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CASH FLOW AND DISCRETIONARY ACCRUALS IN INDUSTRIAL GOODS FIRMS IN NIGERIA: THE MODERATING ROLE OF FIRM'S ATTRIBUTES

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ABSTRACT

This study examined the moderating role of firm's attribute on effect of cash flow and discretionary accruals in listed industrial goods firms in Nigeria. Specifically, the study examined how operating cash flow a proxy for cash flow affected total discretionary accruals and how some firm's corporate attribute such as board size and leverage level moderate this effect. The study purposively sampled 9 firms out of the 12 industrial goods firms listed on Nigeria exchange group as at December 2024 having consistent audited financial statement. The secondary data used were extracted from the annual reports for the periods spanning from 2015 to 2024 financial year. The study adopted ex-post facto research design. Descriptive and inferential statistics were carried out on the collected data and the formulated hypotheses were tested at 5% significant level using Panel estimated generalized least square regression method. The findings revealed that Operating cash flow significantly reduces discretionary accruals, with a coefficient of -1.313 and p-value 0.000, indicating a negative effect, Board size significantly moderates the effect of cash flow on discretionary accruals; larger boards increase the negative effect of OCF (-0.193, p = 0.000) and lastly Leverage level significantly moderates the effect of cash flow on discretionary accruals; higher leverage strengthens the negative effect of OCF (-0.855, p = 0.000). The study therefore recommended that management of industrial goods firms should focus on maintaining strong operating cash flows through efficient operations and cost management, board nomination committees should consider structuring boards with sufficient members to strengthen oversight and chief finance officers should strategically manage leverage levels

Key words: *Cashflow, Discretionary Accruals, Board Size, Financial Leverage*

INTRODUCTION

The survival of any organization is largely dependent on its ability to maintain a healthy cash flow. These cash flows result from operating activities, investing activities and financing activities and they indicate how well or poorly a firm have performed. Cash flow therefore, is the net amount of cash and cash equivalent moving into and out of a firm, representing its liquidity and ability to meet short-term obligations. For instance, the operating cash flow represents cash flow from firm's principal revenue generating activities and it reveals the firm's ability to generate operating cash flow to settle its debt, acquire assets and carry out other investments. The International Financial Reporting Standard (IFRS) no 2 states that

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"the amount of cash flow from operating activities is an indicator to determine whether or not operating activities of a firm can produce adequate cash flow to settle its obligations, maintain its operations, pay dividend and make investment without relying on external funding". As such information on operating cash flow can serve as a signal for an investor to judge the condition of the firm, (Zaller & Stanko, 2000).

In the same vein, financial statements are crucial in the corporate world as they contain information from managers to the owners and other users regarding the firm. Managers on a regular basis try to ensure that information contained in the financial statement portrays an enticing view of the firm particularly to analysts, investors, creditors e.t.c. who pay more attention to information on earnings and cash flows in order to analyze and forecast a firm's performance and future viability, (Banimad & Aliabadi, 2013). This 'keeping the financial statement enticing' by the managers often refers to as earnings management practices are broadly categorized as either the change in accrual process (Accrual Earnings Management) or a deviation from normal business activity Real Earnings Management. In Accrual earnings management managers intervene in the financial reporting process by exercising discretion and judgement regarding accounting choices. These choices/decisions of managers alter the current period earnings to achieve temporary goals which may adversely affect the firm in the long run (Boghdady, 2019).

Furthermore, operating cash flow activities provides a clear picture and a comprehensive information about a firms financial status and progress (Abbadi 2020) and because it is said to largely influence investors and other users of financial statements action regarding a firm, managers tends to manipulate the reports even when actual results reveals a contrary indications. Studies such as Masoumi & Tirkolaei, (2013) have shown that managers engage in discretionary accruals (earnings management) especially when firm perform poorly. This is because discretionary accruals can improve information content of earnings by allowing managers to signal their private information about future cash flows, (Farshadfar & Monem, 2011). Interestingly, these alterations and misrepresentations by management have caused big firms who prior to their fall were considered 'too big to fail' a total collapse. It is evident that cooking of figures in the financial statements and the eventual collapse of firms not only affects investors but the entire stakeholders and the economy at large bears the brunt.

