Effect of Audit Quality on Earnings Management of Firms Listed on the Industrial Goods Sector of Nigerian Stock Exchange

[1]Eferakeya Idowu and [2]Ighosewe, Enaibre Felix

Department of Accounting, Banking & Finance, Delta State University, Asaba Campus, Delta State, Nigeria.

Abstract

This study examined audit quality effect on earnings management of firms listed in Nigeria for 2012-2017 period. The study population consist of all firms listed in the industrial goods sector of the Nigerian Stock Exchange. Four hypotheses which seek to find out whether an audit quality has significant effect on earnings management were tested. Data relating to audit quality proxy by audit fees, audit firm size, auditor tenure and auditor industry specialization, and earnings management proxy by magnitude of total accrual relative to operational cash flow were extracted and computed from the published financial statements of sampled firms. The data were subjected to various diagnostic tests such as correlation, multicollinearity, normality and heteroskedasticity tests. The test results confirmed absence of multicollinearity among the independent variables and normality of the data. However, heteroskedasticity presence was confirmed based on Breusch-Pagan/Cook-Weisberg test results. This led to the conduct of fixed and random effect regressions based on Haussman specification test. Results from both tests showed that the error terms and independent variables are not correlated, confirming absence of heteroskedasticity. We proceeded with pooled ordinary least square, random effect and fixed effect tests and found out that the fixed effect regression result was better than the other two models. The fixed effect regression result was finally used for the analysis. The result confirms that audit fees, audit firm size, auditor tenure and auditor industry specialist have significant negative effect on earnings management. The study recommends that firms should endeavour to engage any of the big 4 audit firms, industry specialist auditors, consider audit fees and retain auditors not more than the mandatory three years prescribed by Security and Exchange Commission code 2011.

Keywords: Audit fees, Audit quality, Audit firm, Auditor industry specialization, Auditor tenure size and Earnings management.

Introduction:

Global concern about earnings manipulation by firms' management has again reinforced the significance of audit quality which is an enhancer of quality financial reporting. It has an overarching role as a monitoring and compliance mechanism to improve financial reporting quality. Audit has become an important regulatory as well as a supervisory requirement to protect public interest. As such, audit quality has become a focal point in the audit profession and expectation of stakeholders in business entities. It remains very significant (Heil, 2012), hence stakeholders of entities and interested groups have continued to show deep interest in it as a measure of the quality of financial information (IAASB, 2011). Board of directors, management, audit committee which are internal users of financial statements have also shown tremendous interest in audit quality (Miettinen, 2011). Auditing mechanism mitigates asymmetry information and protect stakeholders' interest by ensuring that reasonable assurance is provided freeing financial statements from significant errors and misstatement. As such external auditor's role tends

to reduce risks of financial misstatements and capable of boosting confidence in capital markets with attendant effect of lowering cost of capital (Heil, 2012).

Users place more premiums on audited financial information as a basis for resource allocation decisions, assisting them to consider increases in their investments, building both confidence and trust. For safeguards purpose, regulators and standard setters develop standards, rules, and regulations aimed at improving reported financial information through external audit mechanism. Audit control mechanism constrains shrinking of financial information and safeguards different claimants' interest in an entity by saving financial statements from possible misstatement contents (Macharia & Gatuhi, 2013). Through external auditor's significant perils of financial misstatements are reduced by ensuring that the statements are prepared in compliance with standards which lower risks, improves stock market efficiency and reduces cost of capital (Hoti, 2012). Effectiveness of publicly quoted companies is strengthened when standards' developers and implementers propagate standards that strengthen audit quality which by extension improves information quality of financial statements. This amongst other things makes internal and external users of financial statements to be very interested in audit quality (Miettinen, 2011).

Quality audit can affect income management in order achieve desired earnings level. Earning is seen as current income which is an expected cash flow that has the capacity to influence firm performance through either share price increase or decrease (Jordan, Clark & Hames, 2010). Audited financial statements do provide signals to markets that are reliable than unaudited financial statements. Markets reasonably perceive audit firm size as well as auditor specialization to be of a higher quality and reward firms with larger earnings improvements and punish those with declining earnings (Ugwunta, Ugwuanyi & Ngwa, 2018). Audits conducted in compliance with high auditing standards promote implementation of standards capable of making financial statements to be reliable, transparent and useful. It reinforces better corporate governance, risk management and internal control which influence firms' performance (IAASB, 2011).

