

Corporate Tax Avoidance, Free Cash Flow and Real Earnings Management: Evidence from Nigeria

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Abstract Financial statements are supposed to convey comprehensive information about firms' financial position, performance and changes in financial positions to assist a wide range of users in making economic decisions. Audited financial statements provide independent assurance that the information presented by management about the company's financial performance and positions are true and fair. However, even with audited financial statements, there is no guarantee of zero risk of financial statements manipulation. The art of manipulating the reported earnings to achieve pre-set objectives is termed as earnings management and it can be categorized into real or accrual earnings manipulations. This study extends existing research on the real earnings management by examining the effects of corporate tax avoidance and free cash flow on real earnings management in Nigeria. The analyses involve a sample of 72 non-financial firms with 360 firm-year observations for a five-year period (2014-2018). Data was obtained from the annual reports of these companies as well as from Thompson Reuters and Bloomberg databases. Multiple regression technique was used to test the model studied. The results show that both corporate tax avoidance and free cash flow increase management's real earnings manipulation activities. The study can benefit policymakers, shareholders, and regulators on the importance of effective internal control mechanisms to help curtail real earnings manipulations and improve the quality of reported financial statements.

Keywords Real Earnings Management, Corporate Tax Avoidance, Free Cash Flow, Nigeria

1. Introduction

For users of financial statements, the reported accounting numbers and earnings information provide the most reliable information to assess the overall financial position and performance of the reporting organizations. All stakeholders particularly investors and regulators rely on the audited earnings numbers and disclosures as the bases for making their business and investment decisions. Thus, users of financial statements deserve to be assured of high quality and reliable earnings information which fairly represent the financial conditions of the business operations [1]. Unfortunately, the accounting and finance literature suggests that the audited financial statements and accounting numbers are not free from the risk of frauds and earnings manipulations by management of companies worldwide [2-8].

At the end of the 20th century, high-profile corporate accounting scandals which led to the collapse of well-established companies across the globe have also been witnessed in Nigeria [9]. The business environment in this country is also plagued with ethical problems associated with corporate scandals involving large companies [10]. In Nigeria alone, it was reported that there were 1,639 cases with losses of 18.5 million USD in 2012, 314.5 million USD with 3,380 cases in 2013, and 3,756 cases with losses of 254.5 million USD in 2014 [11]. The case of Oando oil Plc and Arik airline are examples

of recent corporate frauds recorded in 2017. These cases have raised doubts of the integrity and credibility of reported accounting earnings in Nigeria [11, 13] and the continuing interest in earnings management research.

According to Healy and Wahlen [14], earnings management refers to the act of intentionally manipulating the reported financial statement numbers by managers to mislead users of the information. Such fraudulent alterations are intended to exclusively benefit the management in achieving its own objectives which include increasing bonuses and incentives since these performance rewards are generally based on reported earnings. Other management motives include achieving sales targets and contracts, meeting capital market expectations and complying with regulatory requirements. In terms of earnings management classifications, Zang [15] divides earnings management into Accruals Earnings Management (AEM) and Real Earnings Management (REM). The former involves a deliberate attempt by management to change the accounting methods when treating a given transaction in the financial statements [16]. In contrast, the latter reflects management's departure from the standard operating practices with the aim to misinform shareholders that the financial reports have been prepared and presented according to the standard practices [17]. Studies have documented that managers prefer REM when engaging in earnings management since AEM is more likely to be detected by auditors than REM [18-26].

According to recent studies, corporate tax avoidance and free cash flow are among the factors that can influence the practice of REM [27-31]. Similar to other national taxation system, the tax system in Nigeria also includes tax administration, tax policy and tax legislation. The tax policy serves as the source for tax laws while the tax administration provides guidance for the execution of the tax laws [32]. In Nigeria, business organisations that are incorporated as private and public limited corporations are subject to corporate income tax under the Company Income Tax Act (CITA). The Nigerian CITA of 1990 provides for a 30% corporate income tax rate for every tax assessment year, of the profit of companies for conducting its business in the country. In addition, as mandated through its 1993 Education Tax Act, Nigerian businesses have to contribute 2% of their taxable profits to the education tax fund [33].