In the face of the debilitating financial effects resulting from discretionary accruals and other forms of aggressive earnings management study of Isa & Farouk (2020) have argued that effective corporate attributes reduced if not stilled the storm of earnings management.

Evidently aside, from the conflicting opinions presented by previous research works, most of them focused on the effect of earnings management (discretionary accruals) on wealth performance and the moderating role of institutional ownership, audit independence e.t.c. on this effect. Majority also used free cash flow as proxy for cash flow. In order to close the research gap, this study examined the effect of operating cash flow on discretionary accruals and also ascertained the moderating role of some firm's corporate attributes on this effect in selected industrial goods firms in Nigeria.

Objectives

The broad objective of the study is to ascertain the effect of cash flow on discretionary accruals and also the moderating roles of firm's attributes on this effect and specifically;

1. to ascertain the effect of operating cash flow on discretionary accruals.
2. to determine the moderating role of board size on the effect of operating cash flow on discretionary accruals.
3. to ascertain the moderating role of leverage level on the effect of operating cash flow on discretionary accruals.

Research Hypotheses

In line with the research objectives the following hypotheses have been stated in their null forms

H_{o1}: Operating cash flow does not significantly affect discretionary accruals.

H_{o2}: Board size does not moderate the effect of operating cash flow on discretionary accruals.

H_{o3}: Leverage level does not moderate the effect of operating cash flow on discretionary accruals.

LITERATURE REVIEW

Operating Cash Flow and Discretionary Accruals

Users of financial statement information such as analyst, investors, creditors and other stakeholders largely rely on information regarding operating cash flow as an indicator of a firm's performance, (Banimadh & Aliabadi, 2013). It is said that how well or poorly a firm is performing can be linked to management performance which also shows the effectiveness and efficiency of management in managing the firm's resources, (Hastuti, Arfan & Diantimala, 2018). The aim of providing report on operating cash flow is to provide relevant information

on regarding revenue and expenditure from the principal revenue generating activities of a firm within an accounting period. Thus, the operating cash flow reveals whether or not a firm is producing enough cash from its principal revenue generating activities that will be used in paying debts, carrying out maintenance functions, paying dividend, carrying out investment e.t.c. without relying on external funding. Obviously, it signals a firm's conditions and performance to investors, even existing studies such as Dahler & Febrianto, (2006), and Waston & wells, (2005) concurred to this assertion by revealing that earnings and operating cash flow is a reflection of a firm's performance.

More so, having the importance placed on operating cash flow of firms, managers tend to conceal unsatisfactory performance by engaging in earnings management to portray good performance. An indicator which measures the presence of earnings management is discretionary accruals. It conveys the construction of accruals which is the gap between cash from operating and net change in funds. Earnings management therefore, refers to the gray areas where accounting is being perverted; managers are cutting corners; and where earnings report reflects the desires of management rather than the underlying performance of the company. The sole reason for engaging in earnings management is to cover low operating performance, portray good performance in order to attract more investors and creditors base on their reported information. Studies such as Masoumi & Tirkolaei, (2013) and Jang & Kim, (2017) have all shown that firms with low operating cash flow tends to commit discretionary accruals by increasing reported earnings. Discretionary accruals therefore, occurs when a manager uses valuation using alternative accounting method permitted by GAAP in financial reporting in reporting transactions to either raise or lower the reported numbers, (Banerjee, Dhar & Chattopadlhyah, 2025). Hastitu, Arfan and Diantimala, (2018) also discovered that operating cash flow negatively influenced earnings management, which means that the lower the operating cash flow the higher the possibility for management to commit discretionary accruals thereby increasing reported earnings.

Board Size as a Moderating Variable

Monitoring and oversight function in every corporate environment are the responsibility of the corporate board. In performing this responsibility, they ensure the quality of information contained in the financial statement, (Okugbo & Okike, 2015). Thus, the role of corporate board is embedded in corporate governance practice with responsible board fostering good corporate governance roles. However, one of variables that affects the effectiveness of board's control function is the size of the board. Study by Ning, Davidson & Wang, (2010)

revealed that increase in board size equals to increase in agency problems and internal conflicts among directors. Also, in the same vein Okougbo & Okike, (2015), discovered a positive significant relationship between board size and earnings management which means the larger board tends to increase agency cost and agency conflicts because the larger the board the longer the time spent in decision making and greater conflicts of personalities. However, on the contrary, the study of Hu & wen, (2016) has shown that board size has a negative effect on earnings management which suggests that larger boards are more effective in curtailing management opportunistic tendencies. Thus, the bigger the board size the more ability for the board to monitor whether the managers conduct earnings management, (Isa & Farouk 2018).