Corporate failure of firms across the World during and after the 2007/2008 financial crisis as recorded in the theoretical and empirical literature has association with poor auditing and financial reporting. The general perception is that external audit function failed to identify and report misstatements and errors in firms' books and financial statements. Investors were put in difficult situations to know about the real position of firms' performance on the account of poor audit quality (Okolie, 2014). The issue of audit quality has therefore dominated public discourse and brought to questioning as to whether corporate failure is caused by audit process inability to prevent earnings misstatements (Olabisi, Agbatogun & Akinrinlola, 2017).

In recent time, the Nigeria government instituted some important reforms in accounting, financial reporting, auditing, corporate governance mechanisms geared to encourage foreign direct investments, and woo investors (Olabisi, Agbatogun & Akinrinlola, 2017). Listed firms in the country are therefore seen to be struggling to gain credibility from both local and foreign investors by improving financial statements through quality auditing (Aliyu, Musa & Zachariah, 2015). This has attracted research enquiry regarding audit quality and earnings management relationship with most studies reporting mixed findings. Majority of the studies were done in advanced countries with developed capital market and strong regulatory framework and a few in developing countries, Nigeria in particular. The few that investigated audit quality effect on earnings management in Nigeria used different earnings management proxies, mainly discretionary accruals and earnings distribution while audit quality was mainly measured audit fees and audit firm size. Such studies

include Olabisi, Agbatogun and Akinrinilola (2017), Aliyu, Musa and Zacharieh (2015), Tyokoso and Tsegba (2015), Okolie (2014), Okolie, Izedonmi and Enofe (2013).

This study departs from existing studies in Nigeria by using the ratio of magnitude of total accruals to operational cash flow to proxy earnings management while it adds auditor industry specialization alongside audit fees, audit size, audit tenure as proxies measuring audit quality. Therefore, the study examined the effect of quality effect on earnings management of listed firms in the industrial goods sector in Nigeria. Specific objectives of the study are to: determine the effect of audit fees, audit firm size, auditor tenure and auditor Industry specialization on earnings management of listed industrial firms in Nigeria Consequently the following hypotheses stated in null form were formulated and tested at 5% level of significance.

Ho_1: Audit fee has no significant effect on earnings management of listed industrial firms in Nigeria.
Ho_2: Audit size has no significant effect on earnings of listed industrial firms in Nigeria.
Ho_3: Audit tenure has no significant effect on earnings management of listed industrial firms in Nigeria.
Ho_4: Auditor industry specialization has no significant effect on earnings management of listed industrial firms in Nigeria

Conceptual Clarification

Earnings Management

Earnings management is defined in different contexts depending on the individual perception. According to Mulford and Comiskey (2002), it is an accounting numbers game, to Balaciu, Bogdan and Vladu (2009), it is creative accounting and to Tucker and Zarowin (2006), it is income smoothing. Healy and Wahlen (1999) view it as financial statements alteration using judgments in financial reporting to structure transactions which alters financial reports either to mislead stakeholders about underlying economic performance or to influence contractual outcomes that depend on accounting numbers of a firm. It determines the extent in which management can exercise discretion in reporting earnings by influencing accruals (Burgstahler, Hail & Leuz, 2004).

Audit Quality

Audit quality according to De Angelo (1981) depends on the probability that material misstatements and signals of financial distress are detected and the probability that the auditor will report them. It is assumed to be a function of auditor independence. According to Dye (1993), it is a less litigious setting capable of weakening the extent an auditor wealth of experience serves as a bond for audit quality. In this study it is measured in terms of audit fees, audit size, auditor tenure and auditor industry specialisation. These are conceptualized as follows:

Audit fees

According to Okolie and Izedonmi (2014) many scholars have conceptualized that large auditors attract high fees reflective of their greater wealth of experience which is likely to reduce clients' exposures to litigation. Firms that pay high audit fees have a need for audit quality as against those that pay paltry audit fees. Studies like Palmrose, Richardson and Scholz (2004), Cobert and Murray (1998), Samalia (2014) have related high audit fees with audit quality and that audit firms that charge high fees tend to deliver high audit quality service. High audit fees paid by firms to external auditor tend to enhance their economic ties which can lead to compromises in endangering the

auditor independence (Li & Lin, 2005). It has also led to failure of audit quality by providing opportunity for manipulations of earnings (Okolie & Izedonmi, 2014).

Audit Firm Size

Scholars have theorized that big audit firms are perceived to have gained tremendous experience for audit quality (Okolie & Izedonmi, 2014). They are also inclined to be less lenient to publicly listed firms due to higher risk of litigation (Krishna & Yang, 1999). Listed firms' financial statements are subjected to more scrutiny by investors, financial analysts and stock market regulators as the probability for audit failure, detection of errors and litigation risks are higher (Vander & Willekens, 2004). Francis, Maydew and Sparks (1999) reported that Big 4 auditors are likely to provide significant constraint on earnings management by listed firms. De Angelo (1981) argued that auditors that are large tend to have more incentives to ensure accuracy of their reports otherwise they are more likely to lose specific rents.

