beta_5 \text{ACLEX}_{it} + \beta_6 \text{FACME}_{it} + \beta_7 \text{ACSOW}_{it} + \beta_8 \text{ACTNR}_{it} + \beta_9 \text{ACCHR}_{it} + \\
 & \beta_{10} \text{BFEX}_{it} + \beta_{11} \text{BID}_{it} + \beta_{12} \text{FSIZ}_{it} + \beta_{13} \text{LEVR}_{it} + \beta_{14} \text{FAGE}_{it} + \beta_{15} \text{SGROWTH}_{it} \\
 & + \varepsilon_{it} \dots\dots\dots(1)
 \end{aligned}$$

## Results and Discussions

### *Descriptive Statistics*

Table 3 presents the descriptive statistics of the studied variables. Following prior studies, we utilized continuous variables with outsized observations at 5% or 95% confidence intervals to control the outliers in the data (Barth, Landsman, Lang & Williams, 2012; Ittonen, Miettinen, Vähämaa & Miettinen, 2010; Yang & Krishnan, 2005). Table 3 shows that the mean of audit committee size (ACSIZ) was five members, alternating from four to six. On average, 43% of audit committees had independent directors, fluctuating from 25% and 50%. The committees met at least four times annually. On average, 21% of audit committee members had financial accounting experts. While some firms did not have any members with financial accounting expertise, other firms had up to 50% financial accounting experts in the committees. A mean of 10% of audit committee members had legal expertise (ACLEX), with some firms having up to 29%. An average of 54% of audit committee members had female directors while some firms did not have female representation.

Table 3

### *Descriptive Statistics*

Variable	Obs	Mean	Std. Dev.	Min	Max
AUBRN	440	0.58	0.49	0.00	1.00
ACSIZ	440	5.47	0.86	4.00	6.00
ACIDP	440	0.43	0.09	0.25	0.50
ACMET	440	3.79	0.62	3.00	5.00
ACFAEX	440	0.21	0.13	0.00	0.50
ACLEX	440	0.10	0.09	0.00	0.29
FACME	440	0.54	0.50	0.00	1.00
ACSOW (Units)	440	37,800,000	79100000	12,768.00	300,000,000
ACTNR	440	5.11	1.44	3.00	8.00

(continued)

Variable	Obs	Mean	Std. Dev.	Min	Max
ACCHR	440	0.89	0.31	0.00	1.00
BID	440	0.72	0.11	0.06	0.92
BFEX	440	0.50	0.16	0.00	0.88
FSIZ	440	16.42	1.59	13.76	19.45
LEVR	440	0.01	0.02	0.00	0.07
FAGE	440	23.82	13.29	4.00	42.00
SGROWTH	440	0.27	2.64	-5.26	7.51

*Notes:* AUBRN = Big 4 auditors (KPMG, Price Waterhouse Coopers, Ernst & Young and Deloitte). ACSIZ = AC size, ACIDP = AC independence, ACMET = AC meetings, ACFAEX = AC financial expertise, ACLEX = AC legal expert, FACME = female AC member, ACSOW = AC stock ownership, ACTNR = AC tenure, ACCHR = AC chair independence, BID = board independence, BFEX = board expertise, FSIZ = firm size LEVR = leverage, FAGE = firm age, SGROWTH = sales growth.

Audit committee stock ownership (ACSOW) extended from 12,768 units to 300,000,000 units, with a mean of 37,800,000 units. Audit committee tenure (ACTNR) was on average five years, extending from three to eight years. While in some firms, the audit committee were chaired by directors, but majority were chaired by the shareholders' representatives. This is one of the unique attributes of audit committee formation in Nigeria, because it is a requirement by the Companies and Allied Matters Acts of Nigeria (2004) that audit committee members should be composed of equal representation from both the shareholders and the directors.

### *Correlations*

Table 4 depicts the correlation matrix for variables of the study. Largely, the results show that multicollinearity does not stanch a threat to the estimation variables. The highest correlations among the independent variables were 48% and 45% between ACMET and ACSIZ as well as FSIZ and ACSIZ, respectively. These correlations may be considered normal because Hair, Black, Barry, Babin and Anderson (2014) have argued that a correlation of less than 90% may not be a problematical for estimation. On one hand, ACIDP, ACFAEX ACLEX, FACME, and ACSOW were positively correlated with AUBRN. The positive coefficients might mirror the nature of their effect in the regression estimates. Alternatively, ACSIZ, ACMET, ACTNR and ACCHR were negatively correlated with AUBRN.

