

## **EMPIRICAL ANALYSIS OF FACTORS AFFECTING AUDITOR QUALITY: EVIDENCE FROM LISTED FIRMS IN THE SERVICE SECTOR OF NIGERIAN STOCK EXCHANGE**

**Dr. Okeke P. C.**

Accountancy Department, Chukwuemeka Odumegwu Ojukwu University, Anambra – NIGERIA  
Email: neduokekef7@yahoo.com

### **ABSTRACT**

This research reviewed the factors that effects audit quality of firms listed in the service sector of Nigerian Stock Exchange. Ex-post facto research design was used for this study and secondary data were sourced from annual reports of fourteen out of twenty-five firms listed under the Services Sectors of Nigerian Stock Exchange as at 31<sup>st</sup> December 2019. The study covered a period of ten years from 2010 to 2019. Data collected was subjected to preliminary analysis using descriptive statistics and correlation analyses. The formulated hypotheses were tested using binary regression with the aid of STATA software. Result revealed that that audit independence has significant effect of audit quality, audit tenure has no significant effect of audit quality, joint audit has significant effect of audit quality. Simultaneously audit independence, audit tenure and joint audit simultaneously has significant effect on audit quality. Based on the findings, the study therefore recommends. The use of optimal audit fee to keep the auditor in the right track in their practices. Regulation of tenure of audit firm to prevent relationships that will likely reduce audit quality. Further regulation of joint audit to reverse its negative and significant effect on audit quality of services sectors listed in Nigerian stock exchange.

**Keywords:** Audit Quality, Audit Independence, Audit Tenure, Joint Audit, Service Sector, Reporting Quality.

### **1. INTRODUCTION**

Ensuring quality of audited financial statement is vital not only to auditing profession but also to other users of financial statement. Material misstatements in financial statements impair fair presentation, reliability and subsequently erode confidence of stakeholders on credibility of information provided. As noted by Okolie (2014), prevalence of financial statement fraud, excessive earnings management and other financial scandal has reduced investors' confidence on financial statements. Incidence of frauds and fraudulent financial reporting in Cadbury Plc., African Petroleum Plc. (AP), over valuation of the shares of Lever Brothers (Uniliver), post-consolidation crises in Nigerian banking sector involving Intercontinental Bank Plc., Bank PHB; Oceanic Bank Plc. and AfriBank Plc has been linked to poor financial reporting and governance mechnism (Emeka-Nwokeji, 2017).

Issues surrounding misstatements in firms' annual report has the concept of audit quality at the forefront of investors and researchers' consideration. Also observed by Crucean and Hategan (2019) that quality of the audit activity has become increasingly difficult to be appreciate making its evaluation a current topic both at national and also at the international level. Providing high quality financial accounting information which is guaranteed through quality auditing procedures influences capital providers and other stakeholders in making informed economic decision and enhance overall market efficiency. This means that factors that affect

audit quality need to be reappraised so as to restore the confidence of investors to the capital market as quality auditing enhances reliability of financial reports. Providing quality audited reports is key to confident and informed markets and investors.

The place of high quality audit in restoring investors' confidence in the capital market by ensuring that financial statements are free from material misstatement and deficiencies has attracted a great deal of research from both developed and developing economies. There is considerable research on audit quality and firm performance, audit quality and earning management, audit quality and share prices and host of other studies on audit qualities using different variables and proxy.

However, there is little empirical evidence on those external auditor's internal factors that affect audit quality. The few existing studies are mostly from sectors such as: Insurance Companies (Olabisi, Kajola, Abioro&Oworu, 2020). Health care sector (Amahalu, Okeke & Obi, 2018). Banking Sector (Ahmed &Che-Ahmad, 2016; Amahalu, 2017). Other extant studies from Nigeria on factors that affect audit quality utilized primary data source in the form of questionnaires that was distributed to several stakeholders in the fields of financial reporting and auditing (Okaro & Okafor, 2014; Enofe, Mgbame, Aderin & Ehi-Oshio, 2013; Adeyemi, Okpala & Dabor, 2012).

Research on factors that affect audit quality using secondary data from listed firms in the Services Sector is lacking from literature to the best of the researcher's knowledge. Thus this article intended to close this gap in extant literature from listed natural resources firms Nigeria. Specifically, the study intends to:

- Ascertain the effect of audit independence on audit quality.
- Evaluate the effect of audit tenure on audit quality.
- Determine the extent to which joint audit affect audit quality
- Assess joint effect of audit independence, audit tenure and joint audit on audit quality.

