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Improving Firm Bottom Line Through Eco-Disclosure: Evidence from Listed Oil and Gas Firms in Nigeria

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Abstract

This study examined the influence of eco-disclosure on the bottom line of listed oil and gas firms in Nigeria. Specifically, the study determined the extent to which environmental protection activity disclosure affects net profit margin. Ex-post facto design was adopted, using historical data from 2015 to 2024. The population consisted of all eight oil and gas firms listed on the Nigerian Exchange Group, of which six firms with complete data were purposively selected for analysis. Secondary data were collected from the firms' annual reports and financial statements, capturing net profit margin, environmental protection activity disclosures, and control variables. Robust least squares regression was employed to test the hypothesis at a 5% significance level after diagnostic checks for multicollinearity, heteroskedasticity, autocorrelation, and normality. The findings indicated that environmental protection activity disclosure had a positive and significant influence on net profit margin, suggesting that firms could enhance financial performance through consistent and transparent eco-disclosure ($\beta = 0.038$, $p = 0.000$), leading to the conclusion that integrating environmental accountability into business strategy supports both sustainability and profitability. Therefore, firm boards should consider expanding the scale and scope of eco-disclosure initiatives, ensuring that all relevant environmental activities are communicated clearly to investors, regulators, and the public. This will not only reinforce the firm's reputation but also demonstrate a tangible link between environmental responsibility and financial performance, providing measurable value to shareholders and other stakeholders.

Keywords: Bottom Line, Eco-disclosure, Oil and Gas Firms

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1.0 Introduction

The global energy sector has long been a central driver of economic growth, industrial development, and national revenue, particularly in countries rich in oil and gas resources. Nigeria, as one of the largest oil producers in Africa, relies heavily on its petroleum industry to sustain government finances, employment, and infrastructure development. However, this reliance comes with significant environmental consequences. Oil spills, gas flaring, and other extractive activities have led to severe ecological degradation, affecting local communities, biodiversity, and water resources. In response, both global and national stakeholders have placed increasing pressure on companies to adopt environmentally responsible practices (Andrew, et al., 2025). The concept of eco-disclosure, which involves companies reporting their environmental policies, impacts, and sustainability measures, has gained prominence as a means of promoting transparency and accountability (Amahalu, et al., 2025). While eco-disclosure has been extensively discussed in developed economies, its role in emerging markets such as Nigeria remains underexplored. Studies have shown that oil and gas firms in Nigeria face unique challenges in environmental reporting due to regulatory enforcement gaps, community conflicts, and reputational risks, making eco-disclosure not just a regulatory obligation but a strategic business practice (Ndubuisi et al., 2025; Eze, et al., 2025).

Firm bottom line refers to the net financial performance of a company, typically measured by profit margins, return on assets, or overall profitability (Enudi, et a., 2024). It represents the ultimate measure of a firm's efficiency in converting resources into financial gains. In today's business environment, where competition is fierce and investors are increasingly conscious of sustainability, the bottom line extends beyond short-term profit to include long-term value creation. Firms are expected not only to generate revenue but also to operate responsibly, manage risks, and ensure stakeholder trust (Nworie & Orji-Okafor, 2024). Eco-disclosure has emerged as an important mechanism through which companies communicate their environmental initiatives and performance to the public. By providing detailed reports on energy usage, waste management, carbon emissions, and community engagement, firms demonstrate their commitment to sustainable practices (Aruna, et al., 2024). Such transparency is particularly relevant in the oil and gas industry, where environmental controversies can lead to financial losses, legal penalties, and reputational damage. Evidence from Nigerian firms indicates that investments in environmental management, such as employee health and safety systems, community development, and pollution control, can positively influence long-term profitability, although short-term costs may temporarily reduce financial performance (Aderobaki et al., 2024; Amahalu, 2024). Investors, customers, and regulatory bodies increasingly evaluate firms based on their environmental performance, making eco-disclosure a strategic tool that shapes market perception, stakeholder confidence, and ultimately, financial outcomes. Companies that communicate environmental efforts effectively may attract responsible investors, gain competitive advantages, and reduce costs associated with environmental risks (Nwankwo, 2024; Agweda, 2024).

Eco-disclosure can influence the firm bottom line through multiple channels. First, it enhances corporate reputation and strengthens stakeholder relationships, including those with investors, customers, regulators, and local communities. Positive environmental reporting signals accountability and responsible management, which can increase investor confidence and reduce the cost of capital (Amahalu & Okudo, 2023). Second, it encourages operational efficiency by compelling firms to monitor and manage environmental risks systematically. Tracking energy consumption, emissions, and waste production allows companies to identify cost-saving opportunities and improve profitability (Ndubuisi & Moedu, 2023). Third, transparent reporting helps mitigate regulatory and legal risks. Nigerian oil and gas

companies often face sanctions or litigation due to environmental negligence, and firms with rigorous disclosure practices demonstrate proactive compliance, reducing potential liabilities (Mbonu & Amahalu, 2023). Fourth, eco-disclosure can spur innovation as companies develop cleaner technologies or more sustainable processes to meet stakeholder expectations, which can lower operational costs and open new revenue streams (Okudo, & Amahalu, 2023). Finally, consumer and investor preferences increasingly favor firms with strong environmental performance, allowing companies to differentiate themselves in the market and attract environmentally conscious customers (Ndubuisi, & Okudo, 2023). While some studies note that environmental disclosure may negatively impact short-term profitability, the overall evidence suggests that consistent and substantive eco-disclosure strengthens both financial performance and corporate sustainability (Okoye, 2022).

