

# Determinants of Earnings Management of Listed Oil and Gas Firms in Nigeria

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**Abstract:** Earnings management has gained global recognition. Yet, it is still not clear what determines earnings management within the context of the oil and gas sector in Nigeria. Therefore, this study examined the determinants of earnings management of listed oil and gas firms in Nigeria. Correlational research design was adopted in order to ascertain the relationship between the identified determinants of earnings management and earnings management. A sample of seven (7) oil and gas firms was seven out of a population of fifteen (15) firms. The study covered a period of six (6) years from 2010 to 2015. Secondary data were gathered from the published annual reports of the selected firms. The data were analysed using multiple regression analysis through Stata. Results from the analysis show that external sector specialization has positive and significant effect on earnings management of listed oil and gas firms while external audit tenure and audit committee gender have negative and significant relationship with earnings management of listed oil and gas firms in Nigeria. However, the study found that there is no significant relationship between external audit fees and earnings management of listed oil and gas firms in Nigeria. Therefore, it was recommended that oil and gas firms should ensure that, after a certain period of time, they change the services of auditors that specialize in auditing the oil and gas sector; the oil and gas firms should be encouraged to utilize the services of auditors with long tenure; and that the oil and gas firms in Nigeria should be encouraged to continue to engage the services of more female audit committee members.

**Keywords:** Earnings, Management, Firms, Nigeria.

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## 1. INTRODUCTION

Corporate financial scandals and failures in recent times have been linked to earnings management, which is carried out in order to give a healthy picture of the company's financial performance, beyond the underlying economic substance. This scenario has been noticed in the documented cases of Worldcom, Enron, Xerox, just to mention but a few, and thus calls for tightening of regulations on financial reporting [8], [6], [11].

Consequently, there have been increasing pressures on organizations to strengthen their good corporate governance mechanisms [14], [5]. Such calls have been premised on the fact that corporate scandals originate from the inherent conflict of interest in the relationship between the principal and agent. This conflict necessitates the establishment of rules to regulate the actions of parties involved in the management of companies as well as stem the tide of earnings management.

Earnings management is a derivative of the concept, earnings. Earnings are the profit that investors realize from their resources. Companies with poor earnings tend to have lower share price than those with good prospects. [3] opine that earnings management is of two aspects. First, managers see it as opportunistic behavior to maximize utility in dealing with compensation contracts, debt contracts and political cost (opportunistic earnings management). Secondly, earnings management is viewed in the perspective of efficient contracting (efficient earnings management) in which it provides managers with the flexibility to protect themselves and the company to anticipate the unexpected events to gain the parties involved in the contract.

Earnings management involves activities of managers that amount to choosing accounting policies, treatments in a way as to realize personal gain. Many reasons could inspire management to manipulate accounting information [17]. In addition, the motivation for manipulating earnings could differ from one company to another. Because of this, several factors have been identified as being determinants of earnings management. This include, but are not limited to, external audit attributes such as external auditor's tenure, external auditor's sector specialization, as well as internal audit attributes such as audit committee financial expertise and audit committee gender. Although the above factors have received considerable attention in the literature, there are controversies regarding their relationship with earnings management. There is need to examine determinants of earnings management as knowledge of variables that have influence on earnings management will be beneficial to management of companies. Such knowledge is particularly needed in the oil and gas sector in Nigeria which has faced severe cases of loss of revenue occasioned by fraudulent acts of managers. The oil and gas sector is very critical that, it still accounts for more than 70% of the revenue generated in the country.

Although, a lot of studies document evidence unveiling determinants of earnings management of a firm, no empirical efforts have been made to examine the effect of both external and internal variables on earnings management in Nigeria. In Nigeria, despite the reported cases of financial scandals in the oil and gas sector, there are no clear cut investigations that examine the determinants of earnings management of the oil and gas sector. Hence, most of the studies [8], [15], [1] that have tried to assess determinants of earnings management are foreign based.

Therefore, the major objective of this study is to examine the determinants of earnings management of listed oil and gas firms in Nigeria. The basic question that this study seeks to address is, how do external auditor's tenure, external auditor's sector specialization, audit committee financial expertise and audit committee gender affect the earnings management of listed oil and gas firms in Nigeria? The study hypothesized that external auditor's tenure, external auditor's sector specialization; audit committee financial expertise and audit committee gender do not significantly affect earnings management of listed oil and gas firms in Nigeria.