In order to achieve these objectives, this paper is further sectioned as follows: Literature review, methodology, results and discussions and conclusion.

## **2. Review of related literature and hypotheses development**

### **2.1. Concept of Audit Quality and Measures**

Attempts have been made in the past to define audit quality, but none of the attempt resulted in a definition that is universally acceptable. Thus conceptualising audit quality is rather a herculean task. Concerning diverse nature of audit quality, International Auditing and Assurance Standards Board (IAASB 2011) acknowledges that there is no definition or analysis of audit quality that has achieved universal recognition as it constitutes a complex subject and many factors influence audit quality. In line with this assertion, Okolie and Izedonmi (2014) noted that audit quality is, indeed a complex and multi-faceted concept. In a similar view on lack of uniform definition for audit quality, Riyanto (2007) cited in Salehi, Mahmoudi and Gah (2019) opined that audit quality is something that is abstract, difficult to measure and can only be perceived by the users of audit services and accounting information It is frequently used in debates among stakeholders, in communications of regulators, standard setters, audit firms and others to cover a number of key elements that create an environment which maximizes the likelihood that financial report as a whole is free of material misstatement. Audit quality encompasses key elements that create an environment which maximizes the likelihood that quality audits are performed on a consistent basis. This study

conceptualises audit quality as extent to which information that is available to investors is reliable and free from material misstatement.

Audit quality according to DeAngelo (1981) cited in AL-Qatamin and Salleh (2020) is the probability that the auditor will be able to both discover and report material breach in the client's accounting system to the related authority. Krishnan and Schauer (2001) described audit quality as the conformity of financial statements to the audit standards during the audit assignment. In their views presence of material violations of the audit assertions and benchmarks would highlight poor audit quality. Audit quality is a term used to describe audit activity performed by an independent auditor in compliance with auditing standards to ensure that the client entity complied with required reporting standards in preparing and reporting firms' economic events to reduce financial statement manipulations Emeka-Nwokeji (2021). Audit quality means the capability of auditor in discovering and reporting any errors in a financial statement (Amahalu et al, 2018).

There are different measures of audit quality as there are authors that have researched on audit quality. For instance, DeFond and Zhang (2014) cited in Rajgopal, Srinivasan and Zheng (2021), categorized measures of audit quality into input-based proxies and output-based proxies. According to them, output based measures typically cover: material restatements, preferably initiated by the auditor and SEC; going concern opinions; financial reporting characteristics such as the use of signed or absolute discretionary accruals, the Dechow-Dichev measure of earnings quality or Basu's timely loss recognition measure or the firm's tendency to meet or beat quarterly analyst consensus estimates of earnings; and finally perception based measures such as the earnings response coefficient, stock price reactions to auditor related events, and cost of capital measures. Input-based proxies refer to auditor-specific characteristics, and auditor fees. The most popular measure for auditor-specific characteristics is auditor size, in particular, whether or not the company is audited by a Big N auditor. In line with this reasoning, audit quality was measured using a dichotomous variable of "ones" and "zeros", with one representing the use of a big four auditors by the firm and zero representing use of non-big four (Aliu, Joshua & Ahmed, 2018; Gouiaa & Zéghal, 2014; Abdullah, Ismail & Jamaluddin, 2008). Knechel, Krishnan, Pevzner, Shefchik & Velury (2013) used indicators such as: culture within an audit firm; skills and personal qualities of audit partners and staff; effectiveness of audit process; reliability and usefulness of audit reporting; and factors outside the control of auditors in measuring quality of audit. Omonuk and Oni (2015), used reliability of financial report measured as a dichotomous or dummy variable that equals 1, if the report is reliable and 0, otherwise in measuring audit quality. For the purpose of this study, audit quality is measured as auditor's brand name representing big 4 and non-big 4 auditing firms.

## **2.2 Factors Affecting Audit quality**

Factors are elements that influences some features of target object. It can also be described as those attributes that can exert a noticeable impact on an object in a positive or negative ways. Reza and Towfiquzzaman (2021) describe factors as those various variables influencing audit. There are number of factors that may affect the quality of auditing. As there are number of factors affecting audit quality, there are also various classifications of these factors according to the adifferent authors and entities (Hien, Tram, Ha, Huong & Hang, 2019; Sulanjaku & Shingjergji, 2015). Skills and personal qualities of audit partners/staff, as well as training given to audit personnel are important factors that determine auditor quality (Francis & Wang, 2014 cited in Amahalu & Obi, 2020). This emphasises that personal features and training are fundamental for becoming a professional and competent auditor as well as providing audit report with minimal error(s). Stressing on the need for training for high level audit quality, AL-

