Dutse Business Review (DBR): Volume 1, Issue 1 (2026) ISSN Print: 3156-4062 eISSN:3156-4852

EFFECT OF ENVIRONMENTAL COST DISCLOSURE ON FINANCIAL PERFORMANCE OF LISTED OIL AND GAS COMPANIES IN NIGERIA

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Abstract

This study examined the effect of Environmental Cost Disclosure (ECD) on the financial performance of listed oil and gas companies in Nigeria. An ex-post facto research design was adopted using panel data drawn from six (6) listed oil and gas companies on the Nigerian Exchange Group as of 31st December 2024. A census sampling method was used to sample the whole listed oil and gas companies. The study adopts Pooled Mean Group (PMG) estimation techniques to gauge the effect of the explanatory variables on Asset Turnover (ATO), separating the long-run and short-run dynamics. In the long run, ECD has a coefficient of -0.0523 with a p-value of 0.802 in the long run, and a coefficient value of -0.0123 and a p-value of 0.953 in the short run indicate that, although ECD tends to reduce ATO, its influence is too weak to be considered meaningful in the long run. Similarly, Firm Size (FSZ) has a coefficient of 77.835 and a p-value of 0.000 in the long run, and a coefficient value of -43.716 with a p-value of 0.000 signifies that short-run increases in firm size reduce ATO significantly, possibly because expansion may initially come with inefficiencies or adjustment pressures before long-run gains are realised. However, larger firms are likely to experience better ATO in the long-run. The study, therefore, concludes that ECD has no significant effect on ATO in both the short run and long run of listed oil and gas firms in Nigeria. The study recommends that the Financial Reporting Council (FRC) and the National Oil Spill Detection and Response Agency (NOSDRA) review the existing reporting framework to include more environmental cost disclosure items.

Keywords: **Assets Turnover, Environmental Cost Disclosure, Financial Performance, Firm Size**

1. INTRODUCTION

Research on climate change and related factors continues to advance; there is an increasing recognition of the necessity to move beyond traditional business practices. Environmental cost disclosure is of great importance to all stakeholders in the oil industry. Adhering to good environmental practices plays a crucial role in reducing financial risk and reinforcing the firm's commitment to social, governance, and environmental disclosure (Liu et al, 2021). Given the significant global challenges the world is facing, disclosure represents an initial effort to manage and mitigate environmental impact (Erinnoso et al., 2022). The components of sustainability reporting, including environmental factors, are aimed at creating future value (Buallay, 2019).

However, it is important to note that environmental initiatives, without proper disclosure, may have minimal impact m on a firm's financial performance (Ekoye et al., 2024). In this context, disclosure refers to the measurement and reporting of information about a company's

environmental performance and impacts. This allows investors to gain a better understanding of how these factors relate to the future success of the business.

The oil and gas industry greatly impacts the global economy. Abdulsalam et al. (2020) mentioned that oil and gas companies are crucial in driving economic growth and carry significant responsibilities within the communities they operate in. As of 2025, Nigeria is one of the world's top 10 largest producers of crude oil, with a daily production capacity of over 2 million barrels. The oil industry recognises its interconnectedness with the environment, especially during a period of heightened awareness regarding the detrimental effects of unsustainable social and business activities on the environment. This implies taking initial steps to effectively manage direct environmental effects, including resource consumption and waste generation, and striving to encourage broader environmental improvements among suppliers and other stakeholders, wherever feasible.

Some studies report that environmental reporting imposes additional costs that may erode short-term profitability, particularly in cost-sensitive industries such as oil and gas. In contrast, others find that firms with more robust environmental disclosures enjoy superior financial outcomes, including higher margins, improved shareholder wealth, and better risk profiles. These conflicting findings create uncertainty for managers and policymakers regarding whether, and under what conditions, environmental cost disclosure enhances or undermines firm performance in the Nigerian context. Stakeholders are urging oil firms to improve transparency and environmental cost disclosure, yet many firms provide selective or qualitative disclosures, raising concerns about their credibility.

While environmental disclosures could theoretically enhance financial performance, evidence on this relationship is mixed. Furthermore, the effect of environmental cost disclosure on financial outcomes remains under-researched. There is an urgent need for empirical studies to evaluate the impact of environmental cost disclosure on the financial performance of Nigeria's listed oil and gas companies. Based on the foregoing, the main objective of this paper is to investigate the effect of environmental cost disclosure on the financial performance of listed oil and gas companies in Nigeria.

II. LITERATURE REVIEW

2.1 Conceptual Review

The conceptual review in this study provides a systematic examination of the key constructs that underpin the research, namely, environmental cost disclosure and financial performance in the Nigerian oil and gas sector.

2.1.1 Environmental Cost

Environmental costs are costs incurred by companies to protect the environment, prevent environmental problems and minimise damage to the environment. They are those costs incurred in compliance with, or prevention of breach of, environmental laws, regulations and company policies. However, the true environmental costs to a firm can be far broader, including costs of resources, both those directly related to production and those involved in general business operations, waste treatment and disposal costs, the costs of poor environmental reputation and the cost of paying an environmental risk premium (Liu et al, 2021).

2.1.2 Financial performance

Financial performance can also be defined in terms of operational efficiency. Efficiency refers to how well a company manages its resources to achieve its financial goals. In this regard, financial performance is measured by examining how effectively a company converts inputs (capital, labour, materials) into outputs (goods and services). According to Helfert (2001), financial performance in terms of operational efficiency can be evaluated using ratios like asset turnover and inventory turnover. These metrics reveal how efficiently a company is utilising its assets to generate sales and whether it is optimising its operations to maintain cost-effective processes.

Asset turnover measures the efficiency with which a company uses its assets to generate revenue. It is calculated as revenue divided by average total assets (Brigham & Houston, 2019). It is a financial metric that shows how well a company's assets are used to produce sales, reflecting operational performance (Gitman et al., 2021). Asset turnover is a ratio that assesses the productivity of assets in generating income, often used as a benchmark in evaluating managerial effectiveness (Ross et al., 2020).

2.1.3 Environmental Cost Disclosure and Financial Performance

Research suggests that there is a positive relationship between environmental disclosure and financial performance. Companies that are more transparent about their environmental impact often gain a competitive advantage by improving their reputation, attracting environmentally conscious investors, and enhancing stakeholder trust. According to Clarkson et al. (2020), firms that voluntarily disclose detailed environmental information are perceived as being more accountable and responsible, which can lead to increased investor confidence and, subsequently, better financial performance. These companies often benefit from stronger customer loyalty, improved employee satisfaction, and enhanced brand equity, all of which contribute to long-term profitability. Studies by Al-Tuwaijri et al. (2019) demonstrate that firms with better