On 13 January 2020, the Federal Executive Council (FEC) of Nigeria approved the tax law reform through its Finance Act. The tax reform seeks to remove absolute, ambiguous, and contradictory provisions in the tax laws which aim to increase government revenues [34]. The main issue is that the current tax practice is characterized by gross inefficiency and financial frauds. However, the new tax reform is designed mainly to raise revenue collections for the tax authorities and the government and thus, does not contribute to increase the efficiency of the

tax practice [35].

As a result of the tax reform, companies would have the incentive to design and use methods that enable them to minimise their corporate tax burden. They can either benefit from the inefficiency of the tax system or exploit the advantages of the potential financial benefits. These are achievable by employing legitimate opportunities or loopholes available under the current tax laws such as exemptions, deductions and allowances through aggressive tax planning aimed to decrease their income taxes [36]. Thus, the volatile tax environment in Nigeria provides the incentive for firms to engage in the uncommon way of managing tax liabilities through tax avoidance activities which lead to a series of documented tax-related frauds in the country [37].

The recent tax avoidance cases of MRS Holdings Ltd, an oil marketing company and Chevron, an international giant oil company are hidden in a N360 Billion (\$1 billion) oil deal. These cases are raising the public's concerns of corporate tax avoidance and create increased challenges to revenue generation in Nigeria [38]. The unethical acts of oil companies to escape or reduce income taxes through income statement manipulations severely affect the Nigerian government's effort to provide essential services to the society [32]. Furthermore, since oil has always been the major source of revenues for the country, the large decline in global oil prices recently, has significantly reduced the government's aggregate revenues. Thus, there is an urgent need for the government to strengthen its current tax system in order to optimize the revenue collections from corporate taxes as a source of funding the government's planned development strategy [37].

From companies' perspective, corporate taxes represent a significant burden on their businesses as taxes result in reduction of distributable profit. Hence, firms would be motivated to engage in corporate tax avoidance strategies in order to boost the reported earnings [39]. Extent studies view corporate tax avoidance as among the main reason for earnings management [28-41]. Thus, earnings management and corporate tax avoidance are complementary techniques, in a way that management tasked with the responsibility to minimise corporate taxes can at the same time, use tax avoidance techniques to their advantage by engaging in earnings manipulations [42-44]. Corporate tax avoidance is preferred by shareholders, as it involves value transfer from the state to the shareholders [45]. Also, paying less corporate taxes would reduce cash outflows and thus, results in a surplus after-tax cash flows that can be invested in profitable projects or distributed as extra dividends to shareholders [46].

A review of literature indicates that Free Cash Flow (FCF) could also provoke earnings management practices by companies [47-50]. The concept of FCF was introduced by Jensen (1986) and refers to excess funds available after all profitable projects are funded. FCF normally leads to a conflict of interest between

shareholders and managers. Managers would prefer to reinvest the FCF in project that generate profit since it would increase the performance incentive for them. Contrarily, the shareholders would anticipate FCF to be distributed as dividend or returns to themselves [51]. This managers' behaviour may likely lead to overinvestment problem which will motivate them to involve in aggressive earnings management practices to hide their projects' unfavourable performances [52].

From the above-mentioned facts, this study aims to examine the effects of corporate tax avoidance and FCF on real earnings management. The findings will provide new insight for policymakers, shareholders and regulators on the importance of effective internal control mechanisms such as risk management committee to help curtail corporate earnings manipulations and improve the quality of financial reporting.