Qatamin and Salleh (2020) asserted that being a successful auditor, required an aspirant to obtain relevant GAAS and GAAP certifications or any other related audit course or program. Thus for an aspirant that wants to be a part of a prominent audit firm, certain academic and practice roadmap are required. Guliyev, Hajiyevev and Guliyev (2019) highlighted that auditor's entity and industry knowledge, understanding accounting methodologies, audit plan, business environment (an inherent category that requires both internal and external auditors), scope factor of the audit contract are some of the factors that proactively affect the effectiveness of an audit.

Various measures have been used in literature as factors that influences audit quality. Some authors particular business environment, reporting framework, the size and complexity of the audit a. s factors that affect audit quality. In a most recent study, Reza and Towfiqzaman (2021) employed eleven variables of internal control system, firm size, audit fee, audit rotation, association with Big 4 firm, industry specialization of auditor, clients'/management coordination, presence of internal auditor, number of clients of a firm, auditors' quality and audit review by an external manager in measuring factors that influences audit quality. Factors such as auditor size, the existence of audit committee and auditor fees was employed by Mawutor, Borketey-La Francis & Obeng (2019) as factors that influences audit quality. Crucean and Hategan (2019) use characteristics of the auditor, the size of the company, the rotation of the auditors or information transparency as the most relevant variables to measure factors affecting audit quality. Adeyemi, Okpala and Dabor (2012) Measured factors affecting audit quality with management advisory services, length of auditors' tenure, literacy of audit committee members and audit committee independence Persson (2011) measured factor variable with number of assignments and age of the auditor. Beattie, Fearnley and Hinesv (2010) reduces thirty-six (36) factors from UK Financial Reporting Council (2006) definition of audit quality into nine indicators of: economic risk; audit committee activities; risk of regulatory action; audit firm ethics; economic independence of auditor; audit partner rotation; risk of client loss; audit firm size; and, lastly, International Standards on Auditing (ISAs) and audit inspection. Studies that focused on internal working environments used such variables as competence, objectivity, effectiveness of internal audit, top management support training and developing, physical working environment and autonomy to implement audit techniques (Adeniji, 2021). This study measured factors with audit independence, audit tenure and joint audit.

### **2.2.1 Auditor Independence and Audit Quality**

Independence of the auditor is one of the important factors in the audit profession. Financial statements will gain confidence of the users if the auditor's independence is assured. Hence if the auditor's independence is doubtful, it can reduce the audit value (Octavia & Widodo, 2015). Haeridistia and Fadjaranie (2019) used primary data collected through questionnaire from auditors working in the public accounting firm in the region of Jakarta. The result of their study revealed that auditor's independence has significant and positive effect on audit quality which means that if auditor's independence increases then audit quality also increases. In a study on whether auditor independence, audit tenure, and audit fee affect audit quality of firms listed in Capital Market Accountant Forum – FAPM in Indonesia both partially and simultaneously, Rahmina and Agoes, (2014) find that audit independence has significant positive effect on audit quality. Jamal and Sunder (2011) investigated the foundational assumptions that independence is necessary for the quality of audit, and often audit quality is equated with independence. Their analyses provide empirical evidence that independence is not a necessary condition for obtaining audit quality. Tobi, Osasrere and Emmanuel (2016) conducted a research on association between audit independence and audit quality using data from deposit money bank

in Nigeria. The result showed that there is a positive relationship between audit fee a measure of audit independence and audit quality. Aliu, Okpanachi & Mohammed (2018) in their study on the link between audit fee and audit quality, used audit fee to measure audit independence. The study revealed that high audit fees have the likelihood of compromising auditors' independence, thereby, resulting in lower audit quality. Kertarajasa Marwa and Wahyudi (2019) used primary data obtained from external auditors in South Sumatra, Indonesia in their study of independence and other variables on audit quality. The study show that independence variables do not significantly affect audit quality.