Effective eco-disclosure should support strategic decision-making, reduce operational inefficiencies, and enhance investor confidence. By integrating environmental considerations into financial planning and reporting, firms can strengthen their reputation, reduce risk exposure, and improve long-term profitability. In such a situation, the costs of environmental management and community engagement contribute positively to the firm's bottom line, demonstrating that financial success and environmental responsibility are mutually reinforcing.In practice, many Nigerian oil and gas firms struggle to achieve this level of transparency and integration. Environmental reporting is often inconsistent, incomplete, or focused on regulatory compliance rather than providing a comprehensive picture of environmental performance. Some companies allocate limited resources to pollution control, community development, and sustainability initiatives, and the reporting of these expenditures is frequently minimal or symbolic. Studies have highlighted that while certain environmental costs, such as pollution prevention and employee health and safety, can improve profitability, many firms underreport these activities or fail to connect them to financial outcomes (Okudo et al., 2022). In some cases, short-term investments in environmental initiatives are viewed as burdens on the firm's finances rather than strategic opportunities, leading to gaps in reporting and underutilization of sustainable practices (Mbonu & Ndubuisi, 2022). This disconnect between environmental responsibility and financial management creates challenges for assessing the true value of sustainability initiatives.

The consequences of these shortcomings are significant for both firms and stakeholders. Limited or superficial environmental disclosure can damage corporate reputation, reduce investor trust, and increase vulnerability to regulatory penalties and legal actions. Firms that fail to integrate environmental reporting with financial performance may miss opportunities to optimize costs, innovate processes, and improve profitability through efficient environmental management. Communities affected by oil and gas operations may experience ongoing ecological and social harm, contributing to tensions and conflicts that further disrupt operations. In addition, the inability to demonstrate the financial benefits of environmental investments may discourage management from committing adequate resources to sustainability, perpetuating a cycle of underperformance. Thus, inadequate eco-disclosure and weak integration of environmental management with financial strategy can limit growth, weaken stakeholder relationships, and reduce the competitive standing of Nigerian oil and gas firms in the global market.

Despite the growing body of research on environmental disclosure and corporate performance in Nigeria's oil and gas sector, several gaps remain. Previous studies have largely focused on broader environmental cost disclosure, environmental management costs, or sustainability expenditures, with works by Modozie & Amahalu, (2022), Udo, et al (2022);

Eze et al. (2022) emphasizing impacts on return on assets, return on capital employed, or firm value. While these studies provide evidence of a link between environmental accounting and financial performance, few have specifically examined the effect of environmental protection activity disclosure on net profit margin, which directly reflects the firm's bottom line. Additionally, existing research often aggregates multiple environmental measures without isolating specific protection activities such as audits, pollution control, waste reduction, and energy-saving initiatives. Limited attention has also been paid to using robust regression techniques that account for outliers in the Nigerian context. Furthermore, the temporal coverage of some studies does not extend to the recent period from 2015 to 2024, which captures contemporary reporting practices and regulatory changes. This gap indicates the need for focused analysis on the direct influence of eco-disclosure on the bottom line of listed oil and gas firms in Nigeria, while controlling for firm size and leverage, to provide updated and precise evidence for both academics and practitioners.

2.0 Literature Review

2.1 Synthesis of Existing Empirical Studies

The empirical literature on environmental disclosure and financial performance in Nigerian oil and gas firms highlights a complex interplay between investment in environmental management and corporate profitability. Several studies have demonstrated that strategic environmental cost disclosure can enhance firm value and operational efficiency. For instance, Okafor et al., (2022) found that health and safety cost (HSC) disclosure positively affected return on assets (ROA) in the long run, reflecting the profitability gains from sustained safety and environmental investments, though short-term effects were negative due to immediate compliance expenses. Similarly, Ekweozor et al (2022) reported a significant positive relationship between environmental cost disclosure (ECD) and ROA, reinforcing the notion that transparency in environmental reporting builds stakeholder trust and operational efficiency. These findings are consistent with the assertion that effective environmental management can contribute to firm performance, particularly when disclosure practices are substantive rather than symbolic. However, they also highlight potential short-term trade-offs, where compliance costs can temporarily reduce financial returns.

Beyond safety and cost disclosures, broader environmental accounting practices have been shown to influence performance in both oil and gas and industrial sectors. Ige et al. (2026) observed that detailed environmental accounting disclosures, including energy policies, employee health and safety, waste management, and compliance with environmental regulations, positively affected ROA among industrial goods firms, suggesting that comprehensive environmental reporting can reduce operational inefficiencies. Okudo, & Ndubuisi, (2021) further corroborated these results within the oil and gas sector, demonstrating that product/service disclosure and carbon emissions disclosure significantly explained variations in corporate performance. These studies collectively indicate that both internal environmental management and external reporting contribute to profitability, with the type and scope of disclosure playing a critical role in translating environmental investments into financial outcomes.

Specific environmental initiatives, particularly those oriented toward community development and pollution control, have been found to yield positive financial impacts. Nzekwe et al., (2021) highlighted that community development and environmental protection expenditures significantly enhanced firm value and return on capital employed (ROCE), especially when supported by board expertise in financial and environmental management.