Table 4

## Correlation Matrix

Variable	BIG4	ACSIZ	ACIDP	ACMET	ACFAEX	ACLEX	FACME	ACSOW	ACTNR	ACCHR	BID	BFEX	FSIZ	LEVR	FACE	SGROWTH
AUBRN	1.00															
ACSIZ	-0.01*	1.00														
ACIDP	0.12	0.06	1.00													
ACMET	-0.07	0.48***	0.03	1.00												
ACFAEX	0.21***	0.03	0.11	-0.05*	1.00											
ACLEX	0.06	0.24***	0.05	0.14	-0.03**	1.00										
FACME	0.15**	0.23***	0.04	0.23	0.07***	0.30***	1.00									
ACSOW	0.09**	-0.07	-0.10	0.10*	0.06	-0.11	-0.03	1.00								
ACTNR	-0.13**	0.04	-0.05	0.10	-0.01	-0.04	0.00	-0.07	1.00							
ACCHR	-0.04	0.13	0.12**	0.07	0.01	0.17***	0.13**	-0.08	-0.09*	1.00						
BID	0.09*	-0.21	0.13***	-0.13**	0.12	0.01	-0.13**	-0.14	0.06	-0.05	1.00					
BFEX	0.19***	0.06	0.00	0.12**	0.20***	-0.17***	-0.02	0.05	0.07	-0.01	0.18***	1.00				
FSIZ	0.17***	0.45	0.08***	0.28	0.08	0.05	0.05	-0.08	0.10*	0.10	-0.10	0.27***	1.00			
LEVR	0.06	0.10	-0.02*	0.10	0.03	0.03	0.04	-0.15	0.03	-0.05	0.03	0.23***	0.40***	1.00		
FACE	0.06	0.03	-0.03	0.05	0.01	-0.04	0.03	-0.07	0.04	0.09	0.04	0.14**	0.20***	0.06	1.00	
SGROWTH	-0.06	-0.07	-0.06	-0.11	0.00	0.01*	-0.05	-0.04	-0.01	-0.07	0.04	-0.13**	-0.14**	-0.18	-0.09	1.00

Notes: AUBRN = Big 4 auditors (KPMG, Price Waterhouse Coopers, Ernst & Young and Deloitte), ACSIZ = AC size, ACIDP = AC independence, ACMET = AC meetings, ACFAEX = AC financial expertise, ACLEX = AC legal expert, FACME = female AC member, ACSOW = AC stock ownership, ACTNR = AC tenure, ACCHR = AC chair independence, BID = board independence, BFEX = board expertise, FSIZ = firm size LEVR = leverage, FACE = firm age, SGROWTH = sales growth, \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Multivariate Analysis

Relationship between of Audit Committee Attributes and Auditor Brand Name

This section examines the hypotheses of the study ( $H_1$ ,  $H_9$ ) to determine the effect of audit committee attributes and AUBRN. Table 5 shows the regression results of the relationship between audit committee attributes and AUBRN. Table 5 shows that ACSIZ had a positive insignificant relationship with AUBRN. This implies that a larger audit committee might not contribute in the selection of auditors' brand name in the Nigerian listed firms. The finding was contrary to the study expectation ( $H_1$ ) which assumed that ACSIZ has a positive association with AUBRN. This could be a result of the fact that larger ACSIZ may be too difficult to manage as too large members may possibly result in a slower decision-making progress. The findings also show that ACIDP had a positive significant association with AUBRN at 5% significance level. This proposes that a larger proportion of independent directors in the audit committee increases the probability that a firm will engage Big 4 auditors, further supporting ( $H_2$ ), which anticipated a positive relationship between audit committee attributes and AUBRN.

Table 5

Panel Regression on the Relationship between Audit Committee Attributes and AUBRN

AUBRN	Hypotheses(sign)	Coef.	Std. Err.	z-val.	p-val.
ACSIZ	$H_1(+)$	-0.18	0.18	-1.00	0.32
ACIDP	$H_2(+)$	2.57	1.27	2.02**	0.04
ACMET	$H_3(+)$	-0.76	0.24	-3.12***	0.00
ACFAEX	$H_4(+)$	2.53	0.92	2.75***	0.01
ACLEX	$H_5(+)$	2.56	1.44	1.78*	0.08
FACME	$H_6(+)$	0.95	0.26	3.67***	0.00
ACSOW	$H_7(+)$	0.00	0.00	2.40**	0.02
ACTNR	$H_8(+)$	-0.25	0.08	-3.04***	0.00
ACCHR	$H_9(+)$	-0.83	0.39	-2.10**	0.04
BID		1.97	1.11	1.77*	0.08

