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Audit Firm Attributes and Earnings Quality: Evidence from Industrial Goods Firms in Nigeria

ORJINTA, HOPE IFEOMA (Ph.D)
Department of Accountancy, Faculty of Management Sciences, Chukwuemek A Odumegwu Ojukwu University Igbariam Campus, Anambra State | *Email: ifyorjinta@gmail.com* | ORCID NO: https//orcid.org/0000-0002-0531-8056
ABAZU MAUREEN
Nimc-National Identity Management Commission, State Office, Enugwu Agidi, Anambra State | *Email: abazu.maureen@yahoo.com | Phone Number: +2348033367055*

Abstract: *This study empirically investigated the relationship between audit firm attributes and earnings quality of quoted industrial goods firms in Nigeria for a period of ten years spanning 2012 to 2021. To achieve this objective, theoretical, conceptual and empirical literatures on audit firm attributes and earnings quality were reviewed. To achieve this set objectives, this study employed ex-post-facto research design based on data sourced from selected firm's yearly reports. Audit firm attributes was proxied using audit specialization, audit compensation, auditor busyness and auditor educational level while earnings quality was measured by discretionary accruals. The study adopts judgmental sampling techniques to select fifteen industrial goods firms as sample size. Adopting an ex-post factor and longitudinal research design, the secondary data collected were subjected to some preliminary data tests such as descriptive analysis, Pearson moment correlation matrix and multi-collinearity analysis using Variance Inflation Factor (VIF). Hypotheses were tested using panel least squares regression through fixed effect and random effect determined by Hausman test, random effect was accepted, with the aid of E-views 12 econometric statistical software. Findings shows that audit compensation (AUDCOM) and auditor educational level (AUDEL) had positive and significant effect with earnings quality (ENQUAL) which was statistically significant at 5% level of significance. Based on the findings above, we therefore recommend that the shareholders of industrial goods firms in Nigeria should be more inclined in employing the services of audit firms that are well compensated and have adequate educational training and experience and understands the financial complexity of firms in the industry.*

Keywords: *Earnings quality, audit specialization, audit compensation, auditor busyness and educational level.*

1: Introduction

Despite regulators' and stakeholders' concerns about ensuring earnings quality, corporate financial scandals are still on the rise in Nigeria and other countries of the world. In recent times, Nigeria has battled towards breaking loose from the recent excruciating economic recession; the need to maintain investors' confidence in the capital market through high-quality audit and transparent financial reporting is unequivocally paramount. Considering that some investors in the past decade, appeared to have lost confidence on the authenticity, integrity, effectiveness and significance of the audit function owing to cases of incessant accounting scandals which were largely linked to poor earnings quality associated with a perceived lack of audit firm attributes,

among other factors (Okolie, 2014; Babatolu, Aigienohuwa & Uniamikogbo, 2016); ensuring adequate composition and attributes of audit firms may help to wholesomely restore investors' confidence in this critical economic situation the country is facing.

Audit firm attribute is critical to the reliability of financial statements as well as aiding in restoring investors' confidence due to the psychological belief in the auditors' role. However, doubts are sometimes expressed regarding the competent of audit firms as most auditors could reach audit opinions and judgments that are heavily influenced by the wish to maintain good relations with the client company. If this happens, the audit firms can no longer be said to be independent or is composed of different attributes, and the shareholders may not rely on their opinion. Since auditors are saddled with the responsibility of examining the financial report of organizations for the purpose of ascertaining whether it represents that which they purport (Abubakar, 2012), there is need for them to maintain certain attributes that are capable of projecting their image to the public to ensure that the lost confidence is restored. Again, the ability of auditors to provide high earnings quality is credited to some attribute of the audit firm, which include but not limited to, auditor busyness, audit compensation, auditor educational level and audit specialization. Hence this current study attempt to include two important variables of audit firm attribute which is audit specialization and auditor busyness which were not used by most of the studies conducted. Therefore, in a bid to explore these attributes expected of audit firms, this study is geared towards examining audit firm attributes and earnings quality of industrial goods firms in Nigeria.

In view of the onerous challenges that face the audit function, many studies have been conducted on the relationship between audit attributes and earnings quality. Some of these studies include Imen and Pascal (2014), Nozarpur (2014), Abdul, Sutrisno, Rosidi and Achsin (2014), Lin and Hwang (2010) which were conducted in UK, Australia and Europe respectively. Few studies such as Abubakar (2014), Fariba and Hassan (2014), Enofe, Ngbame, Okunega and Ediae (2013), Augustine, Famous and Augustine (2014) and Masoyi, Abubakar and Peter (2015), Babatolu, Aigienohuwa and Uniamikogbo (2016), Zayol and Kukeng (2017) were conducted in Nigeria but majority of the results present a paradox of inconsistency and contradiction concerning all the variable under this study. For example, prior studies like Enofe, Ngbame, Okunega and Ediae (2013) indicate that auditors' independence increases the quality of audit. Abdul, Sutrisno, Rosidi and Achsin (2014) revealed that audit firm attributes has a positive effect on audit quality. Babatolu, Aigienohuwa and Uniamikogbo (2016) revealed that there is a positive relationship between audit fee, audit firm rotation and audit quality. Also, Zayol and Kukeng (2017) showed that there is a strong relationship between auditor independence and audit quality. Moreover, the presence of these lingering divergent views in the literature could be attributed to difference in country or domain, methodology, type of study design employed, sample size, data collection instruments and analysis techniques used, variables, and time variation in which the studies were carried out. Again, none of them created a study in industrial goods sector hence the justification for selecting industrial goods sector in Nigeria.

It is therefore evident from the above studies (Zayol & Kukeng, 2017; Enofe, Ngbame, Okunega & Ediae, 2013; Abdul, Sutrisno, Rosidi & Achsin, 2014) that the extant literature has created more need for further studies to substantiate the direction of the relationship between audit firm attributes and earnings quality. This however form the significant reasons and justification for this

article, hence the need to x-ray the effect of audit firm attributes on earnings quality. Therefore, this paper is subdivided into five sections including this introduction. Section 2 covers the review of the related literature, section 3 concentrates on the methodology adopted while in section 4 we present and discuss the results of the analysis. Lastly in section 5, we draw the conclusion and proffer our recommendation for policy implementation.