Salihu et al. (2025) emphasized that community development costs were the most influential factor for downstream firms' financial performance, whereas other environmental costs, such as waste management and employee safety, showed limited significance. Oshiole, et al., (2020); Ndubuisi et al., (2025) further confirmed that investments in environmental protection, remediation, and policy disclosures generally had positive effects on organizational sustainability and profitability, though short-term negative effects from certain practices, such as waste management, were also observed. These findings highlight the importance of aligning environmental initiatives with strategic corporate objectives to optimize long-term financial outcomes.

Despite the generally positive influence of environmental disclosure, some studies reveal that the relationship can be nuanced and context-dependent. Ezeokafor and Amahalu (2019) found that while environmental disclosure enhanced transparency, it negatively affected short-term ROA and earnings per share, suggesting that disclosure alone may not immediately translate into financial gains. Ndubuisi et al. (2018) similarly reported positive but insignificant effects of community development and employee health costs on performance, indicating that the magnitude of investment matters. Amahalu et al (2017); Obumneme, et al (2026) highlighted the mixed effects of specific environmental costs, with waste management positively influencing ROA and pollution control showing negative effects. Collectively, these studies suggest that while environmental disclosure and investment can foster long-term value creation, firms must carefully balance expenditure levels, disclosure scope, and operational efficiency to mitigate short-term financial strain.

In summary, the empirical evidence consistently shows that environmental disclosure and strategic environmental management positively influence the financial performance of Nigerian oil and gas firms, particularly when investments are well-targeted, transparently reported, and integrated into corporate governance structures. Long-term benefits, including improved ROA, ROCE, and firm value, emerge from proactive policies in health and safety, community development, and pollution management. However, short-term financial effects can vary, reflecting compliance costs, firm size dynamics, and the depth of disclosure.

2.2 Theoretical Framework and Development of Research Hypothesis

The study's hypothesis was underpinned by the postulates of Stakeholder Theory. This theory was first formally introduced by R. Edward Freeman in 1984 through his book *Strategic Management: A Stakeholder Approach* (Freeman et al., 2021).The main postulations of the theory suggest that a firm's decisions and strategies should aim to balance and satisfy the needs of various stakeholder groups. Organizations that actively engage stakeholders, respond to their concerns, and integrate their feedback into business practices are likely to achieve sustainable outcomes. The theory emphasizes accountability, transparency, and ethical management as essential practices for maintaining trust and cooperation among stakeholders. It also argues that ignoring the interests of key stakeholders can lead to conflicts, loss of reputation, and reduced financial performance (Amahalu et al., 2025).

In the context of environmental disclosure in Nigerian oil and gas firms, Stakeholder Theory is highly relevant. Firms that provide clear and comprehensive information about their environmental costs, safety measures, and sustainability initiatives signal accountability to investors, regulators, employees, and local communities. By addressing stakeholders' expectations and concerns, companies can enhance trust, strengthen their reputation, and improve operational efficiency. The theory helps explain why firms that invest in environmental management and actively disclose relevant information may experience

improved financial performance, as these actions foster stronger relationships and support from key stakeholders. Based on the above logic, the study hypothesised that:

H_a: Eco-disclosure has a positive influence on the bottom line of listed oil and gas firms in Nigeria.

3.0 Methodology

This study adopted an *ex-post facto* research design, which was suitable for examining relationships among variables that had already occurred and could not be manipulated by the researcher. By using historical data, the study analyzed trends over time and evaluated the effect of prior environmental reporting on the firms' net profit margin, providing insights into the link between eco-disclosure and the bottom line.The population comprised all oil and gas firms listed on the Nigerian Exchange Group. As of December 31, 2024, eight firms were listed in this sector:

1. Aradel Holdings Plc
2. Conoil Plc
3. Eterna Plc
4. Japaul Gold & Ventures Plc
5. MRS Oil Nigeria Plc
6. Oando Plc
7. Seplat Energy Plc
8. Totalenergies Marketing Nigeria Plc

A purposive sampling approach was used to select firms with complete data for the period 2015–2024. Out of the eight listed firms, six met this requirement:

1. Conoil Plc
2. Eterna Plc
3. Japaul Gold & Ventures Plc
4. MRS Oil Nigeria Plc
5. Oando Plc
6. Totalenergies Marketing Nigeria Plc

The remaining three firms were excluded due to incomplete or inconsistent data across the ten-year period. Annual reports and financial statements of the selected firms were collected and used for the analysis.Secondary data were collected from the annual reports and financial statements of the selected firms. The dataset spanned ten years, from 2015 to 2024, and included information on net profit margin as the measure of firm bottom line and environmental protection activity disclosure as the proxy for eco-disclosure. Additional data on firm size, measured as the natural logarithm of total assets, and firm leverage, measured as total liabilities divided by total assets, were also collected to serve as control variables.