## 2. LITERATURE REVIEW

There is need to examine empirical studies regarding earnings management. [18] examined the determinants of discretionary accruals in listed Malaysian companies. Variables of audit committee, namely, independence, expertise and diligence were used to determine the effect of audit committee characteristics on earnings management. Based on Ordinary Least Square (OLS) regression on cross-sectional data of 122 firms in 2007, the results suggest that audit committee with higher proportion of financial expertise mitigates earnings management. However, the study found that audit committee with former senior auditor and audit alumni are associated with larger discretionary accruals. From the findings of the study, it can be observed that there is need for more audit committee members with financial expertise as they would easily detect incidences of occurrence of earnings management.

[16] Examined whether the gender affects the ability of the committees in constraining earnings management and thus their effectiveness in overseeing the financial reporting process. Using a sample of 525 firm-year observations over the period, 2003 to 2005, the study showed that there is an association between the proportion of female directors on audit committees and the extent of earnings management. The study recommended that key directorships should be encouraged. The study however could have used more variables of audit committee as well as external audit attributes.

[8] Examined the effect of audit committee characteristics on Real Earnings Management (REM). The study used 29 firms listed in the Tunisian Stock Exchange. Data were extracted from the annual reports of the selected firms over a period of 11 years from 2000-2010. The data were analyzed using multivariate analysis which was anchored on Roychowdhury (2006) model. The study found that independent audit committee members reduce the extent of REM. However, the study submitted that there is no significant relationship between the audit committee expertise and earnings management. It was also found that the size of the audit committee is positively associated with the level of REM. The corporate governance measures that apply to Tunisian economy are not same with the Nigerian corporate governance measures. If this analogy is extended to the extreme, then it can be submitted that the audit committee characteristics might not have the same level of influence on the earnings management between Tunisia and Nigeria.

[7] tested the agency theoretical framework, by examining the relationship between audit committee attributes and earnings management. A sample of fifty (50) companies was used with annual reports covering 2006-2013. The fixed effects regression analysis was utilized for the study. The findings of the study suggest that there is negative relationship between discretionary accruals and audit committee characteristics. Specifically, audit committee financial expertise, audit committee size, audit committee independence and diligence showed an inverse and significant relationship with earnings management. This is in tandem with theoretical expectations and suggests that increases in these variables will exert a declining influence on earnings management. The study concludes that there is the need for companies to focus on attributes that strengthen the effectiveness of their audit committees. The study recommends that there is the need for regulation that establishes an allowable threshold for audit committee attendance at meetings. Finally, the study recommends that there is the need for companies to ensure that they include a sufficient number of independent directors as part of the audit committee.

[1] Ascertained the association between internal and external audit attributes, audit committee characteristics, ownership concentration and discretionary accruals. The sample size of the study was 508 firms listed on the Malaysia Main Market from 2009 to 2012. Results of regression analysis suggest that external audit fees are related to higher earnings quality. It was documented that large audit committee size, more frequent audit committee meetings and ownership concentration are associated with earnings management. The study is one of the few studies that have used audit committee and external audit attributes.

[9] Were poised to analyze the impact of three Audit Committee (AC) characteristics, financial expertise, diversity and activism on aggressive earnings management. The study conducted an empirical test with a sample of 10 Canadian corporations listed on the Toronto stock exchange over a 5-year period (1999-2003). The study measured earnings management by the level of discretionary accruals (using the modified Jones model (1995)). The study found that activism and the financial expertise of AC members are negatively related to aggressive earnings management. However, the study found a significant relationship between diversity and aggressive earnings management. Current data might be needed to verify the findings of the study.

Using a sample of 38 listed on New York Stock Exchange, [4] studied the effect of audit quality on earnings management. The study covered the period 1988- 1999. Results of the study indicated a significant negative association between audit firm size and earnings management while audit tenure and client importance had insignificant negative relationship with earnings management of the firms. The limitation of the study arises from the fact that the US and Nigerian economies differ, thus, findings from the study are not likely to apply to the oil and gas sector in Nigeria.

In a related study, [2] used auditor industry specialization as a surrogate for audit quality so as to examine the effect of audit quality on earnings management. Regression analysis was applied on secondary data collected from over 50,000 observations over the period 1991-1999. Findings show that clients of specialist auditors have lower incidence of earnings management than clients of non-specialist auditors. The study was conducted over a decade ago. With several events springing up, new studies might produce different results.