Leverage as Moderating Variables

A firm's leverage level measures the amount of debt a company uses to finance its assets, operations or growth relative to its equity. High leverage indicates significant reliance on borrowing which can increase potential returns on investment but raises financial risk including potential bankruptcy. While low leverage signifies a more conservative financial structure. Thus, one of the major sources of funding available to firms is the financial leverage. Usually, under the debt contract provisions, the firm will repay both the principal amount and the interest at a determined period of time. Increase in debt will discipline managers and diminish opportunistic behavior mainly for some obvious reasons namely; debt repayment reduces the cash available to management for non-optimal spending and also when a firm employs debt financing, it must undergo the scrutiny of lenders and is often subject to lender-induced spending restrictions. Evidently, debt policy interferes with the relationship between earnings management and free cash flow. According to Jensen theory of 1986, the greater the leverage level, the less managers will invest in projects with negative NPV and consequently minimizing the need to engage in earnings management

Empirical Review

Existing literature in this regard have revealed various findings, some of which included; Al-Omush, Al-Attar and Masadeh (2018), who carried out an investigation on the impact of free cash surplus flow, audit quality and ownership on earnings management and the result showed that financial distress has a significant impact on earnings management for firms listed on Jordanian for the period of 2003 to 2016.

Osisoma, Okoye, Ezejiofor and Okoye (2020) researched on operating cash flow and earnings management with evidence from Nigerian Banks. The data collected from 15 banks for the period of 2010 to 2019 were statistically analyzed and formulated hypotheses tested with regression analysis revealed that operating activities are not statistically significant and has a negative effect on total accruals of Nigerian Banks.

Kargi and Zakariya (2021) also examined the moderating effect of free cash flow and managerial ownership on earnings management on listed conglomerates firms in Nigeria with data from 2005 to 2017, formulated hypotheses were tested with multiple regression and the result revealed that free cash flow has a positive and significant effect on earnings management while managerial ownership has a negative significant effect on earnings management.

Armayau, Abdullahi and Kurawa (2023), also examined the moderating effect of managerial ownership on the relationship between Free cash flow and profitability of listed industrial goods companies in Nigeria with data gathered for the period of 2010 to 2020, correlation analysis carried out revealed that Free cash flow had a significant positive effect on profitability and that managerial ownership moderates the relationship between free cash flow and profitability.

Shittu, Alagbe, Oke and Fadipe (2023) also examined earnings management effect on the performance of non-financial listed firms in Nigeria with evidence from non-financial listed firms (NFLF) for the period of 2010 to 2020. Dumistrescu and Hurlin panel Casulity test technique was applied on the collected data and the result revealed a positive and significant influence of discretionary accruals on return on capital employed while real earnings management showed a negative and significant effect on return on capital employed.

Abubakar and Hassan 2023 examined the impact of board dynamics on earnings management of listed industrial goods firms in Nigeria with evidence from 13 industrial goods firms for the periods of 2013 to 2022, collected data were analyzed using multiple regression and the result showed that board gender, board nationality, board risk and board expertise has a negative and insignificant impact on earnings management.

Ike and Ezeilo (2024) researched on effect of international financial reporting standards on earnings management among industrial goods firms in Nigeria, gathered data for the periods of 2017 to 2023 were analyzed using panel error-correction-generated least squares (EGLS)

and the result indicates that IFRS adoption significantly influenced discretionary accruals showing a notable effect on earnings management

Theoretical Review

Positive Accounting Theory

This theory explains how an entity's management deals with the applicable standards by choosing one of the other accounting policies among the several alternatives available (Sarah & Bilel, 2021). Positive accounting theory explains and predicts accounting practices, it seeks to explain why accounting practices are employed by managers and accountants in different circumstances and by different firms (Wiratama & Asri, 2020). The positive accounting theory proposed three hypotheses or assumptions that help explain the reasons why managers engage in earnings management or choose a particular accounting rule or method over another one. These includes;

Bonus or Compensations plans Hypothesis: This hypothesis shows or predicts that management whose remuneration is based on bonuses will try to maximize its bonuses through the use of accounting methods that can increase profits and ultimately increase bonuses (Thadeus et al, 2021). According to Umobong & Ibanichuka (2016), the Bonus Plan Hypothesis discloses that managers of firms with bonus plans are more likely to use accounting methods that raise or optimize present period reported income.