Table 3.1 Operational Measurement of Variables

Variable	Type	Measurement	Source
Net Profit Margin (NPM)	Dependent	Earnings after tax divided by revenue	Nariswari&Nugraha, 2020
Environmental Protection Activity Disclosure (EPAD)	Independent	(A binary score of "1" if a policy on the implementation of environmental audits is disclosed, or "0" if not; + "1" if a policy on environmental commitments is disclosed or "0" if not. + A binary score of "1" if a project on the implementation of environmental audits is disclosed, or "0" if not; + "1" if a project on environmental commitments is disclosed or "0" if not. + A binary score of "1" if pollution control is disclosed, "1" for waste reduction, and + "1" for energy savings, or "0" if any of these are not disclosed)/6	Yusuf et al., 2017
Firm Size (FSZ)	Control	Natural log of total assets	Isik et al., 2017
Firm Leverage (LEV)	Control	Total liabilities divided by total assets	Daruwala, 2023

Source: Researcher's Compilation (2026)

The study modeled the relationship between eco-disclosure and bottom line while controlling for firm size and leverage. The functional relationship was expressed as:

$NPM=f(EPAD,FSZ,LEV)$_____-eqi

This was further expressed in a linear regression model:

$NPM_{it}=\alpha_0+\beta_1 EPAD_{it}+ \beta_2 FSZ_{it}+ \beta_3 LEV_{it}+\mu_{it}$ _____eqii

Where:

NPMit = Net profit margin for firm i at time t

EPADit = Environmental protection activity disclosure for firm i at time t

FSZit = Firm size (natural log of total assets)

LEVit = Firm leverage (liabilities/total assets)

μit = Error term

Descriptive statistics were used to summarize the characteristics of the data. Diagnostic tests, including multicollinearity, heteroskedasticity, autocorrelation, and normality tests, were conducted to ensure the validity of the regression model. Since the residuals were not normally distributed, robust least squares regression was employed to estimate the effect of eco-disclosure on bottom line, which provided reliable results in the presence of outliers or heteroskedasticity.Hypotheses were tested at a 5% significance level. If the p-value was less than 0.05, the null hypothesis was rejected in favor of the alternative hypothesis. If the p-value was equal to or greater than 0.05, the null hypothesis was accepted, indicating no statistically significant relationship between the variables.

4.0 Data Analyses

4.1 Descriptive Analysis and Model Diagnostics

Table 4.1 Descriptive Statistics

	NPM	EPAD	FSZ	LEV
Mean	6.105510	0.234259	7.862316	0.937977
Median	0.011332	0.333333	7.800847	0.743999
Maximum	473.9249	0.666667	8.673134	3.270473
Minimum	-55.61977	0.000000	6.943113	0.497518
Std. Dev.	62.04793	0.218685	0.395459	0.523875
Skewness	7.302725	0.265713	0.088442	2.311750
Kurtosis	55.71955	1.886273	2.564034	8.737516
Jarque-Bera	7481.675	3.806999	0.553384	135.7396
Probability	0.000000	0.149046	0.758288	0.000000
Sum	366.3306	14.05556	471.7390	56.27864
Sum Sq. Dev.	227146.8	2.821553	9.226892	16.19224
Observations	60	60	60	60

Source: Eviews 10 Output (2026)

Net Profit Margin (NPM), as shown in Table 4.1, has a mean of 6.11, indicating that on average firms earn about 6 percent profit on their revenue. The maximum of 473.92 and minimum of –55.62 reflect extreme variability, with some firms reporting unusually high profits and others losses, consistent with the high standard deviation of 62.05. The positive skewness of 7.30 and extreme kurtosis of 55.72 suggest a distribution heavily weighted toward high outliers, deviating from normality, which is confirmed by the Jarque-Bera probability of 0.000. Despite the deviation, the central limit theorem suggests the sample mean is a reliable estimate for inference due to the sample size of 60.

Environmental Protection Activity Disclosure (EPAD) has a mean of 0.234, indicating that firms disclose about 23 percent of the environmental activities captured by the scoring system. The minimum value of 0 and maximum of 0.667 reveal variability in disclosure practices among firms. The standard deviation of 0.219 shows moderate dispersion around the mean. Skewness of 0.27 and kurtosis of 1.89 suggest a near-normal distribution, which is

supported by a Jarque-Bera probability of 0.149, indicating no significant departure from normality. This implies that most firms disclose relatively few environmental activities.

Firm Size (FSZ) has a mean of 7.86 on the natural log scale of total assets, with a minimum of 6.94 and a maximum of 8.67, indicating moderate variation in firm scale across the sample. The standard deviation of 0.40 is small relative to the mean, showing that most firms are of comparable size. Skewness of 0.09 and kurtosis of 2.56 suggest a fairly symmetrical distribution with light tails, and the Jarque-Bera probability of 0.758 confirms normality. This implies that FSZ is well-behaved for regression analysis and unlikely to bias results.

Firm Leverage (LEV) averages 0.938, showing that firms rely on debt for nearly 94 percent of their assets on average. The minimum and maximum values of 0.498 and 3.27 indicate considerable variability, with some firms highly leveraged. The standard deviation of 0.524 and positive skewness of 2.31 indicate that high-leverage firms create a long tail in the distribution. The kurtosis of 8.74 and Jarque-Bera probability of 0.000 show a heavy-tailed, non-normal distribution, suggesting that extreme leverage levels could influence results and may require robust estimation techniques.

