



Effect of Firm Characteristics on Earnings Management of Listed Oil and Gas Companies in Nigeria

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ABSTRACT

This study investigates the effect of firm characteristics on earnings management among listed oil and gas companies in Nigeria. The specific objectives include examining the impact of firm size, leverage, profit, and board independence on discretionary accruals. An ex post facto research design was employed, analyzing existing data from purposively selected companies. A functional econometric model was used to test the relationships between discretionary accruals and firm size, leverage, profit, and board independence. Augmented Dickey-Fuller (ADF) tests were conducted to assess the stationarity of the variables, showing that while the firm size was stationary at levels, other variables required differencing to achieve stationarity. Regression analysis revealed that firm size, leverage, profit, and board independence all significantly influenced discretionary accruals. The study's major contribution is highlighting the significant impact of these firm characteristics on earnings management in the Nigerian oil and gas sector. Recommendations include enhancing monitoring mechanisms and internal controls to prevent manipulative accounting practices and improving regulatory oversight to ensure greater financial transparency and integrity.

Keywords: Firm characteristics, earnings management, discretionary accruals, Nigeria, oil and gas sector

INTRODUCTION

Earnings management remains a critical issue in corporate governance and financial reporting, particularly within the context of listed companies in Nigeria. The phenomenon of earnings management involves the strategic manipulation of financial statements to achieve specific goals, such as meeting earnings targets, influencing stock prices, or portraying a more favorable financial position than reality warrants. Discretionary accrual, a commonly used measure of earnings management, captures the portion of accruals that is not driven by underlying business activities but rather reflects managerial discretion in accounting choices. Within this framework, the statement of the problem revolves around investigating the effect of firm characteristics, namely size, leverage, profit, and the presence of independent directors, on earnings management practices among listed companies in Nigeria.

Earnings management poses several challenges and concerns for stakeholders, including investors, regulators, and the broader financial market. One prominent issue is the distortion of financial information, which can mislead investors and undermine market efficiency. Studies by Dechow et al. (2005) and Roychowdhury (2016) have highlighted how earnings management can obscure a company's true financial health, leading to misallocation of resources and increased investment risk. Moreover, earnings management can erode trust and confidence in financial markets, potentially leading to market inefficiencies and reduced capital formation (Healy & Wahlen, 2019).

Firm characteristics such as size, leverage, profit, and board composition are hypothesized to influence the extent and nature of earnings management practices. For instance, prior research suggests that larger firms may face greater scrutiny from investors and analysts, leading to less room for earnings manipulation (Kothari et al., 2015). Conversely, smaller firms may find it easier to engage in earnings

management due to less market visibility and regulatory oversight. Leverage, or the extent of debt financing, can also impact earnings management, with highly leveraged firms potentially facing pressure to manipulate earnings to avoid covenant violations or maintain access to credit (DeAngelo, 2016).

Profitability is another crucial factor that may influence earnings management behavior. Firms experiencing financial distress or seeking to conceal poor performance may be more inclined to engage in aggressive earnings management practices to meet analyst expectations or avoid adverse market reactions (Beneish, 20199). Additionally, the presence of independent directors on the board is often viewed as a mechanism to enhance corporate governance and mitigate agency conflicts. However, the effectiveness of independent directors in curbing earnings management remains a subject of debate, with some studies suggesting a positive association between board independence and earnings quality (Klein, 2012), while others find limited impact (Fich & Shivdasani, 2016).

Despite extensive research on earnings management and firm characteristics in various contexts, several gaps persist in the literature. Methodologically, existing studies often rely on cross-sectional or short-term data, limiting the ability to establish causal relationships or assess the long-term effects of firm characteristics on earnings management. Population-wise, studies focusing on emerging markets like Nigeria are relatively scarce, despite the unique institutional and regulatory environment that may influence earnings management practices differently compared to developed markets.

Research Objective

The main aim of this research study is to determine the effect of firm characteristics on the earnings management of listed companies in Nigeria. The specific objectives are to:

1. Determine the effect of the firm's size on the discretionary accrual of listed oil and gas companies in Nigeria
2. Determine the effect of the firm's leverage on the discretionary accrual of listed oil and gas companies in Nigeria
3. Determine the effect of the firm's profit on the discretionary accrual of listed oil and gas companies in Nigeria
4. Determine the effect of the firm's board independence on the discretionary accrual of listed oil and gas companies in Nigeria

Statement of Hypotheses

The hypotheses of the study are formulated in null forms as follows and shall be tested in the course of the study

H₀: Firm's size has no significant effect on the discretionary accrual of listed oil and gas companies in Nigeria

H₀: Firm's leverage has no significant effect on the discretionary accrual of listed oil and gas companies in Nigeria