### **2.2.2 Audit Tenure and Audit quality**

Audit tenure refers to the number of consecutive audit tenure periods that an external auditor has engages with a client. Amahalu, Egolom and Obi (2019) investigated the effect of audit rotation on audit quality using data from quoted deposit money bank. Simple regression analyses conducted show that audit tenure has a positive effect on three measures of audit quality (audit firm size, audit committee size and audit fees. Iryani (2017) provided empirical evidence that auditor's independence in conducting audit has a positive and significant effect on audit quality of firms in South Jakarta. This means that the higher the auditor's independence the higher the audit quality. Tobi, Osasrere and Emmanuel (2016) examined the association between audit independence and audit quality using data from deposit money bank in Nigeria. Analysis using ordinary least square revealed a positive relationship between audit firm rotation and audit quality. Similarly, in an empirical study using Australian firms, Ball, Tyler and Wells (2015), provide evidence of a positive relation between audit firm tenure and audit quality. However, their study showed a negative relationship between the length of tenure of lead audit partner and client firm management (person-to-person relations) and audit quality. Contrary to the above result, Mgbame, Eragbhe and Osazuwa (2012), in their study on the relationship between audit partner tenure and audit quality was examined. They used binary logit model estimation technique was used in the analyses and results reveal that there is a negative relationship between auditor tenure and audit quality though the variable was not significant. Daniels and Booker (2011) did a research on effects of audit firm rotation on perceived auditor independence and audit quality using questionnaire administered on U.S. bank loan officers. Result of the study showed that neither audit rotation policy nor the length of the auditor tenure within rotation significantly influences audit quality. Knechel and Vanstraelen (2007) conducted a research on effect of auditor tenure on audit quality for private companies in Belgium. Evidence for tenure either increasing or decreasing quality is weak from their study. The study indicates that no loss of auditor independence as a result of lengthy auditor tenure. Adeyemi, Okpala and Dabor (2012) conducted research on factors affecting audit quality in Nigeria using management advisory services, length of auditors' tenure, literacy of audit committee members and audit committee independence as proxy of factors. The study revealed that multiple directorship is the most significant factor affecting audit quality in Nigeria. In addition, it is found that provision of non-audit service would likely have a significant effect on the audit quality in Nigeria. However, the study did not find audit firm rotation to be a significant factor for enhancing audit quality in Nigeria.

### **Joint Auditor and Audit Quality**

According to Bredinger and Larsson (2016) joint audit is the process where two audit teams perform audit for a firm. In joint audit contexts, firms choose two independent auditors that will be jointly in charge of their audit activities and have to prepare a single audit report at the end of the audit exercise. Bisogno and De Luca (2016) evaluate the effect of joint audit on quality of financial statement of Italian industrial non-listed SMEs. The result of the study showed that joint audit has significant and negative effect on earnings management. The



negative sign means that presence of two different auditors, preventing earnings management practices, strongly sustains the quality of earnings and the reliability of firms' financial statements. Okaro, Okafor and Ofoegbu (2015) assess perceptions of Nigerian Accountants, Auditors and Accounting Academics on the effect of joint audit on audit quality. Analysis using survey design revealed that joint audit will positively affect audit quality. Similarly, Mahmoud, Ali and Badawy, (2015) investigate the effect of joint audit on audit quality using data from companies listed on the Egyptian stock exchange. Their analyses show that companies audited by joint auditors are more conservative than companies audited by single auditors. Zerni, Haapamäki, Järvinen and Niemi (2012) examines whether voluntarily joint audit is related to audit quality using data from firms in Sweden. The result of the study provides evidence that hat voluntary joint audits are positively associated with audit quality. Lesage, Ratzinger-Sakel and Kettunen (2012) evaluated whether the motivations for joint audit in Danish context are actually related to the protection of the public interest. The study reveals non-significance association between joint audit and fees and also a non-significance association between joint audit and abnormal accrual. This non-significance result indicates that joint audits are not connected with lower earnings management or higher audit quality in comparison to single audits.

Based on the literature review and the objective of the study, the following null hypotheses were formulated and tested in the study:

- Audit independence has no significant effect on audit quality.
- Audit tenure has no significant effect on audit quality.
- Joint audit has no significant affect audit quality.
- Audit independence, audit tenure and joint audit simultaneously has no significant effect on audit quality.

### **2.3 Theoretical Framework.**

This study is anchored on signaling theory. Signaling theory was formulated by Michael Spence in 1973. Signaling theory justify the key function of auditing as a mechanism for mitigating information asymmetries. The fundamental of signaling theory is about information asymmetry between ownership and management that led to the appointment of external auditors as an arbiter to resolve the information asymmetry problem. This theory submits that; companies should use their audited financial information to send signals to the market. Thus high audit quality is capable of sending signals about the credibility of the financial statements in the market which will in the long run affect performance of the firm. This theory also postulates that the market price of the company's share is influenced by the perception of the market on the audit quality in the company.