Table 4.2 Test of Multicollinearity

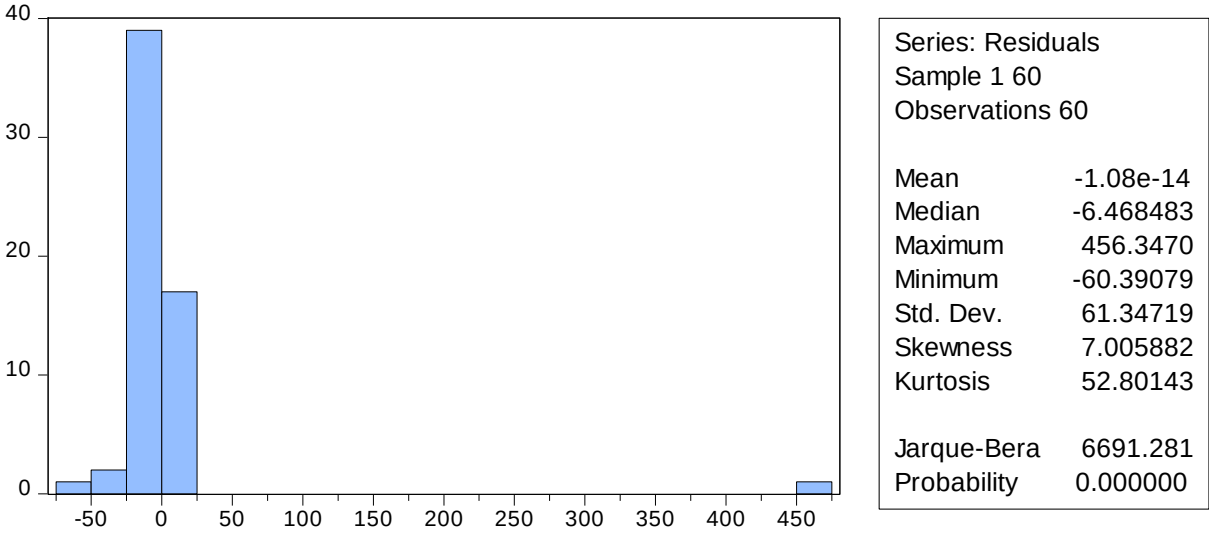
Variance Inflation Factors
Date: 02/10/26 Time: 17:34
Sample: 1 60
Included observations: 60

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
EPAD	2585.163	3.986337	1.839598
FSZ	847.2993	794.5382	1.971691
LEV	285.7443	4.971065	1.166893
C	46533.49	704.1473	NA

Source: Eviews 10 Output (2026)

Table 4.2 presents the test of multicollinearity using Variance Inflation Factors (VIF), which measures how much the variance of a regression coefficient is inflated due to correlation among independent variables. EPAD has a VIF of 1.84, FSZ is 1.97, and LEV is 1.17. Since all values are well below the common threshold of 10, the test indicates that multicollinearity is not a concern, meaning the independent and control variables are sufficiently distinct to provide reliable coefficient estimates.

Table 4.3 Normality Test



Source: Eviews 10 Output (2026)

Table 4.3 shows the normality test using the Jarque-Bera statistic, which assesses whether residuals in the model follow a normal distribution, an assumption for many parametric tests. The statistic value of 6691.28 with a p-value of 0.000 indicates that the residuals are not normally distributed. This suggests potential skewness or extreme outliers in the data, and while the regression coefficients remain unbiased, inference based on t- or F-tests would be less reliable. To address this issue, the hypothesis was tested using Robust Least Square regression, instead of the traditional panel regression model.

Table 4.4 Test of Autocorrelation

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.749457	Prob. F(2,54)	0.4775
Obs*R-squared	1.620479	Prob. Chi-Square(2)	0.4448

Source: Eviews 10 Output (2026)

Table 4.4 reports the test for autocorrelation using the Breusch-Godfrey Serial Correlation LM Test, which checks whether residuals are correlated across observations, violating the independence assumption. The F-statistic of 0.749 with a p-value of 0.478 suggests no evidence of serial correlation, indicating that residuals are independent and the estimated coefficients are not biased due to autocorrelation.

Table 4.5 Heteroskedasticity Test

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	0.565670	Prob. F(3,56)	0.6399
Obs*R-squared	1.764746	Prob. Chi-Square(3)	0.6226

Source: Eviews 10 Output (2026)

Table 4.5 presents the Breusch-Pagan-Godfrey heteroskedasticity test, which evaluates whether the variance of residuals is constant across observations, a key assumption for ordinary least squares regression. The F-statistic of 0.566 and p-value of 0.640 indicate no evidence of heteroskedasticity, meaning residuals have constant variance and the model produces efficient and unbiased estimates.

4.2 Test of Hypothesis

H_a: Eco-disclosure has a positive influence on the bottom line of listed oil and gas firms in Nigeria.

Table 4.6 Test of Hypothesis
Dependent Variable: NPM
Method: Robust Least Squares
Date: 02/10/26 Time: 17:33
Sample: 2015 2024
Included observations: 60
Method: M-estimation
M settings: weight=Cauchy, tuning=2.385, scale=MAD (median centered)
Huber Type I Standard Errors & Covariance

Variable	Coefficient	Std. Error	z-Statistic	Prob.
EPAD	0.038469	0.002835	13.56968	0.0000
FSZ	0.047056	0.001623	28.99348	0.0000
LEV	-0.116679	0.000943	-123.7960	0.0000
C	-0.285150	0.012028	-23.70796	0.0000

Robust Statistics

Rw-squared	0.467008	Adjust Rw-squared	0.467008
Akaike info criterion	684.5407	Schwarz criterion	700.8580
Deviance	0.512424	Scale	0.027361
Rn-squared statistic	18192.06	Prob(Rn-squared stat.)	0.000000