2.1: Theoretical Conceptual Constructs and Hypothesis Development

Earnings Quality

Earnings quality is described as the ability of current reported earnings to reflect the future cash flow and earnings. In this context earnings quality refers to how best current reported earnings can predict future performance of entity. Subsequently, Chan, Jegadeesh and Lakonishok (2006) defined earnings quality as the degree to which reported earnings indicate operating fundamental of an entity. This measure of quality is interested on the ability of reported earnings to predict future performance of entity. For the purpose of this study earnings quality is defined as the extent to which reported earnings reflect the actual economic activities and financial performance of an entity in order for effective decision making by stakeholders. Earnings quality is the product of accounting system that reflects unobservable construct that inherently involves estimations and judgment, and thus has the potential for unintentional errors and intentional bias like earnings management (Ewert & Wagenhoper, 2010).

Audit Specialization and Earnings Quality

Industry specialized auditor is a situation where an auditor or audit firm have deep understanding (awareness) and long experiences of the client's exact business and organizational operations and specific accounting and auditing guidance which are required for doing a high quality audit. The nature of the client's business and industry affects clients' business risk and the risk of material misstatements in the financial statements (Arens et al., 2011). Ekwueme Anichebe and Orjinta (2020) opined that firms that engage the services of specialized auditor in their audit process will be able to select and implement audit procedures that are more precise and effective than the non-specialized auditor. The competence and expertise are obtained from repetition of the same audit procedures in certain industries for many years. For this reason, it is expected that such auditor should detect financial reporting misconduct and misstatement, as such reducing earnings arising from discretionary accruals. Financial expertise of external auditors was used as a measure for audit specialization captured as a dichotomous variable 1 if a firm is a specialized auditor and 0 if otherwise. Nevertheless, considering the contradicting theoretical argument, this paper does not predict any sign for the effect of auditor specialization on earnings quality but propose that ***there is a significant relation between auditor specialization and earnings quality (Hypothesis 1)***

Audit Compensation and Earnings Quality

Auditor's compensation is a measure of audit firm attributes that is used in relation to earnings quality. Audit compensation is known as audit fees, there are different views in the literature regarding the relationship of audit compensation and earnings quality, some are of the opinion that audit compensation has reasonable relationship with earnings quality, in the sense that increase in audit fees is commensurate to increase in quality (Francis & Ke, 2006). The perception of some researchers is that audit fee reflects additional audit effort which will lead to a higher level of audit quality. Ekwueme Anichebe and Orjinta (2020) defined audit fees as amounts paid to auditors for an audit assignment. It reflects the cost of the efforts expended by the public accountants and risks

of litigation. Hence it can be inferred that the results of the study imply that audit firms receiving higher fees are perceived to have high audit quality, which translates into greater earnings quality of a firm. There has been a debate in the literature on the effects of the various components of auditor's compensation on earnings quality. However, there are some inconsistencies that existed in the literature, for that reason, the current study does not intend to propose any sign, rather we hypothesize that ***there is significant relation between audit compensation and earnings quality (Hypothesis 2).***

Auditor busyness and Earnings Quality

Auditor busyness is seen as a factor affecting audit quality and earnings management. Busyness at auditor level is computed using the total number of clients of the auditor (audit partner) in recent studies. Some researchers like Goodwin and Wu (2016); Gul, Ma, and Lai (2017); Lai, Sasmita, Gul, Foo, and Hutchinson (2016); Sundgren and Svanström (2014); Suzuki and Takada (2016) concentrate on the impact of the auditor's number of clients on the earnings quality and opined that auditors with multiple clients are likely to dissipate their efforts (Lai et al., 2016). All of these recent studies concentrate on the auditor busyness effect on earnings quality which is discussed as discretionary accruals. This is because busy auditors do not have enough time to understand clients' business and financial statements and they do not have enough time to collect information about clients (Gul et al., 2017; Sundgren & Svanström, 2014) or, they may not detect earnings management practices because of a lack of focus caused by having a large client portfolio (Lai et al., 2016; Suzuki & Takada, 2016). As a matter of fact, drawing on the above discussion and prior studies' findings, this study does not wish to predict any sign for auditor busyness, instead we hypothesize that ***there is a significant relationship between audit busyness and earnings quality (Hypothesis 3)***

Auditor Education Level and Earnings Quality

Auditor education level is one of the major attributes that enhances earnings quality (Yan & Xie, 2016). Cahan and Sun (2015) approached the situation from upper echelon theory and they stated that post-graduate degrees may affect auditor's decision-making process because education level reflects auditor's knowledge and skills. But, they found no association between auditor's education level and earnings quality. Bröcheler, Maijoor, & van Witteloosetuijn (2004) stated that education has a positive impact on audit firm performance because more educated auditors are more capable and perform better. Similarly, Bröcheler et al., (2004) and Ye, Cheng and Gao (2014) were of the opinion that educated auditors are more capable and more knowledgeable (Che et al., 2017), and more familiar with financial statements (Sutaryo & Lase, 2016). Auditors with post-graduate degree provide more qualified audit work than auditors with bachelor's degree because of having more knowledge (Cahan & Sun, 2015; Che et al., 2017), being more capable and competent and exerting more effort (Bröcheler, Maijoor, & van Witteloosetuijn, 2004; Che et al., 2017; Ye, Cheng, & Gao, 2014). These qualifications of educated auditors make them more conservative when they perform audit tasks. However, there are some inconsistencies that existed in the prior literature, for that reason, the current study does not intend to propose any sign for auditor education level, rather we hypothesize that ***there is significant relation between auditor education level and earnings quality (Hypothesis 4)***