## **3. Methodology**

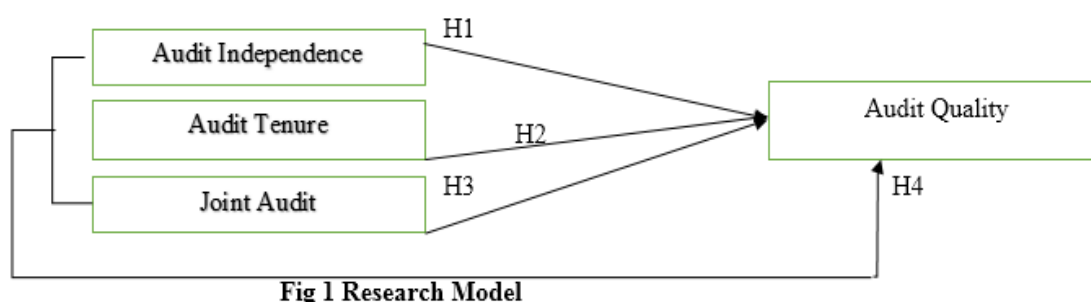
### **3.1 Research Design, Population and Data**

In this paper, an attempt is made to identify those factors which will have significant effect on the audit quality of listed firms under the Service Sector of Nigerian Stock Exchange. This study was conducted using the ex-post facto design. Population of the study consists of all the companies listed under the Services Sectors of Nigerian Stock Exchange as at 31<sup>st</sup> December 2019. There were twenty-five firms listed under the Services Sectors from which fourteen of them were sampled based on availability of data. Secondary data were therefore sourced from annual reports of sampled firm for a period of ten years from 2010 to 2019. The sampled firms are: Academy Press Plc, Afromedia Plc, Capital Hotel Plc, Ikeja Hotel Plc, Interlinked Technologies Plc, Nigerian Aviation Handling Company Plc, R T Briscoe Plc, Red Star Express Plc, Studio Press (Nig) Plc, Tantalizers Plc, Tourist Company of Nigeria Plc,

Transcorp Hotels Plc, Trans-Nationwide Express Plc, University Press Plc. The sourced data were further subjected to diagnostic tests and post estimations by means of appropriate statistical techniques. Binary regression was adopted as techniques for data analysis.

### 3.2 Model Specification and Framework

To test the hypotheses stated for this study, audit quality model was adopted from Rahmina and Agoes (2014) that Audit Quality =  $f$  (Audit Ind, Audit Ten, Audit Fee). The model was modified in this study to expresses Audit Quality as a function of audit independence, audit tenure and joint audit. The reason for adopting the model was because the original model was used in Indonesia which is a developing economy like Nigeria. Therefore, the research model for this study adopted from Rahmina and Agoes (2014) is described in the diagram in Figure 1 below



Based on the above relationship, the mathematical form of the model is:

$$AudQty_{it} = \alpha_0 + \beta_1 AudInd + \beta_2 AudTen_{it} + \beta_3 JoinAud_{it} + \beta_4 FAge_{it} + \beta_5 FSize_{it} + \varepsilon_{it}$$

#### Description:

$\alpha_0$  = Constant/intercept

$\beta_1 - \beta_3$  = Coefficient of the Regression (are parameters estimates)

AudQty = Audit Quality

AudInd = Auditor Independence

AudTen = Audit Tenure

JoinAud = Joint Audit

FAge = Firm Age

Fsize = Firm Size

$\varepsilon$  = Error Term (Residuals)

**Table 3.1: Variable Measurement**

S/N	Variables	Measurement	Labels	Sources	Apriori Expectation
Dependent Variable					
1	Audit Quality	A dummy variable that is coded "1" if a company is audited by a Big4 firm and "0" if otherwise	AudQty	Ogoun & Perelayefa (2020); Aliu, Okpanachi & Mohammed, (2018)	
Independent Variables					

1.	Audit Independence	Percentage is the audit fee or amount paid to auditors divided by revenue.	AudInd	Emeka-Nwokeji (2021)	+
2.	Audit Tenure	Dummy (1,0) is computed as "1" for companies that use external auditor that have stayed for 3 years and "0" for auditors with less than 3 years of engagement.	AudTen	Amahalu & Ezechukwu (2017)	+
3.	Joint Audit	Dummy (1,0) is computed as "1" for Companies that use more than one external auditor in a particular year and "0" otherwise	JoinAud	Bisogno & De Luca (2016)	-
Control Variables					
1.	Firm Age	Measured as Number of years listed on the Nigerian Stock Exchange	FAge	Emeka-Nwokeji & Okeke (2019)	+
2.	Firm Size	Measured as Natural log of total Assets	FSize	Emeka-Nwokeji & Okeke (2019)	+