This study makes unique contributions in the following ways. Firstly, it is one of the few empirical works that examine the influence of corporate tax avoidance and FCF on real earnings management in Nigeria. Secondly, unlike this research, prior studies on earnings management mostly focus on the accrual method of earnings management [53, 54]. Roychowdhury [55] argues that the use of accrual-based manipulation model has certain limitations. The model could not detect REM such as decreasing discretionary expenses, lenient credit terms or increasing price discounts. Accordingly, Roychowdhury [55] suggests the use of REM model. Thus, this study sheds new light on managing earnings through real activities' manipulations, specifically in Nigeria. The present study is motivated by the continuous demand of stakeholders, particularly investors and regulators for high quality and reliable financial statement reporting. The study also addresses the issue addressed in the tax law reform by Federal Executive Council in Nigeria concerning the efficiency of the current tax practice in Nigeria.

The remainder of this paper is arranged as follows. Section 2 reviews the relevant literature and discusses the proposed hypotheses. Section 3 provides details of the data and methodology while section 4 presents and discusses the results. Finally, section 5 provides the conclusion for the study.

2. Literature Review and Hypotheses Development

2.1. Corporate Tax Avoidance and Earnings Management

Hoffman's tax planning theory discusses that management has the incentives to legally avoid paying corporate taxes in order to increase the distributable profits. Profitability is a widely used indicator to measure

performance [56]. According to this theory, tax planning activities are desirable when it is possible to minimise the taxable income without jeopardizing the accounting income. The amount of tax liability and thus, tax payment is based on the amount of taxable income instead of the accounting income. Hence, firms have the tendency to focus on tax planning activities which would have the effect of minimizing taxable income rather than the accounting profit.

Even though shareholders require managers to reduce tax liabilities in order to enjoy high dividend payment, the separation of ownership and control provides opportunity for managers to engage in corporate tax decisions that enhance their own private benefits [41]. The agency theory suggests that corporate tax avoidance activities accelerate resource diversions and managerial opportunism [57]. However, there are complementary techniques between tax avoidance and earnings management such that managers who are responsible to avoid corporate taxes can concurrently use tax avoidance techniques to manipulate earnings and obtain personal benefits [58].

Previous studies have established the link between corporate tax avoidance and earnings management by explaining that the former can be packaged with misleading activities including earnings manipulation to optimize the interest of managers at expense of the shareholders [59]. Among others, Razali [27] examines 149 listed public firms in Malaysia from 2009-2013 and the role of tax avoidance related to firm's earnings management. The result from the study indicates that tax avoidance has a positive effect on earnings management which suggests that firms manage their earnings to enjoy tax advantages. In Indonesia, Putri, Rohman, and Chariri [60] examine whether tax avoidance serve as a means by firms to manage corporate earnings. Their result shows a positive association between tax avoidance and discretionary accruals.

Similarly, Wang and Chen [61] document a positive link between earnings management and tax avoidance. In China, Zeng [43] emphasizes the role of corporate tax rate changes in motivating firms to involve in both AEM and REM. The author reports that firms manipulate income upward during the low-tax period and vice-a-versa, in the high-tax-rate periods. Sundvik [30] examines the influence of corporate tax avoidance on earnings management by analysing international firms in 12 European countries which report corporate tax cuts between the years 2007 to 2014. The study reports a positive relationship between corporate tax avoidance and earnings management. Similarly, evidence documented by Amidu, Yorke, and Harvey [62] using 34 quoted firms on the Ghana Stock Exchange also provides support for the positive influence of corporate tax avoidance on earnings management.

In view of the foregoing, the following hypothesis is

proposed:

H₁: *There is a positive effect of corporate tax avoidance on real earnings management of listed companies in Nigeria*

2.2. Free Cash Flow and Earnings Management

Grounded on the agency theory, one of the main sources of conflicts of interests between shareholders and managers is the existence and allocations of FCF available after all profitable projects have been funded and not been allocated as dividends [63]. In a situation when a company has high FCF but low growth opportunities, there is a possibility for management to invest and waste the FCF in projects having negative Net Present Value (NPV) [47]. Hence, to hide the negative effect of the projects, managers would eventually impair the quality of reported earnings by manipulating the financial reports [64].