The above scholars attempted to study effect of audit firm attributes on earnings quality but none of them created a study in Nigeria industrial goods sector. The scholars also used audit tenor, joint provision of audit and non - audit services, audit fees, audit rotation to proxy audit firm attributes but this study used audit specialization, audit busyness and audit compensation in addition to the previously used ones by prior studies and extended the study for a long period of time (10years) spanning from 2012 to 2021. Moreover, there is no indigenous study that has used audit specialization, audit busyness and audit compensation to proxy audit firm attributes. This is the knowledge gap this study intends to address therefore contributing to the existing literature. These are the rationale behind this study. Hence this diagram

Source: Researchers' conceptual Framework (2023)

2.2: Theoretical Framework

This paper is anchored on Theory of Inspired Confidence. This theory was propounded by Hapsari (1920). It details on the expected social responsibility of the independent auditors and the possible methods for ensuring that the engagement must meet the society needs. It specified auditor's role and their expected performance to restore the financial lost glory of the investors in public firms. Akintayo and Akosile (2022) quoting Knechel, (2013) researched on the work of Limperg (1879) of the University of Armsterdam. In the research, it was observed that the loss of confid2.2ence by the society on audits will reflects the non-social usefulness and acceptability of such. Their research made them realize that Limperg's principle in his theory is specifically relevant in the phase of audit function development. According to the Limperg's theory, "the demand for audit services is the direct consequence of the participation of outside stakeholders and majorly the financial information users in the economy". Therefore, since the information given to the stakeholders by the management might be biased, an audit of this information is needed in order to give an informed decision to the investors. Auditor responsibility is described as the confidential function rooted in the society interests in the effectiveness of the audit and in the opinion formed by the accountants. This reliability of audit report by the stakeholders is the function' of the

confidence reposed on the auditors. If the confidence is betrayed, the function too is jeopardized and becomes irrelevant (Sarbanes, 2013 as cited by Akintayo & Akosile, 2022)

Empirical Studies

Hafizaha, Wahyudib, and Azwardi, (2022) analyzed and tested the effect of auditor independence and complexity on audit quality using a descriptive analysis, and a Likert scale measurement for primary data sources. The survey method is distributing questionnaires to auditors who work at BPK RI Representatives of South Sumatra. Their findings revealed that audit independence has a positive and significant effect on audit quality. This means that the increasing independence of auditors will improve audit quality. Also, audit independence has a positive and significant effect on the reputation of the institution. This is with increasing auditor independence will improve the reputation of the institution, the complexity of the audit has a positive and significant effect on audit quality means that every increase in audit complexity will improve audit quality, audit complexity has a positive and significant impact on the reputation of the institution. This condition means that every increase in audit complexity will increase the reputation of the institution.

Daferighe and Emem (2020) examined the impact of audit firm attributes on the financial reporting quality of quoted manufacturing firms in Nigeria from 2011 to 2015. The ex-post facto research design was adopted in the study. Data were obtained from the published annual reports and accounts, notes to the financial statements of the sixteen firms that represent the sample of the study. Multiple regression analysis was employed in analyzing the data and testing the stated hypotheses. The findings showed that auditor fees have a significant influence on the financial reporting quality of quoted manufacturing firms in Nigeria. However, it was discovered that audit firm size and audit delay have an insignificant impact on the financial reporting quality of manufacturing firms in Nigeria. Therefore, it was recommended that the manufacturing firms create an enabling environment that will ensure the conduct of proper audits by the auditors and for a timely release of their reports to users, thus promoting quality decision making.

Similarly, Hussein, Hanefah, and Endaya (2020) aims to analyze audit team characteristics that were perceived to be affected on audit quality. Specifically, it focuses principally on whether audit team characteristics, i.e., independence, continuous education and training, experience and professional conduct enhances audit quality. This study examines the moderating effect of the external environment audit i.e., professional bodies, laws and regulations, and recognized standards in the relationship between audit team characteristics and audit quality. Multiple regression analysis is applied to examine the association between variables of the study. A questionnaire survey was conducted of 251 external auditors, by personally administered questionnaire from Libyan the Association of Accountants and Auditors (LAAA). They discovered that the audit team characteristics have positively and significantly related to audit quality. As well as the regression analysis at dimension level shows positively and significantly related to audit quality. The findings also indicate that the external environment audit factors moderate the relationship between variables of study.

Emmanuel and Emem (2020) examined the impact of audit firm attributes on the financial reporting quality of quoted manufacturing firms in Nigeria for the period of 2011 to 2015. Ex-post facto research design was adopted in the study. Data were obtained from the published annual reports and accounts, notes to the financial statements of the sixteen firms that represent the sample

of the study. Multiple regression analysis was employed in analyzing the data and testing the stated hypotheses. The results of the findings showed that auditor fees have significant influence on the financial reporting quality of quoted manufacturing firms in Nigeria. However, it was discovered that audit firm size and audit delay have insignificant impact on the financial reporting quality of manufacturing firms in Nigeria.

Omoregie and Dibia (2020) explored impact of audit firm attributes and audit quality in Nigeria. For the study objective to be accomplished, the study fundamentally embraces the survey of panel data in other to properly scrutinize the concept of audit firm attributes as it relate to audit quality in Nigeria for the period of 5-years (2014-2018). Fifteen (15) companies from the banking industries were used in total. The result of the findings appears that the variable of Audit Independence (AUDI) and Audit Fees (AUDF) were observed to be significant and positively related with Audit Quality (AUDQ), Audit Firm Rotation (AUFR) was positively and insignificantly related with Audit Quality (AUDQ) while Audit Delay (AUDY) indicated a negative and a relationship that is insignificant with Audit Quality (AUDQ). In view of the findings, the study therefore strongly recommends that audit independence and audit fees should be given more attention in the course of considering the attributes of audit firm as well as the quality of audit in Nigeria.

