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Earnings management in non-financial firms in Nigeria: Does audit quality matters?

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Abstract: The efficacy of the audit function has been questioned due to several instances of financial statement manipulation reported worldwide, which has eroded stakeholders' confidence in the affairs of listed companies in Nigeria. Audit quality has been identified in the literature as having the potential to reduce earnings management practices. The purpose of this research is to examine the relationship between audit quality and earnings management strategies in publicly traded non-financial companies in Nigeria. An ex-post facto research methodology utilizing a purposive non-probability selection method was implemented to choose a sample of 30 publicly traded companies on the Nigerian Exchange Group (NGX). Data was extracted from the audited financial reports of the selected organizations for a ten-year period (2012-2021). The random effects regression model indicated that the audit quality criteria did not significantly influence the actual earnings management practices of the studied organizations. It is concluded that the Big4-non-Big4 dichotomy, the quantum of audit fees paid, the length of the auditor-client relationship, and the engagement of an industry-specialized auditor would not significantly prevent or reveal the occurrence of real earnings management in the listed non-financial firms in Nigeria. We recommend that firms should downplay the significance of an audit firm's size when engaging its services. Future researchers may consider other parameters and proxies of audit quality. The study extends scholarly discourse on earnings management-audit quality interactions to bolster the understanding of shareholders and other stakeholders regarding the implications of this nexus.

Keywords: *Audit fee, Audit firm size, Auditor's industry specialisation, Auditor's tenure, Real earnings management.*

1. Introduction

The rendition of an account of an organisation's operations during a specific reporting period is a crucial factor for evaluating the diligence of people in charge of its affairs. Thus, financial reporting aims to present financial data through financial statements concerning the organisation's activities and operations within a reporting period, usually a 12-month calendar. According to Tyokoso, et al. [1]; Lopes [2] and Alao and Gbolagade [3] financial statements information is essential for the users, including investors, competitors, supervisory bodies, and so on to make informed economic judgments regarding a firm's activities. Therefore, accuracy and level of dependability of such sensitive information, through quality audit must be ensured to boost users' assurance.

Audit quality revolves around adding credibility to audited financial statements by identifying and reporting significant inaccuracies in line with the provisions of auditing standards issued locally and internationally [4, 5]. Over the years, concerns have been raised globally regarding factors that drive, impair and advance the quality of audits, presumably because a high-quality audit would reflect in the resulting audit opinion as well as boost public confidence [6-8]. Factors such as pressures on auditors to meet deadlines, restriction of audit fees, and extreme usage of judgment contribute to the rise of audit

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failures in Nigeria. However, audit quality could be improved by mandatory rotation of auditors and restriction of non-audit services [9].

There have been instances where companies have been accused of earnings management, leading to investigations and penalties by regulatory authorities. For example, in 2017, the Nigerian Stock Exchange p (NGX) fined 11 listed companies for non-compliance with post-listing requirements, including earnings management problems. Also, the case of Oando plc in 2017 involved insider dealings and manipulations of the company's shareholding structure, leading to gross abuse of corporate governance and financial recklessness. Other notable past cases in non-financial firms in Nigeria include the Nigerian National Petroleum Commission (NNPC) in 2013 and Cadbury plc in 2006 [1, 10]. Globally, notable cases of earnings manipulation and audit failure include Corman, et al. [11]; Kemmerer and Shawver [12] and Coffee Jr [13]. Bala and Kumai [14]; Madawaki and Amran [15] and Alhassan, et al. [16] believe that these instances have raised concerns amongst stakeholders regarding the accuracy and reliability of the accounting records and have prompted questions about the capacity of audits to unearth earnings manipulation.

Previous empirical studies Alhassan, et al. [16] and Abubakar, et al. [17] have sought to gauge earnings management through discretionary accruals. However, the use of discretionary accruals is riskier to the company and easily detectable by auditors [5, 18]. This risk of detection increases the likelihood that firms may consider switching to real earnings manipulation. The ever-increasing prices of goods and services occasioned by the removal of fuel subsidies in Nigeria could provide yet another robust platform for firms' engagement in natural earnings management by manipulating their actual operations. Furthermore, with the phenomenon of earnings management prevalent in some Nigerian banks, some prior studies Ozcan [19]; Ceccobelli and Giosi [20]; Umoren, et al. [21] and Saidu, et al. [22] had concentrated on the financial sub-sector while the evidence of the few research done in the non-financial sector have remained inconclusive. These voids in the literature provide the necessary impetus for the current study.