(continued)

AUBRN	Hypotheses(sign)	Coef.	Std. Err.	z-val.	p-val.
BFEX		2.23	0.83	2.68***	0.01
FSIZ		0.40	0.10	4.06***	0.00
LEVR		-7.70	6.81	-1.13	0.26
FAGE		0.00	0.01	0.43	0.67
SGROWTH		-0.03	0.04	-0.77	0.44
Cons		-5.31	1.76	-3.02***	0.00
Pseudo R2		0.15			
LR chi2(15)		91.31			
Prob > chi2		0.00			
Correctly Specified		70.68%			
Hosmer-Lemeshow chi2		2.42			
Prob > chi2		0.97			

Notes: AUBRN = Big 4 auditors (KPMG, Price Waterhouse Coopers, Ernst & Young and Deloitte). ACSIZ = AC size, ACIDP = AC independence, ACMET = AC meetings, ACFAEX = AC financial expertise, ACLEX = AC legal expert, FACME = female AC member, ACSOW = AC stock ownership, ACTNR = AC tenure, ACCHR = AC chair independence, BID = board independence, BFEX = board expertise, FSIZ = firm size LEVR = leverage, FAGE = firm age, SGROWTH = sales growth, \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ .

This encourages the audit committee to purchase high quality auditing services and be more passionate to reduce the propensity of financial reporting frauds. The result is consistent with the agency theory which proposes that audit committee which is independent of managers might be more willing to disagree with managers about dissimilar issues (Abbott et al., 2003; Carcello & Neal, 2003). Thus, making them to be more watchful on financial reporting issues. This supports the findings of Beasley (1996), Hudaib and Cooke (2005) and Ejeagbasi et al. (2015) who found positive association between ACIDP and AUBRN.

Contrary to the our expectation ( $H_3$ ), ACMET was found to have an inverse significant relationship with AUBRN. This suggests that, more frequency of ACMET decreases the likelihood of employing Big 4 auditors. This finding supports the substitution hypothesis of audit quality which proposes an inverse association between governance

instruments and audit quality. A likely reason for this could be that audit committee which meets frequently can stimulate audit coverage through the various steps of the audits. Consequently, there is a high probability that more recurrent audit committee meetings may reduce the accidental issues of financial frauds in a firm and thus qualifying them to demand less audit efforts. This finding validates previous studies (Abbott et al., 2004; Raghunandan, Read & Rama, 2001) who found that regular audit committee meetings reduced the extent of financial restatement because such meetings with the internal auditors will allow them to be kept informed and acquainted with the accounting and auditing issues. In addition, Sharma et al. (2009) found an inverse relationship between audit committee meetings and Big 4 auditors.

ACFAEX had a positive significant association with AUBRN at 1% significance level. The result is in line with the study expectation ( $H_4$ ), which hypothesized that ACFAEX has a positive significant association with AUBRN. This deduced that audit committee members with financial accounting knowledge are highly likely to purchase the services of Big 4 auditors in their quest for greater assurance. This result is consistent with the complementary hypothesis of audit that is linked to agency theory which proposes that auditing service is needed to minimize agency conflicts rising from the interest of stockholders and managers. Consequently, audit committee members with financial accounting knowledge are more willing to engage better auditors who will in turn be more effective monitors on managers' actions and thus confirm that appropriate financial report and disclosure exist. This supports the findings of Abbott et al. (2003), Carcello and Neal (2003) and Kim (2015) who revealed that ACFAEX is significantly associated to the likelihood of hiring high quality auditors such as Big 4 auditors or industry specialist auditors. Interestingly, it is apparent that ACLEX had a positive significant association with AUBRN. This suggests that audit committee members with legal backgrounds have a probability of engaging Big 4 auditors. The result supports the study hypothesis ( $H_5$ ), which presumes that ACLEX has a positive relationship with AUBRN. This is in line with institutional theory which proposes that audit committee that has members with specific expertise is related to higher financial reporting quality (Cohen et al., 2014). This is not astonishing as audit committee members with legal experience

prepare the committee to be more cautious about legal risks that are connected to erroneous or poor aggressive financial reports. This results in the employment of the services of better auditors such as the Big 4 auditors in order to acquire better audit assurance. This supports the findings of Krishnan et al. (2011) who revealed that legal experts in the audit committee may assist in ensuring better financial reporting as financial reporting quality can be linked to legal liability threats and their legal experiences required them to be more vigilant about such threats.