Source: Eviews 10 Output (2026)

Table 4.6 presents the results of the robust least squares estimation, testing the effect of environmental protection activity disclosure (EPAD) on the bottom line of listed oil and gas firms, measured by net profit margin (NPM). Before interpreting the individual coefficients, the model validity statistics indicate that the adjusted R-squared is 0.467, meaning that approximately 46.7 percent of the variation in NPM is explained by EPAD, firm size (FSZ), and firm leverage (LEV). The probability of the robust F-statistic (Prob > Rn-squared = 0.000) confirms that the model is statistically significant at the 5 percent level, suggesting that the explanatory variables collectively provide meaningful explanation for variations in profitability. The constant term (C) is –0.285 (p = 0.000), which is significant at 5 percent. This implies that when all independent variables are held at zero, the expected net profit margin would be negative 28.5 percent, though in practice this represents the baseline intercept adjusted by the robust estimation method.

Environmental Protection Activity Disclosure (EPAD) has a coefficient of 0.038 (p = 0.000), indicating that a one-unit increase in EPAD corresponds to a 3.85 percent increase in NPM, holding other variables constant. This positive effect is highly significant at the 5 percent level, confirming the hypothesis (Ha) that eco-disclosure enhances the bottom line of listed oil and gas firms. The result aligns with the premise that firms that actively disclose environmental protection activities signal accountability and efficiency to stakeholders, which can translate into higher profitability.

Firm Size (FSZ) has a coefficient of 0.047 (p = 0.000), meaning that for each one-unit increase in the natural log of total assets, NPM increases by approximately 4.71 percent, ceteris paribus. This positive and significant effect at the 5 percent level suggests that larger firms benefit from economies of scale, resource advantages, or market influence that strengthen profitability. This confirms that firm scale plays a crucial role in enhancing financial performance alongside environmental disclosure.

Firm Leverage (LEV) has a coefficient of –0.117 (p = 0.000), showing that a one-unit increase in the ratio of total liabilities to total assets reduces NPM by 11.67 percent, holding other variables constant. The negative effect is statistically significant at the 5 percent level, indicating that higher debt burdens constrain profitability, possibly due to interest obligations and financial risk. This finding emphasizes the importance of prudent capital structure management in maximizing the benefits of environmental initiatives on the bottom line.

The major finding therefore was that environmental Protection Activity Disclosure (EPAD) positively affects NPM (β = 0.038, p = 0.000), significant at 5%.The finding that eco-disclosure positively and significantly influences the bottom line reflects the broader role of transparency and proactive environmental management in strengthening financial performance. Firms that disclose environmental protection activities signal accountability to stakeholders, which can increase investor confidence, enhance brand reputation, and improve operational efficiency, leading to higher net profit margins. This result aligns with Ikpor and Lawrence (2026), who found that health and safety cost disclosures had a significant long-run effect on return on assets, suggesting that sustained investment in environmental and safety initiatives enhances firm performance despite short-term costs. Similarly, Yahaya (2026) demonstrated that environmental cost disclosure positively affected profitability by fostering stakeholder trust and operational effectiveness, supporting the idea that transparent reporting translates into measurable financial gains. Ige et al. (2026) also reported that environmental accounting disclosure, including policies on energy, waste management, and compliance, significantly improved ROA in industrial goods firms, indicating that comprehensive disclosure can reduce inefficiencies and promote profitability. Oladejo et al. (2025) further confirmed that external environmental accounting disclosure, such as carbon emissions and product/service reporting, significantly explained variations in corporate performance, emphasizing the value of transparent environmental communication. While Popoola and Onmonya (2024) found some negative short-term effects of environmental disclosure on ROA, the overall evidence from multiple studies supports the positive effect observed in this study, suggesting that firms that integrate eco-disclosure into their corporate strategy can realize sustained improvements in financial performance.

5.0 Conclusion and Recommendation

The positive and significant effect of eco-disclosure on bottom line highlights the strategic value of integrating sustainability into corporate reporting and operations. Firms that actively communicate their environmental initiatives demonstrate a commitment to accountability and transparency, which can strengthen stakeholder confidence, including investors, regulators, and customers. This enhanced trust may translate into greater market credibility, improved brand reputation, and increased access to capital, all of which can support profitability. The findings also suggest that environmental management is not merely a compliance exercise but a potential driver of efficiency, as organizations that systematically monitor and report their eco-activities may identify cost-saving opportunities, optimize resource use, and reduce operational risks. Moreover, the result highlights the interconnectedness of financial performance and corporate social responsibility, indicating that long-term sustainability

practices can create tangible economic value. By linking environmental transparency with financial outcomes, firms may experience improved stakeholder relationships, heightened competitive positioning, and resilience against regulatory or reputational challenges, ultimately reinforcing the perception that proactive environmental reporting contributes to both organizational sustainability and overall financial strength. In line with the finding, the study makes the following recommendations:

Firm boards should consider expanding the scale and scope of eco-disclosure initiatives, ensuring that all relevant environmental activities are communicated clearly to investors, regulators, and the public. This will not only reinforce the firm's reputation but also demonstrate a tangible link between environmental responsibility and financial performance, providing measurable value to shareholders and other stakeholders.