Prior literature has identified FCF as an incentive to provoke earnings management [65,66]. Hastuti [51] examines the impact of FCF on earnings management among listed manufacturing firms in Indonesian from 2012 to 2016 and shows that FCF influences the earnings management. Furthermore, Cardoso, Martinez, and Teixeira [67] investigate whether firms with surplus FCF and low growth perspective in Brazil are motivated to hide the investment effect in projects with negative NPV by inflating their profits. The result of the study indicates that these firms have the tendency to manipulate earnings to inflate profits. This finding has been validated by Barkhordar and Tehrani [68] who document that FCF has a direct and significant effect on earnings management in Iran

Therefore, the following hypothesis is proposed:

H₂: *There is a positive effect of free cash flow on real earnings management of listed companies in Nigeria.*

3. Research Method

The population of this study is formed by 169 public firms listed on the Nigerian Stock Exchange for the period of 2014-2018. Table 1 shows the procedure for sample selection. From the total of 169 companies, 57 banks and other financial service institutions were removed since they are regulated and covered by specific acts. In addition, 25 companies which were delisted during the period were also excluded. Finally, 15 companies were dropped from the study due to incomplete information. Thus, the final sample consists of 72 companies, bringing a total number of 360 firm-year observations. The data for the study was extracted from published financial statements through Thompson Reuters DataStream, Bloomberg DataStream, and annual reports of the sampled companies.

Table 1. Sample selection procedure

	No	No
Firm listed on Nigerian stock exchange as at 31/12/2018		169
Less:		
Financial service companies	57	
Delisted firm during the period	25	
Firm without complete data	15	
Firms in the final sample		72
Number of years		5
Firm-year observation		360

3.1. Dependent Variable

Consistent with Roychowdury [55], REM was computed using abnormal cash flow, abnormal discretionary expenses, and abnormal production.

3.1.1. Abnormal Cash flow (Ab_CFO)

The following cross-sectional regression was executed for every firm-year for the normal cash flow.

$$\frac{CFO_{it}}{Assets_{it-1}} = \alpha_0 + \alpha_1 \left(\frac{1}{Assets_{it-1}} \right) + \beta_1 \left(\frac{Sales_{it}}{Assets_{it-1}} \right) + \beta_2 \left(\frac{\Delta Sales_{it}}{Assets_{it-1}} \right) + \varepsilon_{it} \tag{1}$$

CFO_{it} signifies operating cash flow for firm *i* in year *t*. *Asset_{it-1}* signifies lagged total assets. *Sales_{it}* is existing year sales and $\Delta Sales_{it}$ represents changes in total sales (i.e., existing year's sales less previous year's sales) while ε_{it} signifies the error term. The abnormal cash flow from operation (Ab_CFO) is obtained as the disparity between the actual cash flow (ACFO) and the normal cash flow (NCFO). Similar to Cohen and Zarowin [69], the abnormal CFO residual is multiplied by (-1), since a low cash flow from operation indicates real earnings manipulation.

3.1.2. Abnormal Discretionary Expenses (Ab_DISEXP)

Discretionary Expenses (DISEXP) is the sum of selling, general and administration expenses, research and development and advertisement expenses. The disparity between the actual discretionary expenses and the normal discretionary expenses is the abnormal discretionary expenses (Ab_DISEXP). This discretionary spending is computed by the lagged of total assets and is regressed against the current year sales, scaled by lagged total assets. Similar with Cohen [70], the Ab_DISEXP is multiplied with (-1) to arrive at the final Ab_DEXP.

$$\frac{DISEXP_{it}}{Assets_{it-1}} = a_0 + a_1 \left(\frac{1}{Assets_{it-1}} \right) + \beta_1 \left(\frac{Sales_{it-1}}{Assets_{it-1}} \right) + \varepsilon_{it} \tag{2}$$

3.1.3. Abnormal Production (Ab_PROD)

Production cost is the total of Cost of Goods Sold (COGS) and changes in inventory (ΔInv) for the year.