**Source: Researchers Compilation**

### 3.3 Analytical Technique

Data was analysed using descriptive statistics and inferential statistics were conducted. Specifically, the formulated hypotheses were tested using binary regression with the aid of STATA software. The reason is because the dependent variables is dichotomous variable of “ones” and “zeros”, with one representing the use of a big four auditors by the firm and zero representing use of non-big four. The decision rule is to reject null hypothesis if P-value is less 0.05 significance level. Results were interpreted as statistically significant at 0.01 and 0.05. Normality of the data were determined using Skewness/Kurtosis tests for Normality. The P-values of all the variables show the dataset is normally distributed and can be used for regression analysis. Post estimations for multicollinearity was based on the result of correlation analysis. Heteroscedasticity were not done instead binary robust regression was used. Binary robust regression corrects for the problems of heteroskedasticity and autocorrelation in the data (Bakare, 2019).

## 4. Results and Discussions

This section contains the analyses and interpretation of the data collected for the study. The result from the descriptive statistics, correlation and regression analysis is provided

### 4.1 Descriptive Statistics

Descriptive statistics on Table 4.1 in the Appendix provides information regarding the mean, maximum, minimum, standard deviation, and median for dependent and independent variables. The residuals for measuring audit quality ranged between 1 and 0 with average value of 0.42. This shows that about 43% of sampled firms use the Big4 auditors which translates to having a high audit quality. The result indicates that most firms in the Services Sector of Nigerian Stock Exchange do not engage the services of Big4 auditors. The mean values stood at 0.299, 0.785, 0.35, 17.89 and 6.77 for Audit Independence, Audit Tenure, Joint audit, Firm age and Firm size respectively. The maximum values stood at 1, 1.957, 1, 46 and 8.495 for audit quality, Audit Independence, Audit Tenure, Joint audit, Firm age and Firm size respectively.



Table 4.1 Descriptive Statistics

<u>stats</u>	<u>audqty</u>	<u>audind</u>	<u>auditten</u>	<u>joinaud</u>	<u>fage</u>	<u>fsiz</u>
<u>mean</u>	.4285714	.2992643	.7857143	.35	17.89209	6.771616
<u>p50</u>	0	.18775	1	0	12	6.80795
<u>max</u>	1	1.9578	1	1	46	8.4957
<u>min</u>	0	.0336	0	0	2	5.5003
<u>sd</u>	.4966486	.3467071	.4117993	.4786822	12.49446	.6261024
<u>N</u>	140	140	140	140	139	140

#### 4.2 Correlation Analysis

Correlation coefficients and their association between the variables used in the model apart from being used to test the strength of linear association, the correlation results are preliminary to confirm the presence of multicollinearity between the variables. Correlation analysis presented in Table 4.2 indicates that AUDQ has a moderate positive association with AudInd (0.1495), FirmSize (0.4165) but relates negatively with AudTen (-0.0802), JoinAud (-0.5727) and FirmAge (-0.0007). From the result of the correlation analysis, there is absence of multicollinearity among the variables.

Table 4.2 Correlation Analysis

	<u>audqty</u>	<u>audind</u>	<u>auditten</u>	<u>joinaud</u>	<u>fage</u>	<u>fsiz</u>
<u>audqty</u>	1.0000					
<u>audind</u>	0.1495	1.0000				
<u>auditten</u>	-0.0802	0.0312	1.0000			
<u>joinaud</u>	-0.5727	-0.0674	0.1309	1.0000		
<u>fage</u>	-0.0007	-0.1378	-0.1057	0.1915	1.0000	
<u>fsiz</u>	0.4165	-0.2755	-0.0296	-0.3288	-0.2132	1.0000

#### 4. Regression Analysis of Factors affecting audit quality

Table 4.3 present the Binary robust regression. The regression revealed that Pseudo R-squared value was 0.436 which means that about 44% of the systematic variations in audit quality variable was jointly explained by the independent variables used in the study. The Wald chi2 value of 38.32 and its associated P-value of 0.0000 shows that the binary logistic regression model on the overall is statistically significant at 1% level, this means that the regression model is valid.