However, Fariba and Hassan (2014) conducted a study on the relationship between audit fees, board independence and earnings quality in 104 listed accepted companies in Tehran stock exchange market, during the year (2007-2012), using descriptive correlation method. The study found no relationship between Audit fees and earning management. It was observed that the study was conducted for the period of six years only. However, a study with larger and more recent time coverage may produce a different result

3: Methodology

In other to accomplish the aim of this paper, the study predominantly embraces the panel least regression so as to properly find out about the attributes of audit firm as well as earnings quality in Nigeria for the period of 10-years (2012-2021), as it connects to the various industrial goods companies that are found to be quoted on the Nigeria Exchange Group as at December 31st, 2012. The study population is made up of all the quoted industrial goods companies that are listed as at 31st December, 2012. The secondary data are obtained from the corporate annual report of the sampled companies on the Nigeria Exchange Limited for the period 2012-2021 financial year. The researcher utilizes only corporate annual reports because they are readily available and accessible. The sample of this study is basically made up of 15 companies from the industrial goods sector of the economy. The proposed analytical framework in figure 1 above shows the schematic diagram of the causal relations with that of the dependent variable that is represented by earnings quality and explanatory variables (audit firm attributes) which consists of audit specialization, audit compensation, audit busyness and auditor educational level for this study. We anchored this study on the theory of Inspired Confidence. Also, the schematic framework culminates into the required model specifications. The model adopted in this study assumed a linear relationship between audit firm attributes and earnings quality and panel least square was adopted for the purpose of hypothesis testing and was guided by the following linear model:

$$ENQUAL_{it} = \beta_{0it} + \beta_1 AUDSPEC_{it} + \beta_2 AUDCOM_{it} + \beta_3 AUDBUSY_{it} + \beta_4 AUDEL_{it} + \varepsilon_{it} \ldots\ldots\ldots 1$$

Where,

ENQUAL stands for Earnings Quality, measured using discretionary accruals, AUDSPEC stands for Auditor Specialization measured as *auditors with* financial expertise captured as a dichotomous variable 1 if a firm is a specialized auditor and 0 if otherwise, AUDCOM connotes Audit Compensation measured as quantum of audit fees paid, AUDEL stands Auditor Educational Level *proxy* using *auditors with post-graduate education measured as a dichotomous variable 1 if the auditor has post-graduate education qualification and 0 if otherwise.*

4. ESTIMATION RESULTS AND DISCUSSION OF FINDINGS

The study investigated the empirical effect that exists between audit firm attributes and earnings quality of listed industrial goods firms for a period of 10 years spanning 2012 to 2021. The study carried out some preliminary data tests like descriptive statistics, correlations and variance inflation factor (VIF) analysis. The table below shows the descriptive statistics of the 15 selected industrial goods firms that make up our sample.

Table 4.1 Descriptive Statistics Analysis

	ENQUAL	AUDSPEC	AUDCOM	AUDBUSY	AUDEL
Mean	-0.652950	0.724832	0.204219	0.771812	0.127517
Median	-0.078000	1.000000	0.087200	1.000000	0.000000
Maximum	0.393000	1.000000	5.714300	1.000000	1.000000
Minimum	-0.710000	0.000000	0.015700	0.000000	0.000000
Std. Dev.	0.187563	0.448105	0.488453	0.421080	0.334676
Skewness	-0.064667	-1.006864	9.775271	-1.295378	2.233441
Kurtosis	4.656608	2.013776	110.2148	2.678005	5.988259
Jarque-Bera	17.14170	31.21390	73737.81	42.31414	179.3136
Probability	0.000190	0.000000	0.000000	0.000000	0.000000
Observations	150	150	150	150	150

Source: researcher's summary of descriptive result (2023) using E-view 12

The descriptive statistics result in table 4.1 above shows the mean values for each of the variables, their maximum values, minimum values, standard deviation and Jarque-Bera values which show the normality of the data. The result provides some insight into the nature of the selected listed industrial goods firms in Nigeria that were used in the study. The researcher sought to establish the central tendency and distribution of audit firm attributes and earnings quality among the 15 selected industrial goods companies in Nigeria. Earnings quality (ENQUAL) which is the dependent variable of the study has a minimum value of -0.710 and a maximum value of 0.393. It was observed that over the period under review, the sampled firms have average negative expected earnings quality of -0.652. Within the period under review, the firms have maximum expected earnings value of 0.393 and minimum value of -0.7100. The average value of the ENQUAL is -0.652 which represent 65.2%, with standard deviation of 0.1875, signifying that the data deviate from the mean value by 18%. This implies that there is no variation across the sample firms because the standard deviation is not close to the mean. The skewness for earnings quality was -0.0646 implying that data on earnings quality were skewed to the right hence most values were bunched to the left of the distribution. Audit compensation was observed to have a mean value of #20.421million and a standard deviation of 48.84 suggesting considerable clustering of audit fees for the distribution around the mean value.

The maximum and minimum values are #571.4 million and #1.57million respectively. The result also indicates that audit specialization (AUDSPEC) has minimum and maximum value of 0 and 1 respectively since it is a dichotomous variable. The average value of the audit specialization is 0.7248 and a standard deviation of 0.4481. The high average is an indication that more than 72% of the audit client are specialized auditors. Likewise, auditor busyness has minimum and maximum values of 0 and 1 respectively since it is a dichotomous variable. The average value of the auditor busyness is 0.7718 and a standard deviation of 0.4210. The high average is an indication that more than 77% of the audit client are busy auditors with 12% of the auditors possessing additional qualification. The Jacque-Bera statistic alongside its p-value indicates that the data satisfies normality.

4.2: Pearson Correlation Matrix

Pearson's correlation matrix was applied to check the degree of association between audit firm attributes and earnings quality of quoted industrial goods firms in Nigeria so as to determine the nature or degree of association i.e. positive or negative correlation and the magnitude of the correlation between dependent variable (earnings quality) and independent variables with other explanatory variables.