Auditor Tenure

Auditor tenure means the length of time the relationship between the auditor and client existed (Okolie, 2014). The link between auditor tenure and competence has been reported by Knapp (1991). However, auditor objectivity in anomaly detection in the early years of engagement increases but decreases over time getting to its weakest level after twenty years of service (Okolie, 2014). Decreases in the number of years for auditor tenure have been hotly debated. For instance, in USA, it was reduced from 7years to 5 years, in France auditors are engaged for six financial years only, while the European Commission recommended that auditors should be rotated at every seven years. In Nigeria auditors are required to be rotated every three years (Okolie, 2014).

Auditor Industry Specialization

Audit quality is also proxy by auditor industry specialization (Khajavi & Zare, 2016). An auditor expertise or no expertise in an industry tends to affect audit quality. Specialized auditors who audit clients in specific industry have an advantage of understanding business and operational risks in such an industry better than auditors who do not have industry specialization (Samaila, 2014). The more an auditor offers audit services in a specialised industry, the more the tendency to provide higher audit quality (Yaghoobnezhad & Amiri, 2009). The specialty of auditors in a given industry has been found to have positive effect on audit quality (Chen, Harrison & Stein, 2012).

Theoretical Framework.

This study is anchored on agency theory. The theory posits that a firm consists of a set of linked contracts between the owners of economic resources and managers who are responsible for using and controlling the resources (Sarens & Abdolmohammed, 2007). However, moral hazard often occurs from this form of contract relationship. In this instance the principal is oblivious whether the agents' actions are in their best interest (Farouk & Hasan, 2014). Thus agency theory provides the basis for understanding how the role of an auditor developed (Farouk & Hassan, 2014) and why auditing is a bonding cost paid by agents on behalf of principals and third parties to satisfy their accountability demands; and to protect their personal economic interest (Watt, 1998). Audit quality detect manager's manipulation and aligns shareholders and managers interest from the agency theory perspective (Alzoubi, 2018). The theory is an economic theory of accountability that explains the need for the development of audit function and audit quality processes (Louise, 2005).

Signalling Theory

The signalling theory also underpin this study. The theory argues that firms with good performance information tend to send signals to the market through disclosure of such information in an audited financial statement. Firms tend to provide the incentive to this signal through the choice of the external auditor engaged. Audited financial statements provide signals to market more than unaudited financial statement. Markets perceive size and specialist auditors to have quality audit services which tends to maintain an efficient market environment (Ugwunta, Ugwuanyi & Ngwa, 2018).

Empirical Review

Lopes (2018) examined the relationship between audit quality and earnings management of Portuguese non-listed firms for the period 2013-2015. Data was collected from the firms' statement of financial position and income statement and were analysed using the multiple regression tool. Result of the study shows that significant negative relationship exists between audit firm size and earnings management. Alzoubi (2018) explored audit quality, debt financing, and earnings management relationship in Jordan based on a sample of 72 industrial companies for the period 2006 to 2012. Results indicate that auditor tenure, size, specialisation, and independence and debt financing (low debt) have negative relation with earnings management. Olabisi, Agbatogun and Akinrinlola (2017) examined audit quality effect on earnings management of listed deposit money banks in Nigeria from 2005 -2014. Results show that a significant relation does exist between joint audit and earnings management; significant negative relation exists between audit specialization and earnings; significant positive relation exists between audit independence and earnings management and an insignificant negative relation exist between audit tenure and earnings management. More so Habbash and Alghamdi (2017) inquired into audit quality and earnings management relation in less developed economies using a sample of 337 non-financial Saudi listed firms for the period 2006 to 2009. Results indicate that only auditor opinion significantly influenced earnings management practice while audit firm size, auditor industry specialization, auditor change and timeliness of auditor report do not. The results suggest that auditors are powerless given managerial opportunistic activities.

Alzoubi (2016) explored audit quality and earnings management in Jordan using a sample of 86 listed firms on the Amman Stock Exchange for the period 2007 to 2010. Discretionary accrual was measured by cross-sectional modified Jones model to proxy earnings management. The generalised least square regression was the analysis tool. Findings reveal a significant negative association between audit quality and earnings management. Bamahros and Wan-Hussin (2015) investigated audit quality effect on earnings management using a sample of 525 companies listed on Malaysian Stock Exchange (MSE) in 2009.Results reveal significant negative relation between audit firm tenure and the two measures of earnings management. Significant negative relation was also found between audit committee financial expertise and the two measures that proxy earnings management. Audit committee independence showed a significant positive effect on discretionary current accruals but insignificant effect on discretionary total accruals. However, audit firm size, audit committee meeting has insignificant negative effect on earnings management.