Regulatory bodies overseeing the oil and gas sector can encourage firms to adopt structured frameworks for environmental reporting, offering guidance on standard metrics and reporting formats. This will help ensure that disclosed information is meaningful, comparable across firms, and capable of influencing stakeholder perceptions positively, ultimately contributing to the financial and operational sustainability of the sector.

5.1 Contribution to Knowledge

This study contributes to the literature by examining the specific effect of environmental protection activity disclosure on the net profit margin of listed oil and gas firms in Nigeria, addressing gaps in previous research that largely focused on broader environmental costs or aggregated sustainability measures. Unlike earlier studies by Ndubuisi et al (2025); Agweda et al (2024), this study isolates specific environmental protection activities, including audits, pollution control, waste reduction, and energy-saving initiatives, to assess their direct impact on the firm's bottom line. The research covers a recent period from 2015 to 2024, capturing contemporary reporting practices and regulatory developments, and employs robust least squares regression to account for outliers and heteroskedasticity in the Nigerian context. By controlling for firm size and leverage, the study provides more precise and targeted evidence of how eco-disclosure influences financial performance. This contribution not only advances understanding of the relationship between environmental accountability and profitability but also offers practical guidance for managers, investors, and policymakers seeking to enhance both sustainability and corporate performance.

5.2 Limitations of the Study and Suggestion for Further Studies

The study was limited by its focus on only six oil and gas firms listed on the Nigerian Exchange Group, which may not fully represent the entire industry. It relied on secondary data from annual reports, which could have reporting inconsistencies or missing information. The research also concentrated only on environmental protection activity disclosure and net profit margin, leaving out other environmental or financial indicators that could influence results. Additionally, the analysis covered the period from 2015 to 2024, so the findings may not reflect changes before or after this period or consider the impact of unexpected economic or regulatory events.

Future studies could expand the research to include not only listed firms in the oil and gas sector but also other industries to provide a broader perspective. Researchers could also consider additional environmental disclosures such as carbon emissions, renewable energy investments, or corporate social responsibility activities. Including other financial performance measures like return on assets or return on equity could give a more complete

picture. Longer study periods and comparative studies across countries could help understand how eco-disclosure affects profitability in different contexts and over time.

References

Aderobaki, V.A., Amahalu, N.N. & Adeniyi, S.I. (2024). Effect of employee welfare and occupational health and safety reporting on audit quality of listed firms in Nigeria, *Journal of Global Accounting*, 10(1), 62 – 74

Agweda, F.E., Okoye, E.I., Amahalu, N.N. & Egolum, P.U. (2024). Effluent disclosure and market value added of listed industrial goods firms in Nigeria, *Journal of Global Accounting*, 10(3), 444 - 453.

Amahalu, N.N., & Okudo, C.C. (2023). Environmental cost disclosure and productivity of quoted oil and gas firms in Nigeria. *International Journal of Multidisciplinary Research and Growth Evaluation, 4*(3), 684-690.

Amahalu, N.N., Aruna, F.E. & Orji-Okafor, T.G. (2024). Debt financing and environmental research and development disclosure of listed Oil and Gas firms in Nigeria, *Journal of Global Accounting*, 10(1), 144 – 155

Amahalu, N.N., Ezechukwu, B. O., & Obi, J.C. (2017).Corporate social responsibility and financial performance of quoted deposit money banks in Nigeria. *Asian Journal of Science and Technology*, *08*(12), 7183-7191.

Amahalu, N.N., Okoye, P.V.C.., Andrew, J. & Ozoji, A.P. (2025). Social responsibility disclosure and sustainable development of listed Industrial goods firms in Nigeria, *Journal of Global Accounting, 11*(3), 22 - 39. Available:https://journals.unizik.edu.ng/joga

Andrew, J., Okoye, P.V.C., & Amahalu, N.N (2025). Economic social responsibility disclosure and waste recycling of listed industrial goods firms in Nigeria. International Review of Financial Studies, 2(2), 54-70. https://journals.unizik.edu.ng/irofs

Aruna, F.E., Orji-Okafor, T.G. & Amahalu, N.N. (2024). Debt financing and environmental sustainability disclosure of listed Oil and Gas firms in Nigeria, *Journal of Global Accounting*, 10(2), 1 - 15.

Ekweozor, M.A., Ogbodo, O.C., & Amahalu, N.N. (2022). Effect of corporate social responsibility on financial performance of listed oil and gas firms in Nigeria. *International Journal of Trend in Scientific Research and Development (IJTSRD)6* (2), .282-289

Enudi, C.P., Ekwueme, C.M., Amahalu, N.N. (2024). Environmental disclosure and productivity of listed oil and gas firms in Nigeria. *International Journal of Research Publication and Reviews, 5*(1), 1955-1962.

Eze, A., Okoye, N.J. & Amahalu, N.N. (2025). Sustainability disclosure and firm value of listed manufacturing firms in Nigeria, *Journal of Global Accounting, 11*(5), 25 - 61. Available:https://journals.unizik.edu.ng/joga

Eze, A.J., Okoye, P.V.C., Amahalu, N.N., & Obi, J.C. (2022). Financial mix and bottom line profit of quoted industrial goods companies in Nigeria. *International Journal of Management Studies and Social Science Research, 4*(1), 44-59

Ezeokafor, F.C. and Amahalu, N.N. (2019). Effect of sustainability reporting on corporate performance of quoted oil and gas firms in Nigeria. *Journal of Global Accounting, 6*, 1-21

Freeman, R. E., Dmytriyev, S. D., & Phillips, R. A. (2021). Stakeholder theory and the resource-based view of the firm. *Journal of management*, *47*(7), 1757-1770.