Also, [13] used auditor industry specialization and auditor tenure as surrogates for audit quality to examine the relationship between audit quality and earnings management using selected firms from Tehran Stock Exchange for the period 2008-2012. Analysis from regression analysis shows that auditor industry specialization is associated with less earnings management while auditor tenure has negative but insignificant association with earnings management of the firms.

This study is anchored on agency theory. The agency theory was developed by Jensen and Meckling (1976). The theory is adopted because of its theoretical support for influence of audit on earnings management. According to agency theory, shareholders act as principals who seek to obtain maximum utility from management acting as their agent [12]. Assuming economic self-interest, there is the potential for opportunistic actions by the agent, which are to the detriment of the principal.

Therefore, audit committee is a system of corporate governance control established to discourage managers from pursuing objectives that do not maximize shareholders' wealth. It is targeted at either aligning managers' and shareholders' incentives or limiting the opportunistic activities of managers. External audit also has the potential to serve as a useful tool in mitigating earnings management practices.

### 3. METHODOLOGY

The study is carried out using correlational research design. This is based on the philosophy of positivism, which proposes objective evaluation of phenomena. The choice of correlational research design is considered appropriate in view of the fact that it will enable an objective assessment of the impact of selected variables on earnings management.

The study focused on listed oil and gas firms in Nigeria. Since there are fifteen (15) oil and gas firms in Nigeria, the population of the study is also 15. The sample size for the study is 7. The major source of data collection for the study is secondary data. The data is retrieved from the annual published financial accounts of the selected firms. The major tool for data analysis will be multivariate regression analysis. This is with respect to the panel attributes of the study as cross-sections of the firms will be taken over a period of time (2010-2015). The variables for the study and their measurements are shown in the table below.

**Table 1: Variables and their Measurement**

S/N	Proxy	Type	Measurement	Source
1.	Discretionary accruals (DACC)	Dependent	Total accruals less non-discretionary accruals	Karim and Gerayli (2014)
2.	External Audit sector specialization (EUSS)	Independent	A dummy variable 1 if market size (MS) of the auditor $\geq 20$ percent and 0 otherwise	Balsam, Krishnan and Yan (2003)
3.	External audit tenure (EUTE)	Independent	Number of consecutive years the client has retained a particular audit firm. Dummy variable 1 for 3 years <sup>+</sup> , 0 otherwise	Yusof (2010)
4.	Audit Committee financial expertise (AUFE)	Independent	Proportion of audit committee members with accounting and financial expertise	Yusof (2010)
5.	Audit Committee gender (AUGE)	Independent	Proportion of female audit committee members to total members	Sun, Liu and Lan (2011)
6.	Financial Leverage (FLEV)	Control	Total debts/Total Assets	

Source: Author's compilation, 2017.

Based on the above variables, this study adopts the modified Jones since it has universal recognition in terms of ability to measure earnings management. The model is stated below:

$$TACC_{it}/A_{it-1} = \beta_1 1/A_{it-1} + \beta_2 (\Delta REV_{it} - \Delta ACR_{it})/A_{it-1} + \beta_3 PPE_{it}/A_{it-1} + e_{it} \quad (1)$$

Using the residuals as proxy for discretionary accruals, the above model is restated as follows:  $DACC_{it} = TACC_{it}/A_{it-1} - [\beta_1 1/A_{it-1} + \beta_2 (\Delta REV_{it} - \Delta ACR_{it})/A_{it-1} + \beta_3 PPE_{it}/A_{it-1}]$  (ii)

When the variables of the study are incorporated, the model becomes:

$$DACC_{it} = \beta_0 + \beta_1 EUSS_{it} + \beta_2 EUTE_{it} + \beta_3 AUFE_{it} + \beta_4 AUGE_{it} + \beta_5 FLEV_{it} + \varepsilon_{it}$$

Where

$TACC_{it}$  = total accruals for firm i in year t

$A_{it-1}$  = total assets for firm i in year t deflated by 1

$\Delta REV_{it}$  = change in net revenues for firm i in year t

$\Delta ACR_{it}$  = change in accounts receivables for firm i in year t

$PPE_{it}$  = gross property, plant and equipment for firm i in year t

$e_{it}$  = error term (discretionary accruals for firm i in year t)

DACC = Modified Jones Discretionary accruals used as proxy for earnings management.

$EUSS_{it}$  = External audit sector specialization for firm  $i$  in time  $t$ .