Our study extends discussion on earnings management and audit quality nexus by exploring the concept of real earnings management, displaces the preponderant notion of audit quality having a declining effect on earnings management and established that in uncovering real earnings management, size, quantum of audit fees paid, length of auditor-client relationship and engagement of industry-specialized auditor offer no significant influence.

2. Literature Review

2.1. Earnings Management

Among the frequently debated ethical issues in the accounting, auditing, and corporate governance literature is earnings manipulation due to the impact of its effects on the decisions made by users of accounting information. Kwarbai and Osho [5]; Abubakar, et al. [17] and Olthof [23] asserted that earnings management is a deliberate modification of or deviation from financial reporting processes to misinform stakeholders concerning the fundamental financial success of an organisation. These studies imply that management engages in earnings management practices for their incentives at the detriment of innocent and unobserving stakeholders, breaching management's fiduciary responsibilities to the stakeholders and thereby affecting the integrity of financial reports presented by the organisation.

Management can manage earnings through discretionary accruals or absolute earnings manipulation methods. Real Earnings Management (REM) surfaces when directors make operational decisions that enhance present earnings but upset the interest of long-term shareholders either for managerial opportunism or to signal future performance [24]. REM could be achieved by altering reported earnings through overproduction, lowering the cost of goods sold, or reducing discretionary expenses [18, 25].

Previous researchers, such as Oyebamiji [4]; Ozcan [19] and Chituru, et al. [26] have primarily utilised discretionary accruals to gauge earnings manipulation, believing that this method best detects earnings manipulation in corporate reporting. Likewise, Cohen and Zarowin [27] and Zang [28]

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proved that directors switch to manipulating real activities once accrual earnings management becomes more challenging to accomplish. However, studies by Eriabie and Dabor [29] and Abubakar, et al. [17] assert that managers resort to the manipulation of sales, overproduction of inventory, decreasing optional expenses such as research and development cost, and reduction of optional expenses to get rid of losses.

2.2. Audit Quality

Over the years, it has been challenging to reach an agreement on a universal description or measurement of audit quality [30]. However, audit quality refers to the probability, as assessed by the market, of an auditor identifying and disclosing a violation or misrepresentation within a client's accounting system [5, 17, 23, 31]. Thus, an auditor's effectiveness in conducting high-quality audit work is contingent upon his technical capabilities, independence, and objectivity. Audit independence, as explained by Soyemi, et al. [32] and Ozcan [19] connotes auditors' boldness and confidence in reporting false representations, either by a qualified declaration or negative reviews if such misstatements are left unadjusted by management. The capacity of an auditor to discover a misnomer is referred to as proficiency, while his ability to report the misnomer detected is referred to as objectivity or independence. From another lens, Ahmad, et al. [33]; Alao and Gbolagade [3] and Kurawa and Aca [34] view an audit's capacity to enhance the accuracy with which investors may evaluate the value of a firm's financial statements as audit quality. This perspective is so because fewer audit blunders are directly related to high-quality auditors, who would more likely issue going-concern audit reports to deserving auditees than to undeserving ones [35].

This complicated phenomenon has been widely measured in various forms. One approach to measuring audit quality is the input-output approach emanating from the credibility of financial reporting of client companies and observable auditor attributes. As argued by Aobdia [36] the other approach involves a detailed examination of the audit process as perceived by audit firms and regulators. These direct-indirect metrics include the audit fees, audit firm size, auditor's expertise, auditor's familiarity with/expertise in the sector, and capital expense Mohapatra, et al. [8]; Bell, et al. [37] and Gaynor, et al. [38] and amenability with the Generally Accepted Accounting Practices (GAAP), Securities and Exchange Commission's performance review, quality control review, and bankruptcy test review [36]. Several studies such as those of Ahmad, et al. [33]; Almomani and Ayedh [39] and Tyokoso and Tsebga [40] used common proxies like auditor's size, auditor's focus on an industry, and span of the auditor's engagement to measure the standard of the audit. Others have also used mandatory audit partner and firm rotations, audit fees, and audit tenure to gauge audit quality [6-8]. The referenced authors adopted these audit firm/auditor attributes due to the presupposition that they are effective in accurately determining the degree of the quality of the audit performed and their ability to detect a misnomer. According to Kurawa and Aca [34]; Nawaiseh [41] and Yasser and Soliman [42] audit quality becomes imperative as management may manipulate the values reported in accounting reports or use loopholes in accounting methods to create a desirable public image for the firm.