Table 4.2: Correlation Analysis Result

	ENQUAL	AUDSPEC	AUDCOM	AUDBUSY	AUDEL
ENQUAL	1.000000				
AUDSPEC	0.055542	1.000000			
AUDCOM	0.161510	-0.173859	1.000000		
AUDBUSY	0.128837	0.166308	-0.181642	1.000000	
AUDEL	0.125680	-0.395206	-0.018681	-0.079802	1.000000

Source: researcher's summary of correlation result (2023) using E-view 12

The result of the correlation coefficient showed mixed correlation. This association identified buttresses the point that majority of our variables have an inverse relationship with varying degrees of direction. Table 4 .2 above indicates diverse coefficient of both positive as well as negative numbers of correlation matrix between (ENQUAL) which is represented by the dependent variable and that of the explanatory variables (AUDSPEC, AUDCOM, AUDBUSY and AUDEL). The coefficient of correlation between the dependent variable of earnings quality and explanatory variables of audit specialization, audit compensation, auditor busyness as well as auditor educational level indicate positive values of 0.0555, 0.1615, 0.1288 and 0.1256. The values of tolerance are constantly smaller than 1.00. This further demonstrates overall absence of multicolliniarity between the independent variables. This also justifies the use of the panel regression analysis and variation inflation factor (VIF).

4.3: Variance Inflation Factor (VIF)

Multicollinearity was tested by computing the Variance Inflation Factor (VIF) and its reciprocal or the tolerance. To further check for multi-collinearity problem or to know whether the independent variables used are perfectly correlated, we conducted Variance Inflation Factor (VIF) to further check for the multi-collinearity problem. The result of the Variance Inflation Factor (VIF) is provided below in table 4.3 below:

Table 4.3: Variance Inflation Factor Result

Variance Inflation Factors
Date: 02/25/23 Time: 05:16
Sample: 2012 2021
Included observations: 150

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	0.002661	3.349462	NA
AUDSPEC	0.001246	1.980669	1.158921
AUDCOM	0.000851	1.107940	1.063556
AUDBUSY	0.001742	2.366535	1.056557
AUDEL	0.001968	1.189397	1.148810

Source: Researcher's summary of VIF result (2023)

Table 4.3 above revealed that the various variables as indicated in the regression model are significant to the study as the variance inflation factors are noticed to have a benchmark that is below 10. It further revealed the nonappearance of the multicollinearity problem in regression model

4.4: Regression Results and Discussion of findings

In order to examine the relationship between the dependent variable (ENQUAL) and the independent variables (AUDSPEC, AUDCOM, AUDBUSY and AUDEL) and to test the formulated hypotheses, we employed panel least regression analysis since the data had both time series (2012-2021) and longitudinal properties (15 quoted industrial goods firms). However, the study takes into cognizance the non-homogeneity nature of the firms, hence the need for testing its effect on the data. This necessitated the use of Hausman effect test to ascertain which effect to explain. That is whether fixed effect or random effect is to be used in interpreting the regression result. Below is the summary of the Hausman test result:

Table 4.4. Hauseman Effect Tests

Correlated Random Effects - Hausman Test
Equation: Untitled
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	3.507387	4	0.4768

Source: Researcher's summary of Hausman effect analysis result (2023)

The regression results of audit firm attribute variables and earnings quality are presented and analyzed. In view of the nature of the data, both fixed effect and random effect models were tested. Hausman specification test was then used to decide between the two results. The result from the Hausman test above revealed a Chi2 value of 3.50738 with p-value of 0,4768 which is greater than 0.000 that is statistically insignificant at 5%. This implies that the test considered the random effect as the most appropriate estimator and its result is presented in table 4.5 below:

Table 4.5: Random Effect Regression Result

Cross-section random effects test equation:
Dependent Variable: ENQUAL
Method: Panel Least Squares
Date: 02/25/23 Time: 05:15
Sample: 2012 2021
Periods included: 10
Cross-sections included: 15
Total panel (balanced) observations: 150

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.150047	0.048555	-3.090271	0.0024
AUDSPEC	0.013349	0.036299	0.367748	0.7137
AUDCOM	0.109946	0.029753	3.695355	0.0003
AUDBUSY	0.047271	0.046595	1.014511	0.3122
AUDEL	0.126560	0.044919	2.817545	0.0056

Effects Specification

Cross-section fixed (dummy variables)

Root MSE	0.147649	R-squared	0.376134
Mean dependent var	-0.065295	Adjusted R-squared	0.289753
S.D. dependent var	0.187563	S.E. of regression	0.158071
Akaike info criterion	-0.732926	Sum squared resid	3.248228
Schwarz criterion	-0.349873	Log likelihood	73.60300
Hannan-Quinn criter.	-0.577298	F-statistic	4.354347
Durbin-Watson stat	2.351881	Prob(F-statistic)	0.000000

Source: Researcher's summary of regression result (2023).

The random panel regression outcome above, ascertained that auditor specialization (AUDSPEC), audit compensation (AUDCOM), audit busyness (AUDBUSY), and auditor educational level (AUDEL) were able to explain 38% approximately of total variation in earnings quality (ENQUAL) and after adjustment the variable explained about 28% of the systematic variation in ENQUAL while about 72% of the systematic variation in earnings quality were left unexplained by the model. The estimation shows that there are other variables that also explain the way earnings quality behave. It can also be ascertained that the model remained statistically significant as the calculated F-value of 4.35434 was noticed to be higher than that of the critical f-value at the level of 5% significance. It therefore means that our model is statistically significant. Considering the result of the analyses, the Durbin Watson Statistic value of 2.35188 specified the non - presence of serial correlation in the model as the value is equal to 2. The result shows that audit compensation (AUDCOM) and auditor educational level (AUDEL) had positive and significant effect with earnings quality (ENQUAL). Since their probability value of 0.0003 and 0.0056 are less than that of the absolute critical t-value at 5% level of significant. The result shows further that audit specialization (AUDSPEC) and auditor busyness (AUDBUSY) do not have any significant affiliation with earnings quality (ENQUAL) considering the fact that the probability values of 0.7137 and 0.3122 are found to be higher than the absolute t-values at 5% significant level. In the same vein, the result further shows that audit compensation and auditor educational level agreed with our a priori expectation from the model.