$EUTE_{it}$  = External audit tenure for firm  $i$  in time  $t$

$AUFE_{it}$  = Audit committee financial expertise for firm  $i$  in time  $t$

$AUGE_{it}$  = Audit committee gender for firm  $i$  in time  $t$

$FLEV_{it}$  = Financial leverage for firm  $i$  in time  $t$

$\beta_0$  = Intercept/constant of the model

$\beta_1 - \beta_8$  = coefficients of the study model.

#### 4. RESULTS AND DISCUSSION

The results of the study are discussed in this section. This includes results of descriptive statistics, correlation matrix, robustness tests, and regression result. The descriptive statistics of the study are displayed in table 2.

**Table 2: Descriptive Statistics**

Variable	Min	Max	Mean	Std dev	N
DACC	0	0.28	0.101875	0.053976	48
EUSS	0	1	0.583333	0.498223	48
EUTE	0	1	0.541667	0.501528	48
AUFE	0.03	1	0.56250	0.340583	48
AUGE	0.03	18.07	0.07375	0.100374	48
FLEV	0.06	0.33	2.798958	5.667174	48

Source: Output from Stata, 2017

Table 2 shows that the minimum value of DACC is 0 while the maximum value is 0.28, with mean of 0.101875 and standard deviation of 0.053972 which implies low variability in the discretionary accruals of the firms under study. EUSS has minimum value of 0, maximum value of 1, mean of 0.583333 and standard deviation of 0.498223, which is an indication of low variability in the level of sector specialization of external auditors of the firms under study. Similarly, the minimum value of EUTE is 0, maximum value is 1, mean is 0.541667 and standard deviation is 0.50152, which implies low variability in the tenure of external auditors of the firms under study over the period of coverage. Similarly, the minimum value of AUFE is 0.03, maximum value is 1, mean value is 0.5625 and standard deviation is 0.340583 which is an indication of low variability in the financial expertise of audit committee members. AUGЕ has minimum value of 0.03, maximum value of 18.07, mean value of 0.07375 and standard deviation of 0.100374, which indicates high variability in the gender of audit committee members of the firms under study over the period of coverage. FLEV has minimum value of 0.06, maximum value of 0.33, mean value of 2.798958 while standard deviation is 5.667174, which suggests high variability in the financial leverage of the firms under study.

In addition to the descriptive statistics explained above, it is important that correlation among the study variables be assessed. This is presented in table 3.

**Table 3: Correlation Matrix**

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. pwcorr dacc euss eute aufe flev auge, star (0.05) sig
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	dacc	euss	eute	aufe	flev	auge
dacc	1.0000					
euss	-0.1523 0.3014	1.0000				
eute	-0.2757 0.0579	0.1917 0.1919	1.0000			
aufe	0.3149* 0.0293	-0.3971* 0.0052	0.0293 0.8434	1.0000		
flev	-0.2145 0.1432	0.3303* 0.0218	0.0925 0.5319	-0.1889 0.1984	1.0000	
auge	-0.1765 0.2302	0.6275* 0.0000	0.0502 0.7347	-0.1932 0.1882	-0.2713 0.0622	1.0000

Table 3 shows that AUCE has positive correlation with DACC which suggests that they move in same direction while EUSS, EUTE, FLEV and ACGE have negative correlation with DACC which means that they move in opposite direction. In terms of the association among independent variables, it can be observed that there is positive correlation between EUSS and EUTE, EUSS and FLEV, EUSS and AUFE, EUTE and AUFE, EUTE and FLEV, as well as EUTE and AUFE. Similarly, the table reveals that EUSS and AUFE, AUFE and FLEV, AUFE and AUFE, FLEV and AUFE are negatively correlated.

Due to the presence of correlation among the variables of the study and the need to ensure reliability of data used, further robustness tests were carried out. These include normality test, heteroscedasticity test and multicollinearity test. Normality test was examined using Shapiro Wilk test for normality since the sample size is less than 50. The results as shown in the appendix show the data for EUSS, EUTE, and AUFE are normally distributed while the data for DACC, FLEV and AUFE is not normally distributed. Since about 50% of the data is normally distributed, the data is deemed to be reliable.

In addition to the normality test, multicollinearity test was carried out using Variance inflation factors (VIF) values. Since the values of VIF (see appendix) are within acceptable boundary (not more than 10, the rule of thumb), it can be concluded that the data used for analysis is reliable. Furthermore, heteroscedasticity test was performed using Breusch-Pagan/Cook-Weisberg test for heteroscedasticity to evaluate the hypothesis of non-existence of equal variance in the error term. The results show a chi-square of 6.20 which is significant at 5%. This suggests evidence of heteroscedasticity, hence, robust test was performed. The result of the test as shown in the appendix indicates that the model is fitted.