Table 4.3 Binary robust regression

<b>Independent Variables</b>	<b>Coefficient</b>	<b>z</b>	<b>p</b>
Costant	-15.412	-5.01	0.000
audind	2.206	2.56	0.010
auditten	-.309	-0.58	0.559
joinaud	-3.764	-3.52	0.000
fage	.0585	2.40	0.016
fsiz	2.136	5.03	0.000

#### 4.4 Testing of Hypotheses

In testing our hypotheses, the following specific analysis for each of the independent variables is provided.

##### Hypothesis One

The first hypothesis stated that audit independence has no significant effect on audit quality. The regression in table 4.3 provided coefficient of 2.206, z statistics of 2.56 and P-value of 0.01 which are statistically significant at 1% level. This shows that audit independence (audind) has a positive effect on audit quality (AQ). Based on this, the null hypothesis is rejected and the study conclude that audit independence has significant effect of audit quality.

##### Hypothesis Two

The second hypothesis stated that audit tenure has no significant effect on audit quality. The regression in table 4.3 provided coefficient of -0.309, z statistics of 0.58 and P-value of 0.559 which is not significant even at 1% level. This shows that audit tenure (audten) has a negative and insignificant effect on audit quality (AQ). Based on this result the null hypothesis is accepted and the study conclude that audit tenure has no significant effect of audit quality.

##### Hypothesis Three

The third hypothesis stated that joint audit has no significant effect on audit quality. The regression in table 4.3 provided coefficient of -3.764, z statistics of -3.52 and P-value of 0.000 which is significant at 1% level. This shows that joint audit (joinaud) has a negative and significant effect on audit quality (AQ). Based on this result the null hypothesis is rejected and the study conclude that joint audit has significant effect of audit quality.

##### Hypothesis Four

The fourth hypothesis stated audit independence, audit tenure and joint audit simultaneously has no significant effect on audit quality. Based on the Wald chi2(5) value of 38.32 and the corresponding P-value of 0.000 in table 4.3 which is significant at 1%, the null hypothesis is rejected. The study concludes that audit independence, audit tenure and joint audit simultaneously has significant effect on audit quality although individually, individually audit tenure has no significant effect on audit quality.

#### 4.5 DISCUSSION OF RESULT

Based on the outcome of the results, audit independence has significant positive effect on audit quality. It can therefore be interpreted that higher level of external auditor's independence will lead to an increase in audit quality. This result in agreement with the study of Rahmina and Agoes (2014) and Tobi, Osasrere and Emmanuel (2016) that audit impence has positive link with audit quality. The study however, negates the findings of Jamal and Sunder (2011); Kertarajasa Marwa and Wahyudi (2019) and Aliu, Okpanachi and Mohammed (2018) that provided empirical evidence that independence is not a necessary condition for obtaining audit quality. Thus the study concludes that that high fee ratio which is used to measure audit independence is this study increases the likelihood of high level audit quality. Thus high audit fee will motivate the auditor to provide better quality audit. It refutes the argument that audit fee increases the economic bond between the auditor and the client and thus impair the auditor's independence.

The Result revealed that audit tenure has negative though a significant effect on audit quality. This means that having the same audit firm for a long period of time will not result to either high or low level audit quality. The finding of this study contradicts previous authors that

establish positive link between audit tenure and audit quality (Amahalu, Egolum & Obi, 2019; Iryani, 2017; Tobi, Osasrere & Emmanuel, 2016; Ball, Tyler and Wells, 2015). The study is in line with Knechel and Vanstraelen (2007) and Daniels and Booker (2011) that provided evidence that the number of consecutive periods that an external auditor work for a firm does not affect discovering errors in the financial statement.

Analysis also showed that joint audit has significant and negative effect of audit quality. This result confirms previous study which revealed that joint audit has significant negative effect of audit quality (Bisogno and De Luca, 2016; Lesage, Ratzinger-Sakel & Kettunen, 2012). The result of this study did not find evidence to support the findings of Okaro, Okafor and Ofoegbu (2015) and Zerni, Haapamäki, Järvinen and Niemi (2012) that two different audit firms jointly forming an opinion affect quality of audit.

Firm age and Firm size provided coefficient of 0.0585 and 2.136 with P-value of 0.016 and 0.000 respectively. This shows that both firm age and firm size has positive and significant effect on audit quality of sampled firms over the period of the study.