2.3. Audit Fees

Audit firms, regulators and academic researchers share common ground in identifying sub-quality audits through audit fees as surrogates of audit quality [36]. An audit fee is a monetary value received by auditors and their firms from clients for rendering audit/professional services [43]. This audit fee includes fees receivable for completing an audit assignment and certification of an entity's financial statement; reporting on directors' remuneration, and for work done to comply with the auditor's responsibilities under the law and auditing standards PWC [44] and should be determined mutually between the auditee and audit firm [43]. Clients may sometimes require an auditor's expertise to provide non-audit services such as tax, payroll, valuation, advisory, and legal services. Non-audit services are additional services an auditor provides to clients in addition to standard auditing engagements to generate extra revenue [45, 46]. An auditor must pay attention to non-audit services

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rendered to the client and objectively determine the audit fee to prevent interference with the auditor's independence. This concern is so because the consequent economic tie between auditor and management arising from high audit fees could undermine the auditor's independence and consequently create room for financial statements' manipulation [5, 29, 47]. Thus, earnings quality may wane with increased audit fees Ye [43] as audit fees exhibit a positive association with earnings management [48]. On the contrary, higher audit fees are aligned with higher-quality financial reporting, which reduces auditees' earnings management [49].

Hypothesis 1: Audit fees do not affect earnings management practice.

2.4. Auditor Tenure

The time auditors spend rendering professional services to clients is called "auditor tenure". It reflects the duration of an auditor-client relationship in years. Over time, there has been much discussion over the connection between an auditor's tenure and earnings manipulation. Gul, et al. [50] summarised the three dimensions of the tenure-earnings relationship thus: audits of lower quality could result from a lack of expertise in client-related affairs, and low-balling (intentional lowering of audit fees than audit costs) leads to low-quality audits, while firms with higher quality earnings would retain higher-quality auditors. Consequently, companies with higher quality earnings may likely have lengthy relationships with their auditor, while short tenure results in a lack of in-depth knowledge of the client, hence low-balling.

Since lengthy auditor tenure may likely improve or reduce earnings manipulation, researchers have investigated this assertion, but the results have remained inconclusive. For instance, Garcia-Blandon, et al. [7]; Martín-Cervantes and Valls Martínez [49]; Jadiyappa, et al. [51] and Martín-Cervantes and Valls Martínez [49] have expressed the position that an extended duration of audit engagement allows the auditor to become more acquainted with the systems of internal control of the client which would facilitate detection of earnings management practices and ultimately reduce the occurrence of such practices. In contrast, Soyemi, et al. [32]; Kurawa and Aca [34]; Nawaiseh [41]; Tepalagul and Lin [52] and Tran, et al. [53] concluded that a lengthier audit tenure could lead to increased earnings management, as independence of the auditor may be compromised. This potential threat to independence could influence the auditor's ability to form unbiased opinions on the client's financial statement assertions leading to a possibility of high information asymmetry [32, 54, 55].

Hypothesis 2: Auditor's tenure does not have any significant effect on earnings management practice.

2.5. Auditor Industry Specialisation

Industry-specialised auditors are experts who possess in-depth knowledge of a particular industry because of long years of experience in such an industry. They tend to perform better in a specific industry compared to their counterparts. According to the findings of Havasi and Darabi [56] and Jayeola, et al. [57] there is an expectation that auditors specialising in specific industries possess enhanced capabilities as they invest more in information technology, personnel training, and development and will endeavour to protect their reputation, which would reflect in the reliability of financial reporting. Audit companies can regulate client firms' earnings management methods and reduce audit risks with industry-specific expertise [50, 58]. Complex company operations necessitate auditors who are well-versed in the features of the industries in which they operate.

Hypothesis 3: Auditors' industry specialization plays no role in uncovering earnings management practices.