5: Conclusion and Recommendations

The need to ensure earnings quality in the financial report by companies is inevitable as stakeholders relies on it for effective decision making, and external auditors are theoretically considered to have an effect on the firm monitoring mechanisms and the incidence of earnings quality. This study was an attempt to empirically examine the effect of audit firm attributes on earnings quality with data from the financial reports of 15 listed industrial goods firms in Nigeria for the period of ten years ranging from 2012-2021. After careful review of the results and discussion, as well as relevant literatures, the study concludes that no matter the specialization of audit and busyness of audit firms, earnings quality of listed industrial goods firms in Nigeria remains unchanged and unaffected except the auditors possess additional qualification and are adequately compensated. It is also concluded that the higher the audit compensation and the level of exposure of auditors, the higher the earnings quality. This study concluded that audit compensation and auditor educational level exerted great and significant influence on the earnings quality of quoted industrial goods firms in Nigeria. In line with the findings and the conclusions of this study, the following recommendations were made:

i. The shareholders of industrial goods firms in Nigeria should be more inclined in employing the services of audit firms that have adequate educational training and experience and understands the financial complexity of firms in the industry. This is because such auditors will be able to select and implement audit procedures that are precise and effective when delivering their service. This may go a long way in improving earnings quality.
ii. Again, the shareholders of industrial goods firms should ensure that they employ the service of auditors who are well compensated and financially independent on fees of a particular client as such they are to some extent less likely to be subjected to pressure.

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APPENDIX I

Fiscal Year	Companies	Exchange Sector	ENQUAL	AUDSPEC	AUDCOM	AUDBUSY	AUDEL
2012	African Paints Nig	Industrial	-0.136	1	0.1226	1	1
2013	African Paints Nig	Industrial	-0.149	1	0.1288	1	1
2014	African Paints Nig	Industrial	-0.191	1	0.0901	1	1
2015	African Paints Nig	Industrial	-0.078	0	0.0695	1	0
2016	African Paints Nig	Industrial	-0.136	0	0.0639	1	0
2017	African Paints Nig	Industrial	-0.149	1	0.1288	1	0
2018	African Paints Nig	Industrial	-0.191	1	0.0901	1	0
2019	African Paints Nig	Industrial	-0.078	0	0.0695	1	1
2020	African Paints Nig	Industrial	-0.136	0	0.0639	1	0
2021	African Paints Nig	Industrial	-0.114	1	0.286	1	0
2012	Academy Press	Industrial	-0.191	1	0.2714	1	0

2013	Academy Press	Industrial	-0.078	1	0.2705	1	0
2014	Academy Press	Industrial	-0.24	1	0.2617	1	0
2015	Academy Press	Industrial	0.02	1	0.2860	1	0
2016	Academy Press	Industrial	-0.128	1	0.2714	1	1
2017	Academy Press	Industrial	-0.053	1	0.2705	1	0
2018	Academy Press	Industrial	0.131	1	0.2617	0	0
2019	Academy Press	Industrial	0.098	1	0.2861	0	1
2020	Academy Press	Industrial	-0.258	1	0.2861	0	0
2021	Academy Press	Industrial	-0.177	1	0.0436	0	0
2012	Dangote Cement	Industrial	-0.241	1	0.0312	0	0
2013	Dangote Cement	Industrial	0.284	0	0.0259	0	0
2014	Dangote Cement	Industrial	0.103	0	0.0359	0	1
2015	Dangote Cement	Industrial	-0.336	1	0.0465	0	0
2016	Dangote Cement	Industrial	-0.038	1	0.0436	0	0
2017	Dangote Cement	Industrial	-0.047	1	0.0312	0	0
2018	Dangote Cement	Industrial	-0.179	0	0.0259	1	1
2019	Dangote Cement	Industrial	-0.086	0	0.0359	1	0
2020	Dangote Cement	Industrial	-0.086	0	0.0359	1	0
2021	Dangote Cement	Industrial	0.000	1	0.0512	1	0
2012	First Aluminiun Plc	Industrial	-0.415	0	0.0459	1	1
2013	First Aluminiun Plc	Industrial	-0.089	0	0.0659	1	0
2014	First Aluminiun Plc	Industrial	-0.115	0	0.0359	0	0
2015	First Aluminiun Plc	Industrial	0.393	0	0.7143	0	1
2016	First Aluminiun Plc	Industrial	0.000	1	0.0759	1	0
2017	First Aluminiun Plc	Industrial	-0.415	0	0.0859	1	0
2018	First Aluminiun Plc	Industrial	-0.089	0	0.0659	1	0
2019	First Aluminiun Plc	Industrial	-0.115	0	0.7143	0	1
2020	First Aluminiun Plc	Industrial	0.393	0	5.7143	0	0
2021	First Aluminiun Plc	Industrial	-0.442	1	0.0542	0	0
2012	Cutix Cables Nig Plc	Industrial	0.033	1	0.0668	0	0
2013	Cutix Cables Nig Plc	Industrial	-0.038	1	0.1823	0	0
2014	Cutix Cables Nig Plc	Industrial	-0.306	0	0.0566	0	0
2015	Cutix Cables Nig Plc	Industrial	0.132	0	0.0676	0	1
2016	Cutix Cables Nig Plc	Industrial	-0.442	1	0.0542	0	0
2017	Cutix Cables Nig Plc	Industrial	0.033	1	0.0668	0	0
2018	Cutix Cables Nig Plc	Industrial	-0.038	1	0.1823	0	0
2019	Cutix Cables Nig Plc	Industrial	-0.306	0	0.0566	0	0
2020	Cutix Cables Nig Plc	Industrial	0.132	0	0.0676	0	1
2021	Cutix Cables Nig Plc	Industrial	0.118	1	0.7679	0	0
2012	Berger Paints	Industrial	-0.167	1	0.0306	1	0
2013	Berger Paints	Industrial	0.012	1	0.0295	1	0