Ching, Teh and San (2015) inquired into audit quality and earnings management relation using a sample of one hundred (100) industrial and consumer products listed firms on the main board of Bursa Malaysia during the period of 2008-2013. Regression results indicate that audit firm size and audit fees have insignificant negative relation with earnings management while audit tenure

had an insignificant positive relation with earnings management. He (2015) studied auditor industry specialization, audit experience and earnings management (represented by accounting restatement) relationship using a sample of 5,502 firm year observations of listed Taiwanese companies from 2008-2009.Results from the regression test revealed that auditor industry specialisation and audit experience have significant negative relation with accounting restatements.

Aliyu, Musa and Zachariah (2015) tested audit quality measured by audit firm size, joint audit and auditor financial dependence on earnings management of listed deposit money banks in Nigeria based on seven (7) listed deposit money banks on the NSE for the period 2006 to 2013 as sample. Findings from the regression results revealed that audit firm size and joint audit have significant negative effect on earnings management while auditor financial dependence had significant positive effect on earnings management. Tyokoso and Tsegba (2015) investigated audit quality effect on earnings management of oil marketing companies listed in Nigeria for the period 2004-2013.Findings indicate that audit firm size and auditor industry specialization have insignificant negative effect while auditor tenure had significant negative effect on earnings management. Hegazy (2015) examined audit firm specialization effect on earning s management in Egyptian firms based on a sample of seventy (70) auditors, comprising both specialist auditors and non-specialist auditors. Findings at the end of the experiment showed that industry specialist auditors do not constrain earnings management better than non-specialist auditors.

Okolie (2014) assessed audit quality effect on accrual-based earnings management using a sample of 57 non-financial firms listed on the NSE. Audit quality was proxy by audit fees and audit tenure while discretionary accruals that represented earnings management estimated from modified Jones model. Findings reveal existence of significant positive association between audit fees and discretionary accruals, and negative relation between audit tenure and discretionary accruals. Zhou and Guan (2014) investigated audit quality and earnings management of Chinese companies based on a sample of 4640 firm year observations for the period 2008-2011. From the regression results audit firm size has significant negative effect on earnings management in China, especially for firms with income increasing abnormal accruals. Positive relation between auditor industry specialization and earnings management of the companies was found. The relationship however, turns negative in firms with income decreasing earnings management. Karimi and Gerayli (2014) studied audit quality and earnings management estimated through modified Jones 1991 relationship, model based on a sample of 91 listed companies on Tehran Stock Exchange (TSE) over the period 2008-2012. Evidence indicates that auditor industry specialization has negative significant relation while auditor tenure has a negative but insignificant association with earnings management.

Okolie, Izedonmi and Enofe (2013) inquired into audit quality effect on earnings management of listed firms on the NSE for the period 2006-2011, using a sample of 57 manufacturing firms employing regression tool for data analysis. Findings showed that significant negative associations exist between audit firm size, audit tenure, audit fees, audit client importance and discretionary accruals of the sampled companies. Molik, Mir, Mclver and Bepari (2013) explored audit quality effect on earnings management of listed firms in Australia during the period of global financial crisis from 2006 to 2009. Results from the panel regression showed that significant negative association exist between audit committee independence and earnings management of firm while an insignificant positive relationship was however found between audit firm size (represented by Big4), audit committee size, audit committee meeting, audit committee financial expertise and

earnings management. Yasar (2013) made an inquiry into the effect of audit quality on earnings management of Turkish companies listed on the Turkish Stock Exchange within 2003-2007 period. Results indicate that a positive relation exist between audit firm size and discretionary accruals of manufacturing firms in Turkey. Pouraghajan, Tabari, Emamgholipour and Mansourinia (2013) x-rayed audit quality and earnings management using a sample of 140 firms listed on the Tehran Stock Exchange for 2006-2011 period. The regression results showed that an insignificant positive relationship exist between audit firm size and discretionary accruals.

Memis (2012) examined audit quality and earnings management relationship in eight (8) emerging countries based on 1507 firm-year sample observations within the period 2008-2009. The result implies that audit quality does not constrain earnings management in all the sampled emerging countries (Brazil, Greece, Israel, South Korea, Mexico, Poland, Russia, and Turkey). Inaam, Khmoussi and Fatma (2012) investigated audit quality and earnings management relationship among Tunisian firms based on 319 firm year sample observations within 2000-2010 period. Evidence showed that auditor industry specialization, auditor size-measured by Big 4 auditors and earnings management were associated negatively while auditor tenure and discretionary accruals has negative insignificant relation. Ahmadzade, Hassanzadeh, Pooryegane and Ebrahimi (2012) examine d audit quality and earnings management relationship using a sample of 73 listed Iranian companies on the Tehran Stock Exchange within 2008-2011 period. The regression results show that audit firm industry specialization, audit firm tenure and are earnings management were negatively related with the study period.