The political Cost Hypothesis: This Hypothesis or assumption predicts that companies are more likely to use accounting options that reduce reported earnings since larger companies are more exposed to political attention than smaller companies (Watts and Zimmerman, 1990). The theory explains that large firms are more likely to use accounting choices that reduce reported profit because they are more exposed to political cost

Debt Contracts Hypothesis: This Hypothesis or assumption predicts that managers of companies committed to financing and debt contracts choose methods and accounting policies that increase income. Managers use this method to ease financing contract terms and reduce default costs (Watts and Zimmerman, 1990). This theory is relevant to this study as it provides an explanations to rationale behind managers choosing alternative accounting policies and it is this 'choosing between favorable alternatives' that leads some opportunistic managers to indulge in earnings management.

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METHODOLOGY

This study adopts an *ex-post facto* research design as the variables of interest, namely cash flows (operating cash flow), board size, leverage and total discretionary accruals, are historical and cannot be manipulated by the researcher. The design is appropriate because it allows investigation of naturally occurring financial data from industrial goods firms, enabling analysis of the moderating effect of board size and leverage on the relationships between cash flow measures and earnings-management behavior (discretionary accruals) based on past records.

The population comprised of all industrial goods firms listed on NGX as of December 2024. A total of twelve firms make up this population and purposively we sampled 9 firms that (a) have been continuously listed over a defined time span (for example 2015–2024) and (b) consistently publish full, audited annual financial statements to ensure data completeness and comparability over time. the secondary data utilized were collected from the audited annual financial statements of the selected firms for the period 2015–2024. These statements — accessible from NGX filings, company reports on company websites — provide figures on operating cash flow, capital expenditures, net income. Given the focus on analyzing the moderating effect of firm's specifics on the relationship between cash flow and discretionary accruals, Table 1 shows variables operationalization.

Table 1 Measurement of Variables

Variable	Type / Role	Proxy / Measurement	Source
Operating Cash Flow (OCF)	Independent	Cash flow from operations (from cash flow statement) scaled by asset	Hastuti, Arfan & Diantimala (2018)
Discretionary Accruals (DA)	Dependent	Total accruals – normal accruals, scaled by total assets	Beneish & Vargus (2002)
Board Size	Moderator	Number of board members	Isa & Farouk (2018)
Leverage Level	Moderator	Total debt / total assets	Utami (2021)

Source: Researcher's Compilation (2025)

Discretionary accruals were computed using the Beneish & Vargus (2002) approach, which separates normal accruals from those arising from managerial discretion. The procedure involves the following steps:

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i. Total Accruals (TA):

$Ta_t = (\text{Net Income})_t - (\text{Operating cash flow})_t$

ii. Normal Accruals: Estimated using regression:

$Tat = \alpha + \beta 1 \Delta REVt + \beta 2 PPEt + \epsilon t$

Where:

$\Delta REVt$ = Change in revenue

PPEt = Property, plant, and equipment

iii. Discretionary Accruals (DA):

$DA_t = TA_t - NormalAccrual_t$

This measure (scaled to asset) captures the extent of managerial discretion in reporting earnings.

Model Specification

To test the effects and moderation hypotheses, the following panel regression models (fixed- or random-effects, or pooled if appropriate) may be specified:

Main effects model:

$DA_{it} = \alpha_0 + \alpha_1 OCF_{it} + \alpha_2 BDS_{it} + \alpha_3 LEV_{it} + \varepsilon_{it}$ _____eqi

Moderation by board size (for cash flow measure):

$DA_{it} = \alpha_0 + \alpha_1 OCF_{it} + \alpha_2 BDS_{it} + \alpha_3 (OCF \times BDS)_{it} + \varepsilon_{it}$_____eqii

Moderation by leverage level:

$DA_{it} = \alpha_0 + \alpha_1 OCF_{it} + \alpha_2 LEV_{it} + \alpha_3 (OCF \times LEV)_{it} + \varepsilon_{it}$____eqiii

Where:

DA = Discretionary accrual

OCF = Operating cashflow

BDS = Board Size

LEV = Firm leverage level

i = firm index,

t = time (year) index

ε_{it} = error term

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RESULTS AND DISCUSSIONS

Descriptive statistics (mean, median, standard deviation, minimum, maximum) was used to summarize the distribution of variables (OCF, DA, board size, and leverage).