2014	Berger Paints	Industrial	0.007	1	0.0263	1	0
2015	Berger Paints	Industrial	-0.046	1	0.0252	1	0
2016	Berger Paints	Industrial	0.002	1	0.0272	1	0
2017	Berger Paints	Industrial	-0.167	1	0.0306	1	0
2018	Berger Paints	Industrial	0.012	1	0.0295	1	0
2019	Berger Paints	Industrial	0.007	1	0.0263	1	0
2020	Berger Paints	Industrial	-0.046	1	0.0252	1	0
2021	Berger Paints	Industrial	-0.073	1	0.1016	1	0
2012	Beta Glass	Industrial	-0.226	1	0.1047	1	0
2013	Beta Glass	Industrial	-0.044	1	0.0929	1	0
2014	Beta Glass	Industrial	-0.103	1	0.0727	1	0
2015	Beta Glass	Industrial	-0.036	0	0.0494	1	0
2016	Beta Glass	Industrial	-0.073	1	0.1016	1	0
2017	Beta Glass	Industrial	-0.226	1	0.1047	1	0
2018	Beta Glass	Industrial	-0.044	1	0.0929	1	0
2019	Beta Glass	Industrial	-0.103	1	0.0727	1	0
2020	Beta Glass	Industrial	-0.036	0	0.0494	1	0
2021	Beta Glass	Industrial	-0.029	1	0.0872	1	0
2012	Larfarge Africa Plc	Industrial	0.277	1	0.0470	1	0
2013	Larfarge Africa Plc	Industrial	0.218	1	0.0503	1	0
2014	Larfarge Africa Plc	Industrial	0.385	1	0.0620	1	0
2015	Larfarge Africa Plc	Industrial	0.056	1	0.0762	1	0
2016	Larfarge Africa Plc	Industrial	0.237	1	0.0914	1	0
2017	Larfarge Africa Plc	Industrial	0.277	1	0.0470	1	0
2018	Larfarge Africa Plc	Industrial	0.218	1	0.0503	1	0
2019	Larfarge Africa Plc	Industrial	0.385	1	0.0620	1	0
2020	Larfarge Africa Plc	Industrial	0.056	1	0.0762	1	0
2021	Larfarge Africa Plc	Industrial	-0.089	1	0.3771	1	0
2012	DN Tyre Nig. Plc.	Industrial	-0.072	0	0.0908	1	1
2013	DN Tyre Nig. Plc.	Industrial	-0.043	0	0.5119	1	0
2014	DN Tyre Nig. Plc.	Industrial	-0.161	1	0.3213	1	0
2015	DN Tyre Nig. Plc.	Industrial	0.223	1	0.4473	1	0
2016	DN Tyre Nig. Plc.	Industrial	-0.089	1	0.3771	1	0
2017	DN Tyre Nig. Plc.	Industrial	-0.072	0	0.0908	1	1
2018	DN Tyre Nig. Plc.	Industrial	-0.043	0	0.5119	1	0
2019	DN Tyre Nig. Plc.	Industrial	-0.161	1	0.3213	1	0
2020	DN Tyre Nig. Plc.	Industrial	0.223	1	0.4473	1	0
2021	DN Tyre Nig. Plc.	Industrial	-0.109	1	0.1014	1	0
2012	Chellarams	Industrial	-0.141	1	0.5191	1	0
2013	Chellarams	Industrial	-0.069	1	0.4233	1	0
2014	Chellarams	Industrial	-0.026	1	0.1078	1	0

2015	Chellarams	Industrial	0.003	0	0.5104	1	0
2016	Chellarams	Industrial	-0.109	1	0.1014	1	0
2017	Chellarams	Industrial	-0.141	1	0.5191	1	0
2018	Chellarams	Industrial	-0.069	1	0.4233	1	0
2019	Chellarams	Industrial	-0.026	1	0.1078	1	0
2020	Chellarams	Industrial	0.003	0	0.5104	1	0
2021	Chellarams	Industrial	0.106	1	0.1378	1	0
2012	Grief	Industrial	-0.104	1	0.0896	1	0
2013	Grief	Industrial	-0.179	1	0.0951	1	0
2014	Grief	Industrial	0.371	1	0.0643	1	0
2015	Grief	Industrial	0.082	1	0.0675	1	0
2016	Grief	Industrial	0.106	1	0.1378	1	0
2017	Grief	Industrial	-0.104	1	0.0896	1	0
2018	Grief	Industrial	-0.179	1	0.0951	1	0
2019	Grief	Industrial	0.371	1	0.0643	1	0
2020	Grief	Industrial	0.082	1	0.0675	1	0
2021	Grief	Industrial	-0.122	1	0.0164	1	0
2012	Portland Paint &Prod	Industrial	-0.175	1	0.0157	1	0
2013	Portland Paint &Prod	Industrial	0.266	0	0.0158	1	1
2014	Portland Paint &Prod	Industrial	-0.219	0	0.0164	1	0
2015	Portland Paint &Prod	Industrial	0.052	1	0.0161	1	
2016	Portland Paint &Prod	Industrial	-0.122	1	0.0164	1	0
2017	Portland Paint &Prod	Industrial	-0.175	1	0.0157	1	0
2018	Portland Paint &Prod	Industrial	0.266	0	0.0158	1	1
2019	Portland Paint &Prod	Industrial	-0.219	0	0.0164	1	0
2020	Portland Paint &Prod	Industrial	0.052	1	0.0161	1	0
2021	Portland Paint &Prod	Industrial	0.058	1	0.6226	1	0
2012	Premier Paints Plc	Industrial	0.036	0	0.2875	1	1
2013	Premier Paints Plc	Industrial	-0.03	0	0.3041	1	0
2014	Premier Paints Plc	Industrial	-0.072	1	0.3362	1	0
2015	Premier Paints Plc	Industrial	-0.46	1	0.3028	1	0
2016	Premier Paints Plc	Industrial	0.058	1	0.6226	1	0
2017	Premier Paints Plc	Industrial	0.036	0	0.2875	1	1
2018	Premier Paints Plc	Industrial	-0.03	0	0.3041	1	0
2019	Premier Paints Plc	Industrial	-0.072	1	0.3362	1	0
2020	Premier Paints Plc	Industrial	-0.46	1	0.3028	1	0
2021	Premier Paints Plc	Industrial	-0.027	1	0.1273	1	0
2012	Austin Laz & Coy	Industrial	-0.101	1	0.1377	1	0
2013	Austin Laz & Coy	Industrial	-0.221	1	0.1481	1	0
2014	Austin Laz & Coy	Industrial	-0.71	0	0.5417	0	0
2015	Austin Laz & Coy	Industrial	-0.283	0	0.6029	0	0