2.6. Audit Firm Size

[3, 42, 46, 59]. Opined that the size of the audit firm is one of the most relevant indicators for assessing the excellence of the external audit. The respective studies separated audit firms into big4 and non-big4. The big4 audit companies are regarded as prestigious firms that consistently supply

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worthy audit services due to their knowledgeable and experienced staff. They achieve this prominence because they have a broader clientele base, which means that their sources of income are not impacted by one client, thus increasing their independence. In contrast, the non-big4 firms' incomes are presumably based primarily on audit fees charged to specific clients, and hence, they would rely more on the fees charged to their clients. Ultimately, lower-quality earnings are widespread in companies with weak governance structures and audited by non-big4 companies [60]. However, a contrary view Soyemi, et al. [32] and Tran, et al. [53] exists that smaller-sized audit companies may conduct higher-quality audits than larger ones.

Hypothesis 4: Audit firm's size does not influence earnings management practice.

2.7. Theoretical Framework

2.7.1. Agency Theory

Stephen Ross and Barry Mitnick were the earliest proponents of the theory of agency [61]. Agency theory, analysed through economic and institutional lenses, delineates the linkages and associated issues arising from the principal-agent conflict of interest due to the separation of ownership from management Mitnick [62]. Jensen and Meckling [63] consider this as a contract where the principal engages agents to act on their behalf. The principal also gives the agents some degree of freedom in making decisions. Impliedly, this could give rise to a possibility of high information asymmetry [32, 54, 55]. According to Saidu, et al. [22] and Chituru, et al. [26] the theory depicts the misalignment of interests occasioned by disproportionate information which may occur between the investors and managers.

Therefore, since managers (agents) are responsible for providing stewardship functions to the owners, there is a strong likelihood that they will manipulate earnings to present a positive view of their performance to the owners (principal). This possibility of earnings management gives rise to the need for independent verification of the assertions made by the management in the financial statement by an external auditor. The limitation of this theory is its narrowness, focusing mainly on the interests of the shareholders, whereas managers are accountable to all stakeholders [55].

3. Methodology

We adopt *an ex post facto* research design to gather and evaluate pertinent data based on already-known facts. Secondary data was retrieved from the annual reports of 30 non-financial organisations listed on the Nigerian Exchange (NGX), from 2012 to 2021. This translates to 300 firm-year observations. A purposive sample based on the companies' relative size and listing status from 2012 to 2021 was taken. The 30 sampled non-financial firms were from agriculture, conglomerates, consumer goods, healthcare, ICT, industrial goods, natural resources, oil and gas, real estate, and services sectors. This sample represents 28% of the total listed non-financial firms as of June 2023. This sample size aligns with the $n \geq 30$ thresholds [32].

3.1. Measurement of Variables

3.1.1. Dependent Variable: Earnings Management

We denoted earnings management using the real earnings management (REM) approach following Roychowdhury [64] formula and consistent with Financial Reporting Council of Nigeria [65] as stated below:

"REM = Abnormal cash flows + Abnormal Production cost + Abnormal Discretionary Expenses."

Where "abnormal cash flow from operation, abnormal production cost, and abnormal discretionary expenses" represent the difference between actual values stated in the annual reports and the calculated or normal value. The normal or calculated operating cashflow, production cost, and discretionary expenses are the computed figures using the formulae below:

$$CFOA_t/A_{t-1} = \beta 0 + \beta 1(1/A_{t-1}) + \beta 2(S_t/A_{t-1}) + (\Delta S_t/A_{t-1}) + \varepsilon_{it} \quad (1)$$

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$$PROCO_t/A_{t-1} = \beta 0 + \beta 1(1/A_{t-1}) + \beta 2(S_t/A_{t-1}) + (\Delta S_t/A_{t-1}) + (\Delta S_{t-1}/A_{t-1}) + \varepsilon_{it} \quad (2)$$

$$DISCREX_t/A_{t-1} = \beta 0 + \beta 1(1/A_{t-1}) + (\Delta S_{t-1}/A_{t-1}) + \varepsilon_{it} \quad (3)$$

Where $CFOA_t$ is cash flow from operating activities in year t, A_{t-1} is total assets in year t-1, St is sales in year t, ΔS_t is sales of the firm in year t minus sales in year t-1,
$PROCO_t$ is the production cost, ΔS_{t-1} is sales in year t-1 minus sales in year t-2,
$DISCREX_t$ is the discretionary expenses, the sum of selling, general and administrative expenses in year t; all other elements remain as described.