The difference between the actual and the normal production costs is known as abnormal production cost (Ab_PROD). The resulting regression residuals represent the real earnings management.

$$\frac{PROD_{it}}{Assets_{it-1}} = \alpha_1 + \alpha_1 \left(\frac{1}{Assets_{it-1}} \right) + \beta_1 \left(\frac{Sales_{it}}{Assets_{it-1}} \right) + \beta_2 \left(\frac{\Delta Sales_{it}}{Assets_{it-1}} \right) + \beta_3 \left(\frac{\Delta Sales_{it-1}}{Assets_{it-1}} \right) + \varepsilon_{it} \quad (3)$$

3.1.4. Real Earnings Management Matric

Similar to Braam [71] and Baatour [19], equations 1, 2, and 3 were aggregated to obtain a single variable (REM) where $REM = Ab_PROD + Ab_CFO + Ab_DEXP$.

3.2. Independent Variables

Corporate tax avoidance was measured using the Effective Tax Rate (ETR). ETR measurement was performed using the total income expense divided by profit before tax as used by prior studies [72,73]. In the present study, the FCF was calculated by subtracting the company's capital expenditure from its cash flow from operations [49].

3.3. Control Variables

The control variables contained in the regression model were normally used in prior research to control other firm-specific attributes that are possibly related to real activities manipulation.

Firm's age is regarded as one of the attributes that play a key role in firm's earnings management. It is argued that older firms have an incentive to disclose quality earnings information and are less likely to manage their earnings [74]. Olowokure, Tanko, and Nyor [76] report that in Nigeria, old listed firms are negatively associated with financial misappropriations. On the other hand, some scholars such as Bassiouny [77] finds no significant association between firms' age and earnings management in Egypt.

Also, firm size is among the variables that could affect the intention of firms to manipulate earnings [78]. It is argued that larger firms are less likely to dwell into aggressive earnings management than smaller firms [79]. On the other hand, some scholars such as Omoye and

Eriki [80] and Swastika [81] find that larger firms have the incentive to manipulate reporting earnings to maintain their status in the market. Uwuigbe, Uwuigbe, and Bernard [82] advocate that firm size has a positive and significant influence on earnings management.

Furthermore, firm growth has been widely utilized by prior studies as one of the variables that affects the earnings management [83-84]. Chau and Gray [85] indicate that firms with growth potential have the motivations to disclose good information to justify their corporate decisions, and minimize information asymmetry. Gorganli and Vakilifard [86] discover that firm's growth opportunity is negatively associated with earnings management. In contrast, Razzaque, Ali, and Mather [87] find an insignificant relationship between firm growth and REM.

The variable audit quality was included because prior studies have suggested that Big4 auditors are related with higher earnings quality than non-Big4 auditors (Houqe, Ahmed, & Van, 2017; Lin & Hwang, 2010; Persakis & Iatridis, 2016). On the other hand, some scholars such as Bala, Amran, and Shaari (2018), Cohen and Zarowin (2010), and Ishak, Amran, and Manaf (2017) provide that the Big4 is associated with high earnings management in comparison to the -Big4 auditors. This is because the Big4 are not familiar with the local business environment and are engaged with many clients. Thus, the Big4 could not afford to engage or spend a lot of time in auditing the accounts compared to local auditors.

3.4. Model Specification and Variable Measurement

The model used in this study is based on the reviewed literature and formulated as follows:

$$REM = \alpha_0 + \beta_1 ETR_{it} + \beta_2 FCF_{it} + \beta_3 FAGE_{it} + \beta_4 FSIZE_{it} + \beta_5 FGRT_{it} + \beta_6 BIG4_{it} + \varepsilon$$

Where: REM = Real earnings management, α_0 = Constant, ETR= Effective tax rate, FCF = Free cash flow, FAGE = Firm age, FSIZE = Firm size, FGRT = Firm growth, BIG4 = Big4 auditors, and ε_{it} = Error term.