2016	Austin Laz & Coy	Industrial	-0.027	1	0.1273	1	0
2017	Austin Laz & Coy	Industrial	-0.101	1	0.1377	1	0
2018	Austin Laz & Coy	Industrial	-0.221	1	0.4081	1	0
2019	Austin Laz & Coy	Industrial	-0.71	0	0.5417	0	0
2020	Austin Laz & Coy	Industrial	-0.283	0	0.6290	0	0
2021	Austin Laz & Coy	Industrial	-0.204	1	0.0448	1	0
2012	West Africa GlassPlc	Industrial	-0.084	1	0.0582	1	0
2013	West Africa GlassPlc	Industrial	-0.136	1	0.0577	1	0
2014	West Africa GlassPlc	Industrial	-0.136	1	0.0614	0	0
2015	West Africa GlassPlc	Industrial	-0.114	1	0.0564	0	0
2016	West Africa GlassPlc	Industrial	-0.204	1	0.0448	1	0
2017	West Africa GlassPlc	Industrial	-0.084	1	0.0504	1	0
2018	West Africa GlassPlc	Industrial	-0.136	1	0.0577	1	0
2019	West Africa GlassPlc	Industrial	-0.136	1	0.0614	0	0
2020	West Africa GlassPlc	Industrial	-0.114	1	0.0564	0	0
2021	West Africa GlassPlc	Industrial	-0.191	1	0.0283	0	0

DESCRIPTIVE ANALYSIS

	ENQUAL	AUDSPEC	AUDCOM	AUDBUSY	AUDEL
Mean	-0.652950	0.724832	0.204219	0.771812	0.127517
Median	-0.078000	1.000000	0.087200	1.000000	0.000000
Maximum	0.393000	1.000000	5.714300	1.000000	1.000000
Minimum	-0.710000	0.000000	0.015700	0.000000	0.000000
Std. Dev.	0.187563	0.448105	0.488453	0.421080	0.334676
Skewness	-0.064667	-1.006864	9.775271	-1.295378	2.233441
Kurtosis	4.656608	2.013776	110.2148	2.678005	5.988259
Jarque-Bera	17.14170	31.21390	73737.81	42.31414	179.3136
Probability	0.000190	0.000000	0.000000	0.000000	0.000000
Sum	-9.729000	108.0000	30.42870	115.0000	19.00000
Sum Sq. Dev.	5.206615	29.71812	35.31085	26.24161	16.57718
Observations	150	150	150	150	150

CORRELATION RESULT

	ENQUAL	AUDSPEC	AUDCOM	AUDBUSY	AUDEL
ENQUAL	1.000000	0.055542	0.161510	0.128837	0.125680
AUDSPEC	0.055542	1.000000	-0.173859	0.166308	-0.395206
AUDCOM	0.161510	-0.173859	1.000000	-0.181642	-0.018681
AUDBUSY	0.128837	0.166308	-0.181642	1.000000	-0.079802
AUDEL	0.125680	-0.395206	-0.018681	-0.079802	1.000000

Variance Inflation Factors

Variance Inflation Factors
Date: 02/25/23 Time: 05:16
Sample: 2012 2021
Included observations: 150

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	0.002661	3.349462	NA
AUDSPEC	0.001246	1.980669	1.158921
AUDCOM	0.000851	1.107940	1.063556
AUDBUSY	0.001742	2.366535	1.056557
AUDEL	0.001968	1.189397	1.148810

REGRESSION RESULT

Correlated Random Effects - Hausman Test
Equation: Untitled
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	3.507387	4	0.4768

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
AUDSPEC	0.013349	0.026931	0.000072	0.1096
AUDCOM	0.109946	0.103591	0.000035	0.2799
AUDBUSY	0.047271	0.057532	0.000429	0.6205
AUDEL	0.126560	0.122566	0.000050	0.5714

Cross-section random effects test equation:
Dependent Variable: ENQUAL
Method: Panel Least Squares
Date: 02/25/23 Time: 05:15
Sample: 2012 2021
Periods included: 10
Cross-sections included: 15
Total panel (balanced) observations: 150

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.150047	0.048555	-3.090271	0.0024
AUDSPEC	0.013349	0.036299	0.367748	0.7137

AUDCOM	0.109946	0.029753	3.695355	0.0003
AUDBUSY	0.047271	0.046595	1.014511	0.3122
AUDEL	0.126560	0.044919	2.817545	0.0056

Effects Specification

Cross-section fixed (dummy variables)

Root MSE	0.147649	R-squared	0.376134
Mean dependent var	-0.065295	Adjusted R-squared	0.289753
S.D. dependent var	0.187563	S.E. of regression	0.158071
Akaike info criterion	-0.732926	Sum squared resid	3.248228
Schwarz criterion	-0.349873	Log likelihood	73.60300
Hannan-Quinn criter.	-0.577298	F-statistic	4.354347
Durbin-Watson stat	2.351881	Prob(F-statistic)	0.000000