Ige, J. O., Olowookere, J. K., &Adenle, O. E. (2026). Environmental Accounting Disclosures and Financial Performance of Listed Industrial Firms in Nigeria. *Journal of Family Business & Management Studies*, *18*(1).

Mbonu, C.M. & Ndubuisi, A.N. (2022). Effect of corporate social responsibility costs on financial performance of listed deposit money banks in Nigeria. *Journal of Global Accounting, 8*(1), 40 - 52.

Mbonu, C.M., & Amahalu, N.N. (2023). Strategic management and environmental disclosure of listed consumer goods companies in Nigeria. *International Journal of Research Publication and Reviews, 4*(6), 2658-2668.

Modozie, E.C., & Amahalu, N.N. (2022). Effect of board structure on sustainability reporting of listed industrial goods firms in Nigeria. *International Journal of Management Studies and Social Science Research, 4(*1), 204-215

Ndubuisi, A.N,, Ndulue, G.C. & Okafor, O.O. (2025). Board characterisitcs and carbon emission discloure of listed Oil and Gas firms in Nigeria, *Journal of Global Accounting, 11*(3), 40 - 57. Available:https://journals.unizik.edu.ng/joga

Ndubuisi, A.N., & Okudo, C.L. (2023). Effect of corporate social responsibility on financial performance of quoted oil and gas firms in Nigeria. *Research Journal of Management Practice, 3*(3), 25-38.

Ndubuisi, A.N., King, S.O., Okafor, O.O. & Ozoji, A.P. (2025). Financial management practices and economic performance of listed service firms in Nigeria: Moderating role of firm size, *International Review of Financial Studies, 2*(2), 114 - 140. Available: https://journals.unizik.edu.ng/irofs

Ndubuisi, A.N., Okoye, P.V., & Obi, J.C. (2018). Effect of sustainability reporting on economic value added of quoted brewery firms in Nigeria. *Journal of Accounting, 7*(1), 1-20.

Ndubuisi, N.N., & Moedu, V.O. (2023). Triple bottom line reporting and financial performance of quoted oil and gas firms in Nigeria. *International Journal of Research Publication and Reviews, 4*(4), 1172-1180.

Nwankwo, C.K., Amahalu, N.N., Nwagbala, S.C. & Okafor, O.O. (2024). Capital structure and economic performance of listed consumer goods firms in Nigeria, *Journal of Global Accounting*, 10(3), 122 – 138

Nzekwe, O.G., Okoye, P.V.C., & Amahalu, N.N. (2021). Effect of sustainability reporting on financial performance of quoted industrial goods companies in Nigeria. *International Journal of Management Studies and Social Science Research, 3*(5), 265-280.

Obumneme, O.O., Amahalu, N.N., & Oranefo, P.C. (2026). Board independence and profitability of listed service firms in Nigeria. *Asian Journal of Economics, Business and Accounting 26* (2),246-57

Ofurum, C. O., &Iwunna, A. S. (2022). Environmental cost disclosure and financial performance of listed oil and gas companies in Nigeria. *IOSR Journal of Business and Management (IOSR-JBM), 24*(7, Ser. VII), 67–74. https://doi.org/10.9790/487X-2407076774

Okafor, O.O., Egbunike, P.A., & Amahalu, N.N. (2022). Determinants of environmental disclosure of quoted oil and gas firms in Nigeria. *International Journal of Management Studies and Social Science Research, 4*(1), 77-88.

Okoye, P.V.C., Amahalu, N.N., & Okoye, J.N., & Obi, J.C. (2022). Effect of ownership structure on sustainability reporting assurance practice: evidence from quoted oil and gas firms in nigeria. Journal of Accounting, 11(1), 19-31.

Okudo, A.G., & Ndubuisi, N.A. (2021). Corporate governance and carbon disclosure practices of quoted manufacturing firms in Nigeria. *International Journal of Contemporary Research and Review, 12* (07), 20420-20433

Okudo, C.L., Ezechukwu, B.O., & Amahalu, N.N. (2022). Dividend policy and financial performance of quoted brewery firms in Nigeria. *International Journal of Science Academic Research, 03*(10), 4494-4498.

Okudo, C.L; & Amahalu, N.N. (2023). Effect of environmental accounting on profitability of listed oil and gas firms in Nigeria. *International Journal of Advanced Academic Research, 9*(3), 47-61.

Oshiole, S., Elamah, A.F., & Amahalu, N.N. (2020). Effect of environmental cost disclosure on profitability of listed oil and gas firms in Nigeria. *International Journal of Academic Research in Accounting, Finance and Management Sciences 10*(2), 157-170

Salihu, M. A., Olanisebe, M. B., & Rabiu, N. B. (2025). Does environmental cost influence financial performance in Nigeria? Evidence from listed downstream oil and gas firms. *Journal of Global Accounting, 11*(1), 97-114.

Udo, C.U., Oraka, A.O., & Amahalu, N.N. (2022). Female directors and corporate sustainability of quoted conglomerates in Nigeria. *International Journal of Management Studies and Social Science Research, 4*(1), 131 – 143.