Table 2. Summary of Variables Measurement

S/N	VARIABLES	MEASUREMENTS	PROXIES	SOURCES
DV				
1	Real earnings management	Sum of abnormal Production, discretionary expenses and cash flow from operation	REM	Roychowdhury (2006), and Zang (2012).
IV				
1	Effective tax rate	Income tax expense/ profit before tax	ETR	Ftoui, Ayed, & Zemzem (2015) and Salihu et al., (2015).
2	Free cash flow	A dummy variable coded “1” if the FCF is above the sample median for the year and zero if otherwise.	FCF	Chung, Firth, & Kim (2005).
CV				
1	Firm age	FAGE	number of years after listing of the firm	Olowokure et al., (2016).
2	Firm size	FSIZE	natural logarithm of the firm’s total assets	Kantudu and Samaila (2015), Ho, Li, Tam, and Zhang (2015).
3	Firm growth	percentage changes of annual growth in total sales of the firm	FGRT	Ho et al., (2015).
4	Big4 auditors	Dummy variable of 1 if firm is audited by any of the big4 auditing firm, otherwise 0.	Big4	Alquhaif, Abdul Latif, and Chandren (2017).

4. Results and Findings

4.1. Descriptive Statistics

Table 3 presents the descriptive statistics for this study. As for REM, the results show an average mean of -0.025, a minimum of -0.445 and a maximum value of 0.473. The mean value of -0.025 indicates the existence of REM among the sampled firms in Nigeria is lower than reported by Chi [97] and Razzaque [87] which are 2.6% and 3.0%, respectively. The ETR mean value of 0.26 indicates that the normal statutory tax rate of 0.30 is higher than the ETR and thus, suggesting the presence of tax avoidance among these companies. Furthermore, the FCF shows a mean score of 19% indicating that on average, listed firms in Nigeria generate 19% FCF per asset. This percentage is lower than the mean score of 51% reported in Tijjani and Sani [49]. The minimum value of 0 for FCF signifies a lack of FCF experienced by some firms. The results also indicate that the average age of firms (FAGE) is 24 years, a minimum of 6 years and a maximum of 43 years. Likewise, the average score for firm size (FSIZE) is 7.2 with a maximum score of 9.2. However, the average score of firm growth is 0.17, a minimum of -0.09 and a maximum of 0.61. The result implies that the average growth on annual sales is 17% during the study period. With respect to the external auditors (Big4), the descriptive results show an average mean of 0.51, suggesting that 51% of listed firms in Nigeria were

audited by the Big4 auditors.

Table 3. Descriptive Statistics

Variables	Obs	Mean	Std. Dev.	Min	Max
REM	360	-0.025	0.288	-0.445	0.473
ETR	360	0.261	0.086	0.1	0.38
FCF	360	0.189	0.392	0	1
FAGE	360	24.311	13.273	6	43
FSIZE	360	7.205	0.756	5.419	9.169
FGRT	360	0.172	0.188	-0.099	0.614
BIG4	360	0.514	0.501	0	1

Note. REM=Real Earnings Management; ETR=Effective Tax Rate; FCF=Free Cash Flow; FAGE= Firm Age; FSIZE=firm size; FGRT=firm growth; BIG4=The Big4 audit firms; *** significant at 0.01 level; ** significant at 0.05; and * significant at 0.1 level

4.2. Multicollinearity Assumptions

The results of the test of multicollinearity for the explanatory variables are shown in Table 4 and indicate that the variables do not exceed the acceptable limit. According to Gujarati [98] the acceptable range of values for Variance Inflation Factor (VIF) should not be more than 10 as this may pose a serious problem of multicollinearity. In other words, multicollinearity happens when the tolerance value is less than 0.01 [98]. In line with this suggestion, since none of the variables has a tolerance value of less than 0.01 or a VIF value of more than 10, it is concluded that there is no serious issue of

multicollinearity in the sample of the present study.