Table 1 Descriptive Analysis

	DA	OCF	BDS	LEV
Mean	0.546298	0.105749	8.300000	0.417390
Median	0.371581	0.101675	8.000000	0.405109
Maximum	1.951167	0.524137	17.00000	0.872973
Minimum	-0.167642	-0.776519	5.000000	0.028268
Std. Dev.	0.579124	0.150125	2.696023	0.190358
Skewness	0.678476	-1.709874	1.159149	-0.066155
Kurtosis	2.244970	15.54552	3.753411	3.206828
Jarque-Bera	9.042719	634.0680	22.28301	0.226064
Probability	0.010874	0.000000	0.000014	0.893122
Sum	49.16684	9.517432	747.0000	37.56510
Sum Sq. Dev.	29.84928	2.005833	646.9000	3.225017
Observations	90	90	90	90

Source: Eviews 10 Output (2025)

As shown in Table 1 above, Discretionary accruals (DA) have a mean value of 0.546, indicating that, on average, the industrial goods firms engaged in moderate levels of earnings management during the study period (Table 1). The maximum of 1.951 and minimum of -0.168 show there is substantial variation between firms, with some reporting unusually high discretionary accruals while others had slightly negative values. The standard deviation of 0.579 reflects this variability across the sample. The positive skewness of 0.678 suggests a slight tendency for the distribution to have higher values, while the kurtosis of 2.245 indicates that the distribution is slightly flatter than the normal distribution. The Jarque-Bera probability of 0.011 is below 0.05, implying that DA is not perfectly normally distributed. However, according to the Central Limit Theorem, with 90 observations, the sampling distribution of the mean can still be assumed to approximate normality, allowing valid statistical inference.
Operating cash flow (OCF) shows an average value of 0.106, suggesting that most firms had a modest proportion of cash generated from operations relative to their assets (Table 1). The maximum of 0.524 and minimum of -0.777 indicate a wide range, with some firms generating strong positive cash flows and others experiencing negative operational cash flows. The

standard deviation of 0.150 highlights moderate dispersion around the mean. The highly negative skewness of -1.710 shows that the distribution has a long tail to the left, while the extremely high kurtosis of 15.546 points to a distribution with heavy tails and outliers. The Jarque-Bera probability of 0.000 confirms that OCF is not normally distributed, yet with 90 observations, the Central Limit Theorem allows the mean to be treated as approximately normal for analysis purposes.

Board size (BDS) has a mean of 8.3, showing that firms generally maintain moderately sized boards (Table 4.1). The maximum of 17 and minimum of 5 indicate variability, with some firms having very large boards while others have relatively small ones. The standard deviation of 2.696 shows moderate spread around the mean. The positive skewness of 1.159 points to a longer tail on the right, suggesting a few firms with unusually large boards, and the kurtosis of 3.753 reflects a slightly more peaked distribution compared to a normal distribution. The Jarque-Bera probability of 0.000014 indicates that board size is not normally distributed, but given 90 observations, the Central Limit Theorem allows the mean to be used reliably in statistical analyses.

Leverage (LEV) has a mean of 0.417, meaning that on average, firms financed about 42% of their assets with debt (Table 4.1). The maximum of 0.873 and minimum of 0.028 show substantial differences, with some firms highly leveraged and others almost debt-free. The standard deviation of 0.190 reflects moderate variation around the mean. The slight negative skewness of -0.066 suggests the distribution is almost symmetric, and the kurtosis of 3.207 indicates a shape close to normal. The Jarque-Bera probability of 0.893 confirms that leverage is approximately normally distributed, which simplifies its use in statistical testing. The Central Limit Theorem further supports that the sample mean is a reliable estimator for inference.