Rohaida (2011) inquired into the association between audit quality (represented by audit fees, industry specialist auditor, audit committee size, audit committee independence, audit committee financial expertise and audit committee meeting) and earnings management of companies in UK. The findings show that audit fees, industry specialist auditors and earnings management are associated negatively. Similarly, audit committee size, audit committee independence and earnings management have insignificant negative relationship while audit committee financial expertise, audit committee meeting and other earnings management measures have mixed results. Gerayli, Yanesari and Ma'atoofi (2011) explored audit quality and earnings management relation in Iran using 540 firm-year sample observations within 2004-2009 period. Findings from the regression results indicated that auditor specialization auditor and audit fees were negatively related with discretionary accruals.

Habbash (2010) x-rayed external auditor quality corporate governance attributes and earnings management relation in UK with a 350 non-financial sampled companies listed on the London Stock Exchange. The evidence showed that independent audit, specialized external auditors and earnings management are negatively associated at significant levels. Chen, Wu and Zhou (2006) inquired into audit quality and earnings management association of the Taiwanese companies within 1998-2002 period. Results revealed that industry specialist auditor and Big 5 auditors (proxy for audit firm size) and earnings management were negatively associated in Taiwan. Ebrahim (2001) examined the audit quality effect on earnings management using 1,938 companies' listed on NYSE, AMEX and NASDAQ as the sample for the period 1988- 1999. Applying multiple regression tool, results of the study indicated a significant negative association between audit firm size and earnings management (discretionary accrual) while, audit tenure and client importance had insignificant negative relationship with earnings management.

Materials and Methods

Research Design

The study used the ex-post facto research design with emphasis on correlational research design based on positivist approach. According to Denscombe (2007), it helps to describe the statistical relationship between two or more variables. According to Saunders, Lewis and Thornhill (2007), such research design based on positivist approach lends itself to a more scientific, objective and systematic approach to research, and also supports the use of quantitative methodology. The population of the study is made up of twenty-five (25) listed companies. In determining the sample size of the study, we employed the following set criteria; the company must be listed on the NSE for the study period of 2012 to 2017, it must have remained listed throughout the study period and have available published financial reports. The criteria resulted in systematic sampling of nineteen (19) companies out of the population of twenty-five (25) companies. Overall, the sample constitutes 76% of the entire study population which is an indication that, it is a good representative of the population from the perspective of Asika (1991).

The method of data collection followed the three-step stage mentioned above. The first stage involves obtaining the selected firms' published accounts from different sources. The second stage involves content analysis to extract the necessary data required. The third stage involved computed earnings management proxy based on some of the data obtained from the financial statements. Data reliability was tested using the following tests; normality test based on Shapiro-Wilk statistics, hetroskedasticity test based on Breuch-Pagan/Cook-Weisberg statistics, Multi-collinearity test based on Variance Inflation Factor (VIF) and Tolerance Value (TV) statistics and Pearson correlation analysis. The data was first analysed using Ordinary Least Square (OLS) multiple regression technique but in view of the panel nature of the dataset, Haussman specification test was conducted to ascertain whether fixed or random effects model is most appropriate for the data analysis.

Measurement of Variables

Table1: Measurement of Variables

Variable/Definition	Measurement	Source
TAROC: Defined as Total accruals relative to operational cash flow	It is measured as: (▲total current asset –▲cash) – (▲total current liabilities –▲short term debts) – ▲depreciation expense / ▲ total value of operating cash flow. Where: The symbol ▲ denotes the change over the accounting year figures.	Dechow, Sloan and Sweeney (1995)
AF: Defined as Audit fees	Natural logarithm of audit fees	Ching, Teh & San (2015)
AFS: Defined as the BIG 4 international audit firms	It is a dichotomous variable that is assigned 1 when the firm is one of the BIG 4 and 0 if otherwise. The BIG 4 are Delloite and Touche, Ernst & Young, PwC and KPMG.	Becker et al (1998)
AT: Defined as Auditor's tenure which is the length of time the auditor is with the-client	A dichotomous variable where 1 indicate the auditor-client relationship is three (3) years and 0 if otherwise	Inaam et al (2012)
AIS: Defined as Auditor industry specialization	A dummy variable 1 if the audit firm has been auditing firms in that industry for five (5) years and above, otherwise zero (0).	He (2015)

Source: Author, 2019.