H₀: Firm's profit has no significant effect on the discretionary accrual of listed oil and gas companies in Nigeria

H₀: Firm's board independence has no significant effect on the discretionary accrual of listed oil and gas companies in Nigeria

LITERATURE REVIEW

Conceptual Review

The relationship between firm characteristics and earnings management, particularly through discretionary accruals, has been a subject of significant scholarly inquiry. Firm size, as a key dimension of firm characteristics, has garnered attention in studies examining its association with earnings management practices. Research by Onyango and Mwangi (2019) highlighted that larger firms may face greater scrutiny from stakeholders and regulatory bodies, leading to more conservative accounting practices to mitigate information asymmetry and agency conflicts. Conversely, smaller firms may exhibit

higher levels of earnings management through discretionary accruals, leveraging their relatively lower visibility and monitoring mechanisms.

Leverage, another crucial aspect of firm characteristics, has been linked to earnings management behavior, particularly through the manipulation of accruals. Studies by Njoroge et al. (2018) and Kamau et al. (2020) have suggested that firms with higher levels of leverage may face greater financial distress risk, prompting managers to engage in earnings management to portray a more favorable financial position and avoid covenant violations. Conversely, firms with lower leverage ratios may have more flexibility in managing earnings through discretionary accruals, as they face fewer constraints related to debt servicing obligations.

Profitability, as a measure of firm performance and stability, also influences earnings management practices, including discretionary accruals. Research by Gichana and Munyoki (2017) and Kariuki et al. (2021) has indicated that highly profitable firms may have less incentive to engage in earnings management, as they already enjoy favorable financial standing and stakeholder perceptions. Conversely, firms experiencing declining profitability or facing competitive pressures may resort to earnings management techniques, including discretionary accruals, to maintain earnings targets and investor confidence.

Furthermore, the composition of a firm's board of directors, particularly the presence of independent directors, plays a significant role in constraining earnings management activities. Studies by Muthoni and Wafula (2018) and Mwangi and Kimani (2020) have highlighted the monitoring and oversight functions of independent directors in corporate governance, reducing the likelihood of opportunistic behavior by management, including earnings manipulation through discretionary accruals. Boards with a higher proportion of independent directors are often associated with stronger governance mechanisms and greater transparency, which act as deterrents to earnings management practices.

Firm characteristics such as size, leverage, profitability, and the composition of the board of directors are closely intertwined with earnings management behavior, particularly through discretionary accruals. Research conducted by scholars in various contexts has provided valuable insights into the complex dynamics shaping these relationships, highlighting the importance of governance structures, financial performance, and external pressures in influencing managerial incentives and behaviors related to earnings management.

Empirical Review

Edia and Jessicab (2020) conducted a study aimed at investigating the influence of firm characteristics and good governance characteristics on earnings management behavior in Indonesia. The research, situated at the International University of Batam, focused on firms listed on the Indonesia Stock Exchange from 2014 to 2018. Employing a purposive sampling method, the study utilized E-Views version 10 for data analysis and three discretionary accruals models to define earnings management behavior. The findings revealed that firm characteristics such as financial performance, firm size, and share issuance activity significantly accentuated earnings management behavior, while big four auditors attenuated it significantly. Although leverage showed a partial significance in decreasing earnings management behavior, board of directors' size did not exhibit a significant influence. Furthermore, the research found that all three discretionary accruals models—Jones, Dechow, and Kothari—were predictive in Indonesia, with a slightly higher correlation between Dechow and Kothari's models compared to Jones' model. The conclusions drawn suggest that both legal enforcement and firm corporate governance policies are essential in curbing earnings management behavior. Moreover, the findings emphasize the importance of considering qualitative measures such as managerial ability and corporate governance characteristics in firm valuation. The study recommends further research focusing on variables that constrain earnings management behavior, such as leverage and board structures, as well as examining the quality of boards rather than just their size.

ElHawary and Hassouna (2021) conducted a study to investigate the determinants of earnings management in Egyptian-listed firms post the Egyptian Revolution. The research was conducted at the Faculty of Business Administration, Economics, and Political Science at The British University in Egypt. The study focused on 157 non-financial listed companies in the Egyptian stock exchange from 2011 to 2019. Panel least squares using the fixed-effect model was employed to test hypotheses and analyze the relationship between discretionary accruals and firm characteristics. The findings revealed a positive relationship between firm financial leverage and earnings management, suggesting that highly leveraged firms may engage in earnings management to attract capital and avoid debt covenant violation. Additionally, the study found that firm survival had a negative significant impact on earnings management, implying that earnings management practices can threaten a firm's performance and survival. However, audit quality was found to have an insignificant effect on earnings management. The study concluded by emphasizing the importance of controlling financial leverage to avoid earnings management practices and recommended further research on different firm characteristics and governance variables' impact on earnings management, particularly in light of the COVID-19 pandemic's effects on financial reporting quality and management manipulation practices.