3.1.2. Independent Variable: Audit Quality

We measured audit quality using audit fees, auditor's tenure, size of audit firm, and auditor's industry specialisation as proxies.

3.1.3. Control Variables

Some other factors [in line with Ashraf & Qian, 63] that may impact earnings manipulation, such as leverage, company size, and foreign affiliation, were used as control variables.

Table 1.
Description and Measurements of Variables.

Variable Name	Type of Variable	Measurement	Sources	A-priori Expectations
Real Earnings Management (REM)	Dependent	Summation of standardised differences between actual and computed normal CFOA, normal PROCO, and normal DISCREX.	Kwarbai and Osho [5]; Bello and Ugoh [18] and Roychowdhury [64]	
Audit Fees (AF)	Independent	Logarithm (ln) of audit fees	Kwarbai and Osho [5] andEriabie and Dabor [29]	Positive (+)
Auditor's Tenure (AT)	Independent	Measured with the duration of the client-auditor relationship, 1 if > = 5 years; otherwise, 0	Soyemi, et al. [32] and Nawaiseh [41]	Negative (-)
Audit Firm size (AS)	Independent	Measured with a dichotomous value of 1 for firm audited by a big4 auditor and 0 if otherwise	Alao and Gbolagade [3] and Affes and Smii [46]	Negative (-)
Auditor's Industry Specialisation (AI)	Independent	Measured with a dummy variable, 1 if the auditor has industry experience, 0 if otherwise	Havasi and Darabi [56] and Jayeola, et al. [57]	Negative (-)
Leverage (LEV)	Control	Measured by dividing Debts by Equity	Olthof [23] and Almomani and Ayedh [39]	Positive (+)
Firm Size (FSIZE)	Control	Represented with the natural log of total assets	Abubakar, et al. [17] and Ozcan [19]	Negative (-)
Foreign Affiliation (FA)	Control	A firm with foreign affiliation is assigned a score of 1, while 0 is assigned to the non-affiliated firm.	Ashraf and Qian [66]	Positive (+)

3.2. Model Specification

In order to investigate how audit quality affects earnings management in the sampled non-financial firms in Nigeria, the following is the panel data model created by this study.

$$REM_{it} = \beta 0 + \beta 1AF_{it} + \beta 2AT_{it} + \beta 3AS_{it} + \beta 4AI_{it} + \beta 5LEV_{it} + \beta 6FSIZE_{it} + \beta 7FA_{it} + \varepsilon_{it} \ldots\ldots\ldots(iv)$$

Where:
REM = Real Earnings Management of firm i in year t
AF = Audit Fee of firm i in year t
AT = Auditor's tenure of firm i in year t
FA = Foreign Affiliation of firm i in year t
AS = the size audit firm i in year t

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AI = Auditor's industry specialisation of firm i in year t LEV = Leverage of firm i in year t
FS = Firm size of firm i in year t β_0 = constant of the coefficient
ε = the error term $\beta_1 - \beta_7$ = Variable coefficient

4. Results and Discussions

In this sub-section, we present the empirical results of the study. This includes both the descriptive and inferential statistics.

4.1. Descriptive Statistics

Table 2.
Summary of Descriptive Statistics for the Variables.

	REM	AF	AI	AS	AT	FA	FSIZE	LEV
Mean	2.114342	16.80865	0.966667	0.680000	0.370000	0.500000	23.81680	1.610243
Median	1.660459	16.97272	1.000000	1.000000	0.000000	0.500000	24.08402	1.421950
Maximum	16.47078	20.36230	1.000000	1.000000	1.000000	1.000000	28.01786	13.51190
Minimum	0.000000	12.90038	0.000000	0.000000	0.000000	0.000000	0.000000	-22.49849
Std. Dev.	1.998979	1.395825	0.179805	0.467256	0.483611	0.500835	2.531195	2.320655
Skewness	3.769594	-0.184731	-5.199469	-0.771744	0.538520	0.000000	-3.005392	-3.214939
Kurtosis	22.47257	3.724085	28.03448	1.595588	1.290004	1.000000	27.83073	47.04161
Jarque-Bera	5450.253	8.260018	9185.791	54.43407	51.05128	50.00000	8158.683	24762.58
Probability	0.000000	0.016083	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Sum	634.3026	5042.594	290.0000	204.0000	111.0000	150.0000	7145.040	483.0728
Sum Sq. Dev.	1194.779	582.5495	9.666667	65.28000	69.93000	75.00000	1915.677	1610.246
Observation	300	300	300	300	300	300	300	300