Table 5 also reveals that FACME had a positive significant association with the AUBRN at 1% significance level. This suggests that the existence of at least a female director in the audit committee increases the likelihood of choosing the services of Big 4 auditors than the non-Big 4 auditors in the listed firms in Nigeria. The finding is in line with the study expectation ( $H_6$ ), which assumes that FACME has a positive significant association with AUBRN. The result is consistent with the perception that a diverse gender in audit committee demands for a higher quality audit in high risk environments. The result is in line with the findings of Aldamen et al. (2016), Huang and Thiruvadi (2010) and Lai et al. (2017) who showed that FACME request for a high audit quality to obtain a better audit assurance. ACSOW had a positive significant association with AUBRN at the 5% significance level. This infers that unit of shares controlled by audit committee members increases the probability of selecting Big 4 auditors other than non-Big 4 auditors. This is consistent with agency perspective which proposes that the monitoring role offers by ACSOW makes them to demand greater audit assurance by engaging better auditors. The finding support the study hypothesis ( $H_6$ ), which presumes that ACSOW has a positive significant association with AUBRN. The result is in line with the finding of Kibiya et al. (2016) who revealed that increasing the percentage of shares held by audit committee improves their monitoring role and enhances financial reporting quality.

Contrary to our expectation ( $H_7$ ), it is found that ACTNR had a negative significant association with AUBRN. This suggests that long serving directors are less likely to employ Big 4 auditors. Possible explanation for this might be that long serving directors can have greater knowledge, skill and potential to perform better. This makes

them to require less desire for greater external monitoring offered by Big 4 auditors. This is consistent with the substitution effect hypothesis which proposes an inverse association between governance devices and audit quality. The result also confirms the arguments of agency theory proponents who advocate that long tenure directors are more acquainted and informed about the firms practices and thus becoming more effective in reducing the incident of financial reporting fraud (Beasley, 1996; Hermalin & Weisbach, 1991; Vafeas 2005). ACCHR had a negative significant association with Big 4 auditors. This proposes that the chairmanship of shareholders in AC decreases the likelihood of employing Big 4 auditors. The result is contrary to our prior expectation which hypothesized that ACCHR has a positive association with AUBRN. This result is consistent with the findings of prior studies (Sharma et al., 2009) who found that audit chair gains control over audit committee, schedule for the agendas and controls the information flow. This makes them to have less desire for high audit efforts.

### *Sensitivity Analysis*

To assess the sensitivity of the results and to confirm that the findings were not sensitive to endogeneity and the choice of alternative measurements of the independent variables sensitivity tests were conducted. The following subsections present the results of the sensitivity analysis used by the study.

### *Alternative Measurements of Independent Variables*

This section presents alternative measurements of the independent variables of the study. The alternative measurements are considered to act as sensitivity checks. Recalled that seven predictor variables were measured as continuous variables in the main analysis (ACSI<sub>Z</sub>, ACIDP, ACMET, ACFAEX, ACLEX, ACTNR, and ACSOW). However, we used dichotomous measures for these variables in the sensitivity analysis following AlQadasi and Abidin (2018), Krishnan et al. (2011), Xie et al. (2003) and Zhang et al. (2007). Table 6 shows the results of alternative measurement of independent variables for the sensitivity test. Results reveal that the signs and coefficients of the main analysis are similar to those of sensitivity checks. Thus, it is established that our findings for the main model are insensitive to alternative measurement for the independent variables.

Table 6

*Pool Results of the Alternative Measures of Independent Variable*

VARIABLES	Hypotheses and Expected Signs	Coef. and t-values
ACSIZ	H <sub>1</sub> (+)	-0.597** (0.303)
ACIDP	H <sub>2</sub> (+)	1.940 (1.189)
ACMET	H <sub>3</sub> (+)	-0.350 (0.343)
ACFAEX	H <sub>4</sub> (+)	1.175*** (0.336)
ACLEX	H <sub>5</sub> (+)	0.346 (0.243)
FACME	H <sub>6</sub> (+)	2.075* (1.165)
ACSOW	H <sub>7</sub> (+)	-0.723*** (0.226)
ACTNR	H <sub>8</sub> (+)	-0.638* (0.367)
ACCHR	H <sub>9</sub> (+)	1.425 (1.051)
BID		1.535* (0.795)
BFEX		0.303*** (0.0816)
FSIZ		-3.926 (6.257)
LEVR		0.00713 (0.00827)
FAGE		3.71e-09*** (1.40e-09)
SGROWTH		-0.0255 (0.0414)
Constant		-7.561*** (1.495)
Pseudo R2		0.13
Observations		440