Due to the panel nature of the data, fixed effect and random effect regressions were run. The result from Hausman specification test indicates that fixed effect regression is the most suitable regression for the data. This is because, the result for Hausman specification test produced chi-square of 10.33 with a probability of 0.0665 which is significant at 10%. Hence, the fixed effect regression result below is presented for analysis.

**Table 4: Fixed Effect Regression Result**

Variable	Coefficient	t-value	Sig
EUSS	0.0787604	2.43	0.020
EUTE	-0.0318796	-2.14	0.040
AUFE	0.0446576	1.45	0.157
FLEV	-0.023143	-0.64	0.529
AUGE	-0.3365037	-2.38	0.023
CONS	0.1392676	1.30	0.201
<b>R<sup>2</sup></b>		0.2419	
<b>F-Statistics</b>		2.23	
<b>P-value</b>		0.0052	

Source: Result from STATA, 2017.

Based on the regression result presented in table 4, the coefficient of EUSS is 0.0787604 which means a one point increase in EUSS will lead to 0.0787604 increase in DACC of the firms under study. The relationship between EUSS and DACC is significant at 5%. Therefore, the null hypothesis of no statistical relationship between DACC and EUSS is rejected. It can be concluded that audit sector specialization significantly affects earnings management of listed oil and gas firms in Nigeria. This finding is consistent with the finding of Balsam, Krishnam and Yang (2003) who submitted that clients of specialist auditors have lower incidence of earnings management than clients of non-specialist auditors.

The coefficient of EUTE is -0.0318796 which means that a one point increase in EUTE will lead to about a 0.0318796 drop in DACC of listed oil and gas firms in Nigeria. Based on the t-value of -2.14 and p-value of 0.040, it can be explained that EUTE has negative and significant influence on DACC. The relationship is significant at 5%. Thus, the study rejects the null hypothesis of no statistical effect of EUTE on DACC of listed oil and gas firms. Hence, it can be concluded that EUTE significantly affects earnings management of firms. This finding is inconsistent with the finding of [4] who found insignificant relationship between audit tenure and earnings management.

Evidence provided in table 2 shows that the coefficient of AUFE is 0.0446576 which is suggestive of the fact that AUFE and DACC are positively related to the extent that a unit increase in AUFE leads to a corresponding 0.0446576 increase in DACC. However, this relationship is not significant at 10% as the t-value of AUFE is 1.45 and p-value is 0.157. Therefore, the null hypothesis of no statistical relationship between AUFE and DACC is not rejected. This finding is at variance with the finding of [18] who submitted that audit committee with higher proportion of financial expertise mitigates earnings management

Table 2 also shows that AUGE has coefficient of -0.3365037 which means that it has negative relationship with DACC to the extent that a unit increase in AUGE will lead to a 0.3365037 decrease in DACC of the firms under study. Since the t-value of AUGE is -2.38 and the p-value is 0.023, which is significant at 5%, the null hypothesis of no statistical relationship between AUGE and DACC is rejected.

## 5. CONCLUSION AND RECOMMENDATIONS

Based on the findings of the study, it can be concluded that engagement of audit with sector experience is a necessary imperative for exhibition of earnings management. It can also be concluded that the tenure of an audit with a client can affect the level of earnings management practices. Auditors with long tenure of the client will gain more knowledge of the client's affairs as to clearly identify possible areas where managers can use their discretion to exert earnings management. The study also concludes that audit committees with female genders have more chances of mitigating earnings management.

In line with the findings of the study, the following recommendations are considered imperative for policy formulation:

- i. Oil and gas firms should ensure that, after a certain period of time, they change the services of auditors that specialize in auditing the oil and gas sector. This is necessary as should auditors might tend to develop undue familiarity which could impair their objectivity which is needed for mitigating earnings management practices.
- ii. The oil and gas firms should be encouraged to utilize the services of auditors with long tenure. Such auditors have adequate knowledge of the client's business environment such that manipulative acts of managers can easily be detected.
- iii. The oil and gas firms in Nigeria should be encouraged to continue to engage the services of more female audit committee members. This is because; the psychological belief that the female gender can be more passionate in ensuring truthfulness has been reaffirmed.

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