## 5. CONCLUSION AND RECOMMENDATION

The Binary robust regression was used in this study to analyse the factors that affect audit quality among listed firms under the services sector of Nigerian Stock Exchange. The result show that, audit independence has significant positive effect on audit quality. Thus it can be concluded that a client that pay high audit fee will be able to engage the services of Big 4 auditors and this increases the likelihood of dictating and reporting on errors and misstatements. Audit quality will be higher given high audit fee in relation to firms' revenue. Having the same audit firm for a long period of time will lead to economic bonding that will lower audit quality. In other words, that longer audit engagement period can increase familiarity threat that will undermine audit quality. Engaging two different audit firms jointly forming an opinion on a client financial statement will not leads to increased audit quality.

Based on the outcome of the study the following recommendations were proffered:

- Since higher fee in relation to revenue translate to higher audit quality, firms should ensure that optimal audit fee in relation to revenue is maintained in order to keep the auditor in the right track in performing their practices.
- The result of this study provided support for audit firm rotation. Firms and regulatory bodies should consider regulating tenure of audit firm in all the firms as it will prevent relationships between auditors and the audited firm that will reduce audit quality.
- Joint audit can further be studies and regulated since the study provided empirical evidence that engaging two different audit firm simultaneously reduces audit quality.
- There is need for future research on other factors that influence audit quality as high audit quality is imperative in restoring confidence on reported numbers and the audit profession.

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## Appendix I

### Descriptive Statistics

stats	audqty	audind	auditten	joinaud	fage	fsiz
mean	.4285714	.2992643	.7857143	.35	17.89209	6.771616
p50	0	.18775	1	0	12	6.80795
max	1	1.9578	1	1	46	8.4957
min	0	.0336	0	0	2	5.5003
sd	.4966486	.3467071	.4117993	.4786822	12.49446	.6261024
N	140	140	140	140	139	140

### Normality Test Skewness/Kurtosis tests for Normality

Variable	Obs	Pr(Skewness)	Pr(Kurtosis)	joint adj chi2(2)	Prob>chi2
audqty	140	0.1510	.	.	.
audind	140	0.0000	0.0000	.	0.0000
auditten	140	0.0000	0.9044	23.73	0.0000
joinaud	140	0.0031	.	.	.
fage	139	0.0005	0.0071	15.83	0.0004
fsiz	140	0.0974	0.1233	5.10	0.0781

### Correlation Analysis

	audqty	audind	auditten	joinaud	fage	fsiz
audqty	1.0000					
audind	0.1495	1.0000				
auditten	-0.0802	0.0312	1.0000			
joinaud	-0.5727	-0.0674	0.1309	1.0000		
fage	-0.0007	-0.1378	-0.1057	0.1915	1.0000	
fsiz	0.4165	-0.2755	-0.0296	-0.3288	-0.2132	1.0000

**Logistic regression**

Log likelihood = -53.390703

Number of obs = 139  
LR chi2(5) = 82.73  
Prob > chi2 = 0.0000  
Pseudo R2 = 0.4365

<u>audaty</u>	<u>Coef.</u>	Std. Err.	<u>z</u>	P>  <u>z</u>	[95% Conf. Interval]
<u>audind</u>	2.206418	.8284973	2.66	0.008	.5825934 3.830243
<u>auditten</u>	-.3099178	.5528109	-0.56	0.575	-1.393407 .7735716
<u>joinaud</u>	-3.764353	.8504586	-4.43	0.000	-5.431222 -2.097485
<u>fage</u>	.0585247	.0231486	2.53	0.011	.0131542 .1038951
<u>fsiz</u>	2.136701	.5583231	3.83	0.000	1.042407 3.230994
<u>_cons</u>	-15.41286	3.91416	-3.94	0.000	-23.08447 -7.741249

**Logistic regression (Robust)**

Log pseudolikelihood = -53.390703

Number of obs = 139  
Wald chi2(5) = 38.32  
Prob > chi2 = 0.0000  
Pseudo R2 = 0.4365

<u>audaty</u>	<u>Coef.</u>	Robust Std. Err.	<u>z</u>	P>  <u>z</u>	[95% Conf. Interval]
<u>audind</u>	2.206418	.8608196	2.56	0.010	.5192426 3.893594
<u>auditten</u>	-.3099178	.53009	-0.58	0.559	-1.348875 .7290395
<u>joinaud</u>	-3.764353	1.069394	-3.52	0.000	-5.860326 -1.66838
<u>fage</u>	.0585247	.0243517	2.40	0.016	.0107962 .1062531
<u>fsiz</u>	2.136701	.4244322	5.03	0.000	1.304829 2.968572
<u>_cons</u>	-15.41286	3.074646	-5.01	0.000	-21.43906 -9.386665