Table 4. Multicollinearity Diagnostic Test

Variable	VIF	Tolerance
REM	1.07	0.9390
ETR	1.05	0.9515
FCF	1.32	0.7557
FAGE	1.05	0.9504
FSIZE	1.46	0.6843
FGRT	1.05	0.9502
BIG4	1.32	0.7580
Mean VIF	1.19	

4.3. Correlation Matrix

Table 5 shows the outcome of the correlation test and none of the coefficients is greater than 0.9 which suggest no severe correlation in the dataset [100]. Therefore, multicollinearity does not pose a threat to the estimation variables. In particular, the highest correlation is 0.4601 which is between FCF and FSIZE. Table 5 also shows that each of ETR, FCF, FAGE, FSIZE and BIG4 has a positive correlation with REM. On the other hand, FGRT reveals a negative correlation with REM.

Table 5. Correlation Coefficients of the Study Variables

Variables	REM	ETR	FCF	FAGE	FSIZE	FGRT	BIG4
REM	1						
ETR	0.11*	1					
FCF	0.17*	0.06	1				
FAGE	0.14*	0.04	0.05	1			
FSIZE	0.03	0.07	0.46*	0.06	1		
FGRT	-0.07	-0.02	0.11*	-0.01	0.17*	1	
BIG4	0.02	0.19*	0.27*	0.17*	0.42*	0.17*	1

Note. REM = Real earnings management; ETR= Effective tax rate; FCF = Free cash flow; FAGE = Firm age; FSIZE= Firm size; FGRT = Firm growth; BIG4 = the Big4 auditors; *** significant at 0.01 level; ** significant at 0.05 level; and * significant at 0.1 level.

Table 6. Result of the Estimated Regression

REM	Coefficient	Std. Err.	Z	P> Z
ETR	0.3035028	0.1644166	1.85	0.066
FCF	0.1578723	0.0426692	3.70	0.000
FAGE	0.0028227	0.0013426	2.10	0.036
FSIZE	-0.0289127	0.0286629	-1.01	0.314
FGRT	-0.1031514	0.0843237	-1.22	0.222
BIG4	-0.0337332	0.037353	-0.90	0.367
CONS	-0.1511963	0.2245638	-0.67	0.501
Firm Fixed Effect	yes			
Year Fixed Effect	yes			
R Square	0.124			
Prob>F	0.0000			
Observations	360			

Note. REM = Real Earnings Management; ETR=Effective Tax Rate; FCF=Free Cash Flow; FAGE=Firm Age; FSIZE= Firm Size; FGRT=Firm growth; BIG4=the Big4 audit firms

4.4. Regression Results

This part presents the results of linear regression carried out to determine the effects of the independent and control variables on REM. Table 6 presents the analysis of the linear regression model.

Table 6 shows the findings of the relationships between the ETR, FCF, FAGE, FSIZE, FGRT, BIG4 and REM. Firstly, the results reveal that ETR has a significant positive effect on REM at 10% significance level. This is an indication that ETR provokes managers to engage in REM activities. This outcome coincides with the tax planning theory and the agency theory which suggest that cash could be diverted by firms which would ordinarily be paid to tax authorities. Also, the separation of ownership and control provides managers with the opportunity to make corporate tax decisions that benefit their own interest which can accelerate resource diversion and managerial opportunism. Therefore, this result supports the proposed hypothesis that corporate tax avoidance motivates managers to involve in REM. In other words, the desire to reduce the corporate tax obligations motivate managers to engage in REM so that the companies report low taxable income and therefore, incur low tax liability. Accordingly, the possibility for REM increases as companies attempt to reduce their tax liability. This finding is also consistent with Zeng [43] who conclude that corporate tax rate influences firms to involve in REM.