Notes: AUBRN = Big 4 auditors (KPMG, Price Waterhouse Coopers, Ernst & Young and Deloitte). ACSIZ = AC size, ACIDP = AC independence, ACMET = AC meetings, ACFAEX = AC financial expertise, ACLEX = AC legal expert, FACME = female AC member, ACSOW = AC stock ownership, ACTNR = AC tenure, ACCHR = AC chair independence, BID = board independence, BFEX = board expertise, FSIZ = firm size LEVR = leverage, FAGE = firm age, SGROWTH = sales growth, Robust standard errors in parentheses\*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

*Alternative Estimation Using Lagged Values of the Predictor Variables*

This section presents alternative estimation for the model using lagged values of the predictor variables. This is because endogeneity is a common problem associated to accounting research; it arises because of simultaneous consequences, explanatory variables and omitted variables (Larcker & Rusticus, 2010). It is contended that the link between the internal governance instruments and external auditing could be endogenous, where the strength of internal governance devices might lead to fewer or a prominent need for extensive external auditing; on the contrary, higher quality audits might lead to falling (or rising) other forms of internal governance devices (Hay, Knechel, & Ling, 2008). However, this study re-estimated the main model using the lagged values of the predictor variables to control this endogeneity problem or reverse causality problem (AlQadasi & Abidin, 2018; Alves, 2014). Table 7 shows the results of the re-estimated model using the lagged values of the predictor variables. Overall, the signs and the coefficients of the main model are similar to those of the sensitivity checks. Thus, it is established that our findings are insensitive to endogeneity problem.

Table 7

*Pool Results of the Alternative Estimation for the Model using Lagged Values of the Predictor Variables*

		(1)
VARIABLES		Lagged Values Independent variables
ACSIZ	H <sub>1</sub> (+)	-0.0101 (0.149)
ACIDP	H <sub>2</sub> (+)	2.605** (1.134)
ACMET	H <sub>3</sub> (+)	-0.392* (0.206)
ACFAEX	H <sub>4</sub> (+)	3.081*** (0.834)
ACLEX	H <sub>5</sub> (+)	0.926 (1.216)
FACME	H <sub>6</sub> (+)	0.788*** (0.232)
ACSOW	H <sub>7</sub> (+)	3.35e-09** (1.50e-09)

(continued)

		(1)
VARIABLES		Lagged Values Independent variables
ACTNR	$H_8(+)$	-0.179** (0.0747)
ACCHR	$H_9(+)$	-0.609* (0.353)
BID		1.834* (0.976)
BFEX		0.260 (0.709)
FSIZ		0.00969 (0.0756)
LEVR		-2.262 (6.182)
FAGE		0.0189** (0.00826)
SGROWTH		0.0315 (0.0411)
Constant		-1.079 (1.698)
Pseudo R2		0.104
Observations		440

Notes: AUBRN = Big 4 auditors (KPMG, Price Waterhouse Coopers, Ernst & Young and Deloitte). ACSIZ = AC size, ACIDP = AC independence, ACMET = AC meetings, ACFAEX = AC financial expertise, ACLEX = AC legal expert, FACME = female AC member, ACSOW = AC stock ownership, ACTNR = AC tenure, ACCHR = AC chair independence, BID = board independence, BFEX = board expertise, FSIZ = firm size LEVR = leverage, FAGE = firm age, SGROWTH = sales growth, Robust standard errors in parentheses\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ .

## Conclusion

This paper examined the effect of audit committee attributes on auditor brand name. The results revealed that audit committee attributes enhances audit quality by increasing the likelihood of engaging Big 4 auditors for greater audit assurance. Consistent with complementary hypothesis, the findings show that audit committee attributes are positively related to Big 4 auditors. The findings also support the substitutional hypothesis perspectives by revealing an inverse relationship between audit committee meeting, audit committee tenure, audit committee chair and Big 4 auditors. Our inferences are in line with both the agency theory and institutional theory. The findings are conclusive for these audit committee attributes that have been examined only to a limited extent in prior literature regarding their association with Big 4 auditors. Our findings offer an initial insight on

the effect of audit committee legal expert and audit committee stock ownership on Big 4 auditors. Thus, the findings inform of the existing and prospective shareholders who are the direct users of financial reports. This study can also help policy-makers and regulators by enabling them to better recognize the importance of these distinctive audit committee attributes in enhancing audits quality, which is one of the most vital elements in improving financial reporting quality.

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