4.1.1. Interpretation of Descriptive Statistics

Table 2 shows that earnings management, as determined by manipulating actual activities, has a 2.1% mean value and 1.9% degree of variation, respectively. This infers that 2.1% of the firms engaged in real earnings management during the period concerned. The degree of variation of 1.9% signifies a slight disparity in the data from the mean. Audit fee (AF) has a range of 12.9004 (in millions of Naira) and 20.3623 (in millions of Naira), with a mean value of 16.8087 (in millions of Naira) and a standard deviation of 1.3958. Impliedly, auditors of the sampled firms, on average, charged ₦17 million audit fees, which range between ₦13 million and ₦20 million.

In addition, the average score of the auditor's industry specialisation (AI) in Table 2 is 0.9667, ranging from 0.0000 to 1.0000. This result suggests that, on average, 97% of the studied companies were audited by industry experts who have specialised knowledge of the sector. Given that the auditors are subject-matter experts in the business, this demonstrates that the financial statements of these companies could be adjudged legitimate, fair, and trustworthy. With respect to audit firm size, the Big4 audited twenty (20 firms) out of the chosen firms (or 68% of them), according to its mean value, while non-big4 audit firms audited the remaining 32% (10 companies). This testifies to the dominance of the Nigerian audit market by the big four firms [32]. On average, auditors of the selected companies were engaged for 4-year duration (mean = 0.3700). This is within the 5-year maximum stipulated in the Nigerian code of corporate governance regarding the rotation of auditors [65].

Regarding the control variables, foreign affiliation (FA) with a mean of 0.5 implies that 50% of the selected firms are foreign affiliated, i.e., affiliated with companies outside Nigeria. The variable firm size (FSIZE) has an average value of 23.8168 million Naira, with the highest recorded value being 28.0179 million Naira. This result indicates that the largest firm in the population has approximately 28 million Naira of total assets, and on average, the firms in the population have approximately 24 million Naira of total assets based on the natural log of their total assets.

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Furthermore, the mean leverage (LEV) value of 1.61 indicates a total debt-to-total equity ratio of 1.6 within the range of -22.4985 to 13.51190, respectively. This ratio means that an average company in the observation has more debt than equity in its capital structure.

4.2. Correlation Analysis

The correlation results, as presented in Table 3, aim to show how closely related the outcome variable (REM) is to each predictor variable (audit quality measures). This is to reveal whether cases of multicollinearity exist among them.

Table 3.
Correlation matrix.

REM	1.000000							
AF	0.006806*	1.000000						
AI	-0.086709*	-0.034835	1.000000					
AS	0.126863	0.652460	0.151271	1.000000				
AT	-0.042491*	-0.069564	-0.088462	-0.184711	1.000000			
FA	-0.134435	0.435179	-0.185695	0.342997	-0.103562	1.000000		
FSIZE	0.016310	0.775166	-0.082738	0.501079	-0.053755	0.446527	1.000000	
LEV	0.186333	0.140046	-0.096143	0.100583	-0.098634	0.121013	0.143314	1.000000
REM	1.000000							

In general, it was shown that REM and the study's independent variables had both positive and negative associations, which are mostly negligible, while few others are significant at a 0.05 significance level.

In Table 3, REM has a significantly negative relationship with auditor's industry specialisation (AI) and auditor's tenure (AT). This implies that the more the financial statements of the companies in consideration are audited by a specialised auditor in the field and the longer time an auditor spends with the company, the less engagement in actual earnings management practice. Also, REM is significantly positive in association with audit fees (AF), implying that higher audit fee leads to more engagement in REM as it is likely for the auditor's independence to be influenced. Surprisingly, the insignificant positive link between audit firm size and real earnings manipulation suggests that companies using Big4 firms tend to manage earnings more. Regarding their respective values of 0.0163 and 0.1863, two control variables, leverage (LEV) and firm size (FS), show a positive correlation with real earnings manipulation. This positive relationship shows that large and highly leveraged firms are more prone to engage in REM. Furthermore, foreign affiliation (FA) is -0.1344, signifying a negative relationship with REM. By implication, the more a firm is affiliated with foreign bodies, the less likely it would indulge in earnings management.