Also, the regression results reveal that FCF has a significant positive effect on REM. This finding implies that the existence of FCF in a firm provides the incentive for managers to manipulate the reported earnings. This result is consistent with the agency theory which suggests that managers of companies with high FCF are prone to invest in projects with negative NPV to achieve personal benefits. They are also aggressively involved in earnings management practices to cover their project's adverse performance. This finding also supports the proposed hypothesis in this study that FCF encourages managers to involve in REM. This result indicates that managers prefer to reinvest available FCF to achieve private gain. Hence, to hide the negative effects of projects invested using this FCF, managers would manipulate the reported earnings. This result provides additional support for Smith and Pennathur [101] and Astami [48] who find a positive association between FCF and earnings management.

The findings also indicate that the control variable FAGE has a significant positive effect on REM. This suggests that older firms tend to be more engaged in REM than younger firms and thus, supports the findings of Khanh and Nguyen [102] and Bala [8]. FSIZE shows a negative but insignificant effect on REM, suggesting that larger firms (measured by total assets) have no impact on REM. Similarly, FGRT also shows a negative and insignificant effect on REM, indicating that firm growth does not affect REM. The result also reveals a negative and insignificant impact of the BIG4 on REM. Therefore, the study provides evidence that the possibility of REM is not reduced when firms are audited by the Big4.

The value of R^2 shows the degree of variability of the independent variables (ETR, FCF, FAGE, FSIZE, FGRT, and BIG4) upon changes in the dependent variable (REM). This means that in this study, 12% of changes in REM of the sampled firms is explained by the combined effect of the independent variables. This value of R^2 is similar to the result of previous studies [7,103]

4.5. Additional Analysis

This section provides additional robustness tests to support the main findings of the analyses. A new proxy for REM was formed to ensure that the results are not sensitive to alternative measurements. The new proxy (REM) is derived by adding the Abnormal Discretionary Expenses (Ab_DISEXP) to the Abnormal Production (Ab_PROD) to form a single real earnings matrix. Consistent with Zang [15] the Ab_DISEXP is multiplied by (-1) and the result was added to the Ab_PROD. Table 7 shows that the coefficients of variables ETR, FCF, FAGE, FGRT and BIG4 are consistent with what are reported in the main analysis. Exceptionally, the coefficient of FSIZE in the additional analysis is opposite to what is found in the main analysis due to potential endogeneity which has been taken care of in the Panel Corrected Standard Error.

Table 7. Panel Corr. Std Err. Regression

REM	Coefficient	Std. Err.	Z	P> Z
ETR	0.003941	0.1147868	0.03	0.973
FCF	4.010000	1.7900000	2.24	0.025
FAGE	0.002031	0.0011817	1.72	0.086
FSIZE	0.061073	0.0271697	2.25	0.025
FGRT	-0.017259	0.0944312	-0.18	0.855
BIG4	-0.023499	0.051586	.46	0.649
CONS	-0.437803	0.1639453	-2.67	0.008
Firm Fixed Effect	yes			
Year Fixed Effect	yes			
R Square	0.132			
Prob>F	0.0000			
Observations	360			

5. Conclusions

This paper examines the effect of corporate tax avoidance and free cash flow on REM in the context of Nigeria. The findings show that both of them provide motivations for managers to engage in REM. The study highlights to shareholders that even though corporate tax avoidance is deemed desirable as a means to minimize tax payments, leaving excess cash that can be distributed as extra dividends, the complexities and secretive nature of corporate tax avoidance allow managers to take corporate tax decisions that are in their own personal interest. Also, from the perspective of the government, since corporate taxes serve as one of the major revenue sources, the findings of this study should serve as additional input and guidance for policymakers and regulators to enhance the effectiveness of the current tax policy in Nigeria. The corporate tax system should aim to discourage tax avoidance among public listed companies in the country because such actions will have an adverse effect on government's funding for growth and development projects. The results also provide empirical evidence to the regulators that the agency problem may be present in firms with FCF. Thus, appropriate measures should be taken to reduce the potential negative effects of the agency problem. This can be partly solved through effective corporate governance mechanisms. Thus, this study recommends that increased attention should be given to internal control mechanisms including the role of risk management committee to help curtail corporate earnings manipulations and enhance the financial reporting quality, particularly in Nigeria and other comparable countries.

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