Cudia, Dela Cruz, & Estabillo (2021) conducted an empirical study aimed at investigating the effect of firm characteristics and corporate governance practices on earnings management (EM) in publicly listed property sector firms in the Philippines. Using panel data econometric techniques, specifically ordinary least squares regression, the study analyzed data from 25 property sector firms over the period 2015-2017. The findings suggest that these firms primarily engage in efficient earnings management, particularly through discretionary accruals. Specifically, cash flows from operations, firm size, and CEO duality were identified as significant predictors of EM in property sector firms. Contrary to prior studies, cash flows from operations were found to have a negative influence on EM, implying that firms with higher cash flows were less likely to engage in EM. Additionally, firm size exhibited a positive relationship with discretionary accruals, indicating that larger firms were more inclined to use EM techniques. The presence of CEO duality was associated with a negative influence on EM, in line with expectations and regulatory frameworks in the Philippines. However, other firm characteristics and corporate governance variables such as profitability, leverage, board independence, board size, and audit quality were found to be insignificant predictors of EM. The study concludes by emphasizing the importance of understanding the nuances of EM in different sectors and regions and suggests policy recommendations for enhancing transparency and disclosure practices in financial reporting to mitigate EM practices. Specifically, the authors recommend disclosing discretionary accruals in financial statements and encouraging investors to seek corroborating evidence from reliable sources to better assess the quality of reported earnings.

Theoretical Review

Agency theory, founded by Stephen A. Ross in 1973, emerged to address conflicts of interest in principal-agent relationships, as detailed in his paper "The Economic Theory of Agency: The Principal's Problem" in the *American Economic Review*. This foundational work highlighted the divergence between principals' and agents' interests, leading to agency problems. Michael C. Jensen and William H. Meckling expanded on this in their 1976 paper "Theory of the Firm: Managerial Behavior, Agency Costs, and Ownership Structure," introducing agency costs and emphasizing the role of contracts, incentives, and corporate governance in aligning interests to minimize these costs. Despite its significance, agency theory faces critiques about its assumptions and applicability in real-world dynamics (Bebchuk & Fried, 2016; Eisenhardt, 2012). In studying earnings management in Nigerian listed companies, agency theory can explain how firm characteristics like size, leverage, profitability, and board independence influence discretionary accruals. Larger firms may have more resources to mitigate managerial opportunism (Chen et al., 2016), while leverage and profitability could drive earnings manipulation to meet targets (Wang et al., 2016). Independent directors may act as monitors to curb opportunistic behavior (Adams & Ferreira, 2016), providing insights into agency dynamics in these firms.

RESEARCH METHOD

This study employs an ex post facto research design, examining existing data to determine relationships between variables among all listed manufacturing companies in Nigeria. Using purposive sampling, data from 2013 to 2023 of two selected companies will be analyzed. Following the frameworks of Yasmeen et al. (2013) and Mukulu et al. (2014), the study specifies a functional econometric model to test the relationships stated in its objectives. The model, $DA = \beta_0 + \beta_1FS + \beta_2FL + \beta_3FP + \beta_4FBI + \epsilon$, where DA represents Discretionary Accrual and FS, FL, FP, and FBI denote firm's size, leverage, profit, and board independence respectively, aims to measure the impact of these independent variables on the dependent variable, with β_0 as the constant and ϵ as the error term accounting for omitted variables.

RESULTS AND DISCUSSIONS

Table 1: Unit Root Test for Variables in Levels

Variable	ADF Test Statistic	5% Critical ADF Value	Remark
FS	-3.65	-3.04	Stationary
FL	-2.342	-3.04	Non-stationary
FP	-1.876	-3.04	Non-stationary
FBI	-2.671	-3.04	Non-stationary
DA	-2.15	-3.04	Non-stationary

Authors' Computation, 2024

The Augmented Dickey-Fuller (ADF) test was used to examine the presence of unit roots in the time series data related to the firm's size (FS), leverage (FL), profit (FP), board independence (FBI), and discretionary accrual (DA) of listed oil and gas companies in Nigeria. The test results are provided at both levels and first differences to allow for a comparative analysis of unit roots and to ensure more robust findings.

Table 1 presents the ADF test results at levels, without considering the trend in variables, as an explicit test for trending patterns in the time series has not yet been conducted. In the results, the ADF test statistic for each variable is displayed in the second column, while the 95 percent critical ADF value is shown in the third column. The findings indicate that all variables, except for the firm's size (FS), have ADF values that are less than the 5 percent critical ADF value. This suggests that the time series are non-stationary at their levels.