Test of Hypotheses

The hypotheses were tested using panel estimated generalized least squares regression. The results in tables 2 to 4 showed that all three models have strong explanatory power. For Hypothesis I (Table 2), the adjusted R-squared of 0.997 indicates that approximately 99.7% of the variation in discretionary accruals (DA) is explained by operating cash flow (OCF), board size, and leverage. The F-statistic probability of 0.000 confirms that the overall model is statistically significant at the 5% level. The Durbin-Watson statistic of 1.972 suggests minimal autocorrelation, indicating the residuals are largely independent. The constant term

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(C = 2.105, p = 0.000) is statistically significant at 5%, implying that when all explanatory variables are zero, the average discretionary accrual is positive and substantial, providing a baseline level of earnings management in the firms studied. This model validity pattern is similarly reflected in the other tables, with adjusted R-squared values of 0.908 (Hypothesis II), and 0.980 (Hypothesis III), all F-statistics significant at 5% and Durbin-Watson values close to 2, confirming the reliability of the panel EGLS estimations.

Hypothesis I

H_{0_1}: Operating cash flow has no significant effect on discretionary accruals of industrial goods firms in Nigeria.

H_{i_1}: Operating cash flow has significant effect on discretionary accruals of industrial goods firms in Nigeria.

Table 2 Test of Hypothesis I

Dependent Variable: DA
Method: Panel EGLS (Cross-section SUR)
Sample: 2015 2024
Periods included: 10
Cross-sections included: 9
Total panel (balanced) observations: 90
Linear estimation after one-step weighting matrix

Variable	Coefficient	Std. Error	t-Statistic	Prob.
OCF	-1.312842	0.030391	-43.19858	0.0000
BDS	-0.127453	0.001224	-104.1528	0.0000
LEV	-0.866051	0.021111	-41.02352	0.0000
C	2.105303	0.010309	204.2275	0.0000

Weighted Statistics

R-squared	0.996912	Mean dependent var	22.53914
Adjusted R-squared	0.996805	S.D. dependent var	40.41836
S.E. of regression	1.018629	Sum squared resid	89.23412
F-statistic	9255.597	Durbin-Watson stat	1.971990
Prob(F-statistic)	0.000000		

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Source: Eviews 10 Output (2025)

Table 2 indicates that operating cash flow has a negative coefficient of -1.313, with a p-value of 0.000, suggesting a statistically significant effect at the 5% level. The marginal effect implies that for every one-unit increase in OCF (scaled by total assets), discretionary accruals decrease by 1.313 units, holding board size and leverage constant. This indicates that firms with higher operating cash flow tend to engage in lower earnings management, likely because sufficient internal cash reduces incentives to manipulate reported earnings. The negative effect is substantial and confirms the acceptance of alternate hypothesis, showing that operating cash flow significantly reduces discretionary accruals in Nigerian industrial goods firms. This outcome aligns with the study by Hastuti, Arfan, and Diantimala (2018), which found that operating cash flow negatively influenced earnings management in Indonesian manufacturing firms, highlighting that strong operational liquidity reduces the need for discretionary accounting.

Hypothesis II

$H_{02:}$ Board size does not significantly moderate the effect of cash flow (operating cash flow) on total discretionary accruals of industrial goods firms in Nigeria.

$H_{i2:}$ Board size significantly moderates the effect of cash flow (operating cash flow) on total discretionary accruals of industrial goods firms in Nigeria.

Table 3 Test of Hypothesis II

Dependent Variable: DA
Method: Panel EGLS (Cross-section SUR)
Sample: 2015 2024
Periods included: 10
Cross-sections included: 9
Total panel (balanced) observations: 90
Linear estimation after one-step weighting matrix

Variable	Coefficient	Std. Error	t-Statistic	Prob.
BDS*OCF	-0.193385	0.013449	-14.37886	0.0000
C	0.829578	0.012739	65.11873	0.0000

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Weighted Statistics

R-squared	0.910474	Mean dependent var	0.253530
Adjusted R-squared	0.908416	S.D. dependent var	8.556435
S.E. of regression	1.006823	Sum squared resid	88.19125
F-statistic	442.3933	Durbin-Watson stat	1.808018
Prob(F-statistic)	0.000000		

Source: Eviews 10 Output (2025)

As seen in Table 3, the interaction terms for board size and cash flow is significant (BDS*OCF = -0.193, p = 0.000). The negative coefficient indicate that larger boards strengthen the negative effect of OCF on discretionary accruals. Specifically, for every additional board member, the reduction in discretionary accruals associated with OCF increases by 0.193 units, holding other factors constant. This demonstrates that board size plays a strong moderating role in curbing earnings management, enhancing the cash flow effect. Consequently, alternate hypothesis is accepted, showing that board size significantly moderates the relationship between cash flow and discretionary accruals. This finding corroborates Isa and Farouk (2018), who found that board size has a significant negative effect on earnings management in Nigerian banks, suggesting that collective oversight limits managerial discretion. Okougbo and Okike (2015) also reported that larger boards can influence earnings reporting.