4.3. Diagnostic Tests

Measuring the degree of multicollinearity between the variables in question is one of the critical goals of performing a correlation matrix. It is necessary because linear regression assumes a case of no severe or significant multicollinearity between the variables, as this could impair the results and interpretations of the regression.

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Table 4.
Test for Multicollinearity.

Variable	Coefficient Variance	Uncentered VIF	Centered VIF	Hausman Test
C	3.472929	288.4767	NA	
AF	0.020584	486.3807	3.320074	
AT	0.054676	1.680394	1.058648	
AS	0.106282	6.003200	1.921024	
AI	0.420474	33.76220	1.125407	
LEV	0.002339	1.546373	1.042683	
FSIZE	0.004928	234.8174	2.613984	
FA	0.065356	2.714380	1.357190	5.110565
Chi-Sq. Statistic				0.4025 (5)
Prob. (D.F.)				

The model's multicollinearity findings are shown in Table 4. The centered VIF figures, which range between the values of 1 and 3, reveal that the degree of multicollinearity between the variables is not significant enough as they are less than the threshold of 10 [40, 67]. This result implies that the degree of multicollinearity may not lead to any problem in the regression analysis.

Further, we conducted the Hausman test to evaluate whether the estimation of the panel regression model should be based on fixed effect or random effect after completing a standard pooled ordinary least squares regression. The criteria for decision-making (at 5% p-value) are to choose the fixed effect over the random effect if the 5% level is < p-value; otherwise, select the random effect.

The results presented in Table 4 support using random effects to estimate our model ($p = 0.4 > 0.05$). Hence, the random effect is more appropriate in estimating the model.

Table 5.
Random Effect Regression Result

Variable	Coefficients	Std. Error	t-Statistics	Prob.
C	4.979097	3.369688	1.477614	0.1406
AF	-0.111941	0.181099	-0.618120	0.5370
AT	0.059692	0.137300	0.434760	0.6641
AS	0.616659	0.327369	1.883681	0.0606
AI	-1.536436	1.807377	-0.850092	0.3960
LEV	0.047685	0.029724	1.604290	0.1097
FSIZE	0.015184	0.048881	0.310635	0.7563
FA	-0.755596	0.687719	-1.098699	0.2728
R^2	0.026266			
Adjusted R^2	0.002923			
Std. E. of regression	1.036022			
F-statistics	1.125234			
Prob.(F-statistics)	0.347050			
Durbin-Watson statistics	1.484914			

In Table 5, the R-squared shows the change in the outcome variable, which the explanatory variables could describe. An R^2 score of 0.026266 informs that the explanatory variables could explain 2.6% of the variance in the outcome variable. Furthermore, the model does not significantly affect the dependent variable, as denoted by the F-statistic value of 1.13 ($p = 0.35 > 0.05$). This result demonstrates, even more, the basis for the independent variables' partial justification of fluctuations in the dependent variable. Additionally, based on the general rule that the Durbin-Watson value should be < 2, our result of 1.5 demonstrates a lack of an auto-correlation issue during the period under investigation.

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4.4. Discussion of Regression Results

Based on the results in Table 5, the link between audit fees and REM is negative and statistically insignificant (p = 0.5370; negative coefficient of -0.1119). Thus, audit fees used for proxying audit quality do not affect REM practices in the sampled listed firms. This outcome contradicts the positive a-priori expectation and implies that irrespective of the audit fees charged, it does not result in any considerable change in actual earnings manipulation practice in the sampled Quoted firms in Nigeria. This result corroborates Almomani and Ayedh [39] study but is contrary to the conclusion arrived at by Bello and Ugoh [18] and Kwarbai and Osho [5] that audit fees positively and significantly influence earnings management.