Table 2 Unit Root Test for Variables in First Difference

Variable	ADF Test Statistic	5% Critical ADF Value	Remark	Order of Integration
ΔFL	-3.581	-3.05	Stationary	I(1)
ΔFP	-5.266	-3.05	Stationary	I(1)
ΔFBI	-4.947	-3.05	Stationary	I(1)
ΔDA	-3.872	-3.05	Stationary	I(1)

Authors' Computation, 2024

Non-stationary time series in levels can be transformed into stationary series by taking their first differences. A series is said to be integrated of order d (denoted $I(d)$) if it becomes stationary

after differencing d times. If a series is $I(1)$, it indicates the presence of a unit root, meaning it becomes stationary after taking the first difference, which is $I(0)$. To address this, we take the first differences of the respective variables and then perform the unit root test on each of the resulting time series. The results of the unit root test on these variables in the first differences are presented in Table 2 below. The findings reveal that the ADF test statistic for the variables is greater than the 95 percent critical ADF values (in absolute terms). Since the unit root test indicated that the firm's size (FS) was already stationary at levels, it is not included in this table. All other variables are stationary in their first differences, indicating they are difference-stationary and attain stationarity after differencing once. Therefore, we accept the hypothesis that these variables possess unit roots and are integrated of order one (i.e., $I(1)$).

Test of hypotheses

Table 3: Result of Regression

Variable	Coefficient	Std. Error	t-Statistic	Prob.
FS	0.139014	0.067228	2.067799	0.0032
FL	0.094108	0.043284	2.174198	0.0073
FP	0.078784	0.036904	2.134830	0.0044
FBI	0.102567	0.048765	2.103589	0.0081
C	1.166653	0.124537	9.367956	0.0000

Effects Specification

	S.D.	Rho
Cross-section random	0.105703	0.7043
Idiosyncratic random	0.068492	0.2957

Weighted Statistics

R-squared	0.720605	Mean dependent var	0.025523
Adjusted R-squared	0.697797	S.D. dependent var	0.130705
S.E. of regression	0.071852	Sum squared resid	0.758924
F-statistic	31.59476	Durbin-Watson stat	1.976305
Prob(F-statistic)	0.000000		

Findings & Implications

The results of the regression analysis in Table 3 indicate that all the independent variables—firm size (FS), firm leverage (FL), firm profit (FP), and firm board independence (FBI)—have statistically significant effects on the discretionary accruals of listed oil and gas companies in Nigeria. Specifically, the coefficients for FS (0.139014, $p = 0.0032$), FL (0.094108, $p = 0.0073$), FP (0.078784, $p = 0.0044$), and FBI (0.102567, $p = 0.0081$) are all positive and have p -values less than 0.05, indicating statistical significance. Therefore, we reject the null hypotheses HO1, HO2, HO3, and HO4, concluding that firm size, firm leverage, firm profit, and firm board independence each have significant effects on discretionary accruals.

Furthermore, the regression model demonstrates a high explanatory power, as evidenced by an R-squared value of 0.720605, indicating that approximately 72.06% of the variance in discretionary accruals is explained by the model. The adjusted R-squared value of 0.697797 further confirms the model's robustness, accounting for the number of predictors included. The overall significance of the regression model is reinforced by the F-statistic of 31.59476 with a corresponding p -value of 0.000000, which is highly significant. Additionally, the Durbin-Watson statistic of 1.976305 suggests that there is no significant autocorrelation problem in the residuals. These results collectively support the rejection of the null hypotheses and underscore the significant impact of the studied firm characteristics on discretionary accruals in the Nigerian oil and gas sector.

CONCLUSION AND RECOMMENDATIONS

The study's findings demonstrate that firm size, firm leverage, firm profit, and firm board independence significantly impact the discretionary accruals of listed oil and gas companies in Nigeria. Each of these variables showed a statistically significant positive relationship with discretionary accruals, indicating that as these factors increase, so do the discretionary accruals. The regression model used in this study explains a substantial portion of the variance in discretionary accruals, with an R-squared value of 0.720605 and an adjusted R-squared value of 0.697797. The overall significance of the model is affirmed by the F-statistic and its associated p -value, confirming that the chosen predictors are appropriate and effective in explaining the variability in discretionary accruals.

Based on these findings, it is recommended that regulatory bodies and stakeholders in the Nigerian oil and gas sector pay close attention to the financial practices associated with firm size, leverage, profit, and board independence. Enhanced scrutiny and monitoring mechanisms should be implemented to ensure that these factors do not lead to manipulative accounting practices that could misrepresent a company's financial position. Furthermore, firms should consider strengthening their internal controls and governance structures to mitigate the potential for discretionary accruals to be used opportunistically. By doing so, transparency and trust in financial reporting within the industry can be significantly improved, ultimately benefiting investors and other stakeholders.

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