Hypothesis III

H_{03}: Leverage level does not significantly moderate the effect of cash flow (operating cash flow) on total discretionary accruals of industrial goods firms in Nigeria.

H_{i3}: Leverage level significantly moderates the effect of cash flow (operating cash flow) on total discretionary accruals of industrial goods firms in Nigeria.

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Table 4 Test of Hypothesis III

Dependent Variable: DA

Method: Panel EGLS (Cross-section SUR)

Date: 11/14/25 Time: 20:29

Sample: 2015 2024

Periods included: 10

Cross-sections included: 9

Total panel (balanced) observations: 90

Linear estimation after one-step weighting matrix

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LEV*OCF	-0.855214	0.055199	-15.49330	0.0000
C	0.679501	0.006553	103.6944	0.0000

Weighted Statistics

R-squared	0.980384	Mean dependent var	0.084654
Adjusted R-squared	0.979933	S.D. dependent var	11.20562
S.E. of regression	1.001782	Sum squared resid	87.31036
F-statistic	2174.037	Durbin-Watson stat	1.792655
Prob(F-statistic)	0.000000		

Source: Eviews 10 Output (2025)

Table 4 shows that leverage significantly moderates the relationship between cash flow and discretionary accruals, with negative coefficients for LEV*OCF (-0.855, p = 0.000). The marginal interpretation suggests that for every one-unit increase in leverage, the reduction in discretionary accruals due to OCF increases by 0.855 units. This indicates that higher leverage strengthens the cash flow effect in restraining earnings management, possibly because highly leveraged firms face external scrutiny and debt covenants that limit discretionary reporting. The alternate hypothesis is therefore accepted, confirming that leverage significantly moderates the cash flow–discretionary accrual relationship. This agrees with the study of Ndulue, Okoye, and Amahalu (2021) also noted that financial structure can shape managerial discretion in Nigerian firms

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CONCLUSION AND RECOMMENDATIONS

The findings of this study highlight important hints into the financial behavior of industrial goods firms in Nigeria, particularly regarding the management of earnings and the role of internal resources and governance structures. Furthermore, operating cash flow significantly reduces discretionary accruals suggesting that firms with higher internal cash generation engage less in earnings manipulation. The moderating effects of board size indicate that organizational oversight plays critical role in shaping managerial discretion. Larger boards seem to enhance the restraining influence of cash flow on discretionary accruals, suggesting that collective decision-making and broader oversight can reinforce prudent reporting practices. Similarly, higher leverage strengthens the cash flow effect, signaling that firms under greater debt obligations or financial scrutiny exercise more caution in discretionary reporting, likely due to external monitoring pressures and the need to maintain credibility with creditors. Together, these outcomes reflect how a combination of financial strength, governance mechanisms, and capital structure can influence managerial behavior, reinforcing the importance of internal controls, accountability, and structured financial obligations in shaping the reporting environment of firms. Thus, the results portray a financial landscape where cash availability, board oversight, and leverage interact to regulate discretionary accounting choices, contributing to greater reliability and discipline in corporate financial reporting across the industrial goods sector in Nigeria.

We therefore recommend the following;

1. Finance directors and corporate controllers should ensure that firms generate and maintain adequate operating cash flow so at allow for sustainable investment and operations
2. Shareholders and board nomination committees should consider structuring boards with sufficient members to strengthen oversight, as larger boards enhance the monitoring of managerial actions and reinforce disciplined reporting practices.
3. Chief financial officers and debt managers should strategically manage leverage levels to ensure that firms remain accountable to creditors, since higher leverage amplifies the effect of cash flow in reducing discretionary accruals and encourages responsible financial reporting.

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