The outcome of our study further revealed that an auditor's tenure is not significantly associated with real earnings management practice (p = 0.6641, and a positive coefficient value of 0.0597). Therefore, regardless of the duration an auditor spends auditing non-financial firms in Nigeria, it does not result in any significant change in real earnings manipulations. This result is contrary to the negative a-priori expectation formulated by the study. This result aligns with Soyemi, et al. [32]; Kurawa and Aca [34] and Tepalagul and Lin [52] but refutes the conclusion made by Ozcan [19] that an auditor's tenure exerts significant positive consequence on an REM. The diverse results between these studies could be explained by the different sectors and sample sizes used by each study.

Although the big4 audit firms control the audit market in Nigeria, the engagement by a non-financial company of either a Big4 or a non-Big4 audit firm does not lead to any notable alteration in the practices of REM by such companies (p>0.05and a positive coefficient value of 0.6167). By implication, based on size, audit quality is similar between Big4 and non-Big4 firms in constraining actual earnings management practice in the listed non-financial firms in Nigeria. This assertion is contrary to the negative a-priori expectation of this study. At the same time, this outcome corresponds to previous studies [e.g. Soyemi, et al. [32] and Akintayo and Salman [68] but contradicts the conclusions drawn by Lopes [2]; Alao and Gbolagade [3] and Kurawa and Aca [34] who established a substantial and negative influence of the size of audit firm on the practice REM.

Given that industry-expert auditors are equipped with the requisite technologies, personnel, and industry-related experience necessary for the quick discovery of misrepresentations and irregularities and the consequent reduction of the possibilities of firms engaging in REM Alao and Gbolagade [3] our study documents the negatively insignificant connection between real earnings management and auditor's industry-specialisation (p > 0.5, and a negative coefficient value of -1.5364). This means that the engagement of industry-specialist auditors may not significantly change REM practices in listed non-financial firms in Nigeria. Our prior negative expectation is confirmed and supports the conclusions of Alao and Gbolagade [3] and Yasser and Soliman [42] but contradicts Bello and Ugoh [18] findings.

For the control variables, both LEV and FSIZE exhibit non-significant positive associations with real earnings management (p > 0.5 and positive coefficient of 0.0477, 0.015184). This means that non-financial firms' gearing level and size exert no significant change in real earnings management practice. The third control variable, foreign affiliation (FA), has an insignificant negative relationship with REM (P > 0.5, and a negative coefficient of -0.7556). The outcome indicates that whether a business concern in the non-financial sector is affiliated with an external or an international body does not significantly determine if such a company would engage in earnings management practice.

Generally, our results contradict the predominant view in previous literature [such as Kwarbai and Osho [5] and Bello and Ugoh [18]]. The possible reason for these diverse results could be due to the different approaches in our studies. While we used the three components of REM, like Bello and Ugoh [18] only the cash flow from the operation component was used by Kwarbai and Osho [5]. Also, while our study is multi-sectors, theirs is a mono sector (only consumer goods companies). Although our sample had nearly double the number of firms compared to the previous research, our firm-year observations extend beyond their maximum limit of 2019.

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5. Conclusions and Recommendations

Consequent to the empirical results, we established that the proxies of audit quality exert insignificant effects on REM. Thus, the Big4- non-Big4 dichotomy, quantum of audit fees paid, length of auditor-client relationship and engagement of industry-specialised auditor would not prevent nor reveal significantly the occurrence of REM in the listed non-financial firm in Nigeria. Our findings showed that audit quality generally portends no significant declining consequence on real earnings management practice in listed non-financial firms in Nigeria.

Therefore, audit firms should pay more attention to organisations' accrual earnings management approach as evidence of REM practices remains anecdotal. Stakeholders in Nigeria interested in listed non-financial organisations should consider the engagement of non-Big4 audit companies to narrow the dominance of Big4 since "size does not matter" in achieving financial reporting quality. Other factors could be considered, such as proper analysis or background checks of non-Big4 firms before audit engagements. Further, within the context of REM practices, the industry expertise of the audit firms should be de-emphasised in uncovering actual earnings management practices. At the same time, future researchers should focus on other sectors and control variables, such as compliance with corporate governance and company risk, while researching the link between earnings management practice and audit quality.

Transparency:

The authors confirm that the manuscript is an honest, accurate, and transparent account of the study; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.

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