The study applied the multiple regression model with earnings management represented by magnitude of total accruals relative to operational cash flow (TAROC), the dependent variable, and the independent variable, audit quality represented by audit fees (AF), audit firm size (AFS), auditor tenure (ADT) and auditor industry specialization (AIS).

Model Specification

The model applied in the study was adopted from the study of Okolie, Izedonmi and Enofe (2013) and modified to suit the objective of the study. The reason for adopting the model was because it has been used by several other studies in the literature and it is very amenable and suitable for carrying out multiple regression analysis. The model as specified in the work of Okolie, Izedonmi and Enofe (2013) is as follows:

$$\text{Disaccrual} = a_0 + a_1 \text{AFS} + a_2 \text{ADT} + a_3 \text{ADF} + a_4 \text{ACI} + E \quad (1)$$

This was modified to incorporate the property of time series and cross sectional data and the inclusion of auditor industry specialization variable. The functional model for the study is expressed as follows: $\text{TAROC}_{it} = \beta 0 + \beta 1 \text{AF}_{it} + \beta 2 \text{AFS}_{it} + \beta 3 \text{ADT}_{it} + \beta 4\ \text{AIS}_{it} + \text{U}_{it}$ (2)

Where: TAROC = total accruals relative to operating cash flow; AF= audit fees

AFS = audit firm size; ADT = auditor tenure; AIS = auditor industry specialization

$\beta 0$ = constant of the model; $\beta 1 - \beta 4$ = coefficients of the study model and U = error term

Presentation and Analysis of Data

Table 2: Descriptive Statistics for the Variables

VARIABLES	MEAN	STANDARD DEVIATION	MINIMUM	MAXIMUM
TAROC	.1004662	.0515410	.00019	.267891
AF	.6851852	.4587310	0.231476	.865448
AFS	.5185185	.2024378	0	1
ADT	.5740741	.2892175	0	1
AIS	.5925937	.2418645	0	1

Source: Stata MP15 Descriptive Statistics Test Output, 2019.

From Table 2 above presents the descriptive statistics for the dependent and independent variables (TAROC = Total accrual relative to operating cash flow, AF= Audit fees, AFS = Audit Firm Size, ADT = Auditor Tenure and AIS = Auditor Industry Specialization.

The standard deviation of the variables ranges from 0.0515410 to 0.4587310. Their minimum values range from 0 to 0231476 while the maximum values range from .267891 to 1. The average value of 0.10 for total accruals relative to operating cash flow discretionary accruals indicate that the firms sampled engaged in minimal earnings manipulation within the study period. Audit fees mean value of .6751852 suggests that 68% of the audit fees were collected by the big 4 audit firms while about 32% were collected by non-big audit firms. Audit firm size mean value of 0.52 implies that about 52% of the sampled firms were audited by the big 4 audit firms in Nigeria which are KPMG, PWC, Ernst and Young, Akintola Williams Delloitte) while 48% of them were audited by non-big 4 audit firms. Auditor's tenure has a mean value of 0.5740741 which implies that 57% of the sampled companies retained their auditors for upwards of three years while 43% retained their auditors less than three-year tenure. The auditor industry specialization mean is .5925937

suggesting that about 59% of the firms were audited by industry specialist auditors while 41% were audited by non-industry specialist auditors.

Table 3 Correlation Matrix of the Variables

Variables	TAROC	AF	AFS	ADT	AIS
TAROC	1.0000				
AF	-.2345	1.0000			
AFS	-.3401	.3456	1.0000		
ADT	-.3103	.4967	.2978	1.0000	
AIS	-.2623	.3876	.1542	. 3121	1.0000

Source: Stata MP15 Pearson Correlation Test Output, 2019.

From Table 3 above shows that the independent variables appear to perfectly correlate between .1542 and 0.4967 which indicate near absence of relationship among the independent variables. According to Hassan (2011) these values are not large enough or greater than 0.7 to actually pose problems of data singularity.

Table 4. Multicollinearity Test Result

Independent Variables	VIF	TV(I/VIF)
AF	6.29	0.158983
AFS	1.40	0.714286
ADT	1.54	0.649351
AIS	4.79	0.208768
Mean VIF	3.51	

Source: Stata MP15 Multicollinearity Test Output, 2019.

From Table 4 the independent variables VIF values are all below the benchmark of 10 and mean VIF value of 3.51 is above the benchmark of 1. The variables TV were above 0 but less than 1. These results confirm the absence of multicollinearity problem among the independent variables revealing the suitability of the dataset for regression analysis.

Table 5. Normality Test Based on Shapiro-Wilk Test

Variables	Observation	W	V	Z	Prob Z
TAROC	114	0.94568	2.098	1.650	0.00597
AF	114	0.97848	1.312	0.510	0.28633
AFS	114	0.98866	0.153	-3.508	0.97485
ADT	114	0.99750	1.698	1.231	0.13346
AIS	114	0.99592	0.048	0.902	0.18968

Source: Stata MP15 Shapiro-Wilk test output, 2019

From Table 5 the overall result of the test shows that none of the variables z-statistics value were significant at 5%, indicating no outliers available, thus confirming the presence of normal distribution of the data set.

Heteroskedasticity Test

Testing for heteroskedasticity led to conducting pooled ordinary least square test on the dataset and the result is presented in Table 6 as follows:

Table 6: Panel data -Ordinary Least Square (OLS) Results

TAROC	Coefficients	Std error	t	Prob
AF	-0.0011037	0.010034	-0.11	0. 685
AFS	0.0727898	0.038925	1.87	0.067
ADT	-0.0377057	0.014122	-2.67	0.006
AIS	0.0691966	0.024365	2.84	0.016
Constant	0.0510593	.028685	1.78	0.058
No of obs: 114 R^2 0.3453 Adj R-Square 0.3429 F 4.64 Prob 0.0117				

Source: Stata MP 15 Ordinary Least Square (OLS) Test Output, 2019.

To avoid the presence of heteroskedasticity and wrong interpretations based on the pooled OLS results in Table 6 above, the Breusch-Pagan/ Cook-Weisberg test becomes inevitable.

Table 7. Results of Breusch-Pagan/ Cook-Weisberg test result

Ho : Constant
Variables – fitted value of TAROC
Chi ^{2} 4.57
Prob (Chi^2) 0.0218

Source: Stata MP 15 Breusch-Pagan/ Cook-Weisberg Test Output, 2019.

The test result shown on Table 7 validates heteroskedasticity presence because the chi-square probability value is 0.0218 is less than the 5% level of significance. This led to the conduct of fixed and random effect regressions based on the Haussman specification test. The essence of the test was to determine which of the models would be preferred.

Table 8: Hausman Fixed and Random Tests result.

TAROC	Fixed effect coefficients A	Random effect coefficients b	Difference
AF	-.15110434	-.00918873	.14191561
AFS	-.08589930	-.04850895	.03739035
ADT	-.02671164	-.03161523	.00490359
AIS	-.07537125	-.05841163	.01695962
a = consistent under Ho and Ha b =inconsistent under Ha, efficient under Ho Prob (Chi 2) 0.0121			

Source: Stata MP15 Hausman Specification Test Output, 2019.

From Table 8, the Chi-square probability is 0.0121 significant at 5% level an indication that, the error terms and regressors are not correlated. However, the analysis between the random and fixed effect models as shown in Tables 9 and 10 below indicate that fixed effect regression results appear to be more suitable than the random effect results based on the value of R^2 in the dataset. The study in this regard decided to apply the fixed effect regression results as the basis for analysis.

Table 9: Results of Random Effect Regression

TAROC	Beta Coefficient	Standard Error	t-values	Prob.>t
AF	-.00918873	. 0262535	-0.35	.8650235
AFS	-.04850895	.0230995	-2.10	.0471262
ADT	-.03161523	.0123497	-2.56	.0364537
AIS	-.05841163	.0245427	-2.38	.0317869
R^2	0.3893			
F-value	2.78			
Prob.>F	0.021			

Source: Stata MP15 Hausman Specification Test Output, 2019

Table 10: Results of Fixed Effect Regression

TAROC	Beta Coefficient	Standard Error	t-values	Prob.>t
AF	-.15110434	. 0535831	-2.82	.0246262
AFS	-.08589930	.0336860	-2.55	.0398394
ADT	-.02671164	.0123665	-2.16	.0427906
AIS	-.07537125	.0248750	-3.03	.0208787
R^2	0.5389			
F-value	4.78			
Prob.>F	0.0014			

Source: Stata MP 15 Haussman Specification Test Output, 2019.

Table10 reveals an R^2 value of approximate 0.54 which represents the coefficient of multiple determination and implies that 54% of the total variation in the dependent variable (total accruals relative to operating cash flow) of firms listed in the industrial sector in Nigeria was explained jointly by the independent variables of audit fees, audit firm size, auditor tenure and auditor industry specialization. The value of R^2 appear not to be too high,0.54 but it would not be a problem since the F- statistics value of 4.78 (Prob.>F = 0.0014) indicates that the model is fit to explain the effect of audit quality measures on earnings management as shown in the model. This suggests that the independent variables were properly chosen, combined and applied. The value of R^2 of 54% also indicates that 46% of the de pendent variable is explained by factors not included in the model.

Discussion of Findings

Audit Fees and Earnings Management

Audit fee is reported in Table10 above to have a negative effect on earnings management that is significant at 5% having a coefficient and t-values of -151104342 and -2.92 respectively and p-value of 0.0246262.This implies that audit fees paid by firms are likely to reduce incidence of earnings management practices of the sampled firms in this study..The finding is consistent with the results reported by Ching, Teh and San (2015); Okolie, Izedonmi and Enofe (2013); Rohaida (2011) who show that audit fee has negative effect on earnings management. It however, contradicts the finding of Okolie (2014) who reported positive effect of audit fees on earnings management.

Audit Firm Size and Earnings Management

Table 10 above reported a negative effect of audit firm size on earnings management that is significant at 5 % based on coefficient and t- values of -.0858993 and -2.55 respectively and p-value of 0.0398394.The implication is that audit firm size is able to reduce earnings management practices of listed firms in the industrial goods sector in Nigeria.The finding corroborates those of Lopes (2018), Alzoubi (2018); Alzoubi (2016); Ching, Teh and San (2015); Aliyu, Musa and Zachariah (2015); Tyokoso and Tsegba (2015); Zhou and Guan (2014); Okolie, Izedonmi and Enofe (2013); Inaam, Khmoussi and Fatma (2012); Gerayli, Yanesari and Ma"atoofi (2011); Chen, Wu and Zhou (2006); that found negative effect of audit firm size on earnings management of firms. It however contradicts the results reported by Habbash and Alghamdi (2017); Pouraghajan, Tabari, Emamgholipour and Mansourinia (2013); Yasar (2013); Molik, Mir, Mclver and Bepari (2013) that found positive effect of audit firm size on earnings management of firms.

Auditor Tenure and Earnings Management

Table 10 above reported a negative effect of auditor tenure on earnings management that is significant at 5% given coefficient and t- values of -.02671164 and -2.16 respectively and a p-value of 0.0427906.The finding agrees with the findings reported by Alzoubi (2018); Tyokoso and Tsegba (2015); Bamahros and Wan-Hussin (2015); Okolie (2014); Karimi and Gerayli (2014); Okolie, Izedonmi and Enofe (2013); Ahmadzade, Hassanzadeh, Pooryegane and Ebrahimi (2012); Inaam, Khmoussi and Fatma (2012); Ebrahim (2001);who documented a negative relationship between auditor tenure and earnings management of firms. The result is however at variance with those of Ching, Teh and San (2015); Gul, Fung and Bikki (2009) who documented evidence of a positive association between auditor tenure and earnings management of firms.

Auditor Industry Specialization and Earnings Management

Table 10 also reported a negative beta coefficient of - 0.07537125 and t-value of 3.03 for auditor industry specialization with a p- value of 0.0208787 that is statistically significant at 5%. It indicates that auditor industry specialization was able to constrain earnings management during the study period. The result supports the findings of Alzoubi (2018); Olabisi etal (2017); Tyokoso and Tsegba (2015); He (2015); Karimi and Gerayli (2014); Ahmadzade, Hassanzadeh, Pooryegane and Ebrahimi (2012); Inaam, Khmoussi and Fatma (2012); Gerayli, Yanesari and Ma"atoofi (2011); Rohaida (2011); Gerayli, Yanesari and Ma'atoofi (20 11); Habbash (2010); who documented a negative association between industry specialist auditors and earnings management of firms. It however, contradicts the findings of Habbash and Alghamdi (2017); Hegazy (2015); Zhou and Guan (2014); who found a positive relationship between auditor industry specialization and earnings management of firms.

Conclusion

From the data analysis the following conclusions were reached. Audit fees, audit firm size, auditor tenure and auditor industry specialization all have the capacity to significantly mitigate earnings management practices of firms listed in the industrial goods sector in Nigeria It goes to reaffirm the commitment of firms in Nigeria to promote more compliance with accounting standards in reporting their operations and engaging credible audit firms that can provide better audit quality services capable of constraining opportunistic behaviour of management with respect to earnings management practices in the industrial goods sector.

Recommendations

Based on the findings the study makes the following recommendations:

i. Firms seeking to have quality audit service capable of constraining the possibility of management practices in engaging in earnings management should consider audit fees payable for audit assignment, the audit firm size, auditor length of time and auditor industry specialization. This obviously may help investors to have an abiding faith in published financial reports and make good decisions when investing.

ii. The study contributed to the literature on the effect of auditing on earnings management particularly as it relates to listed firms in the Nigerian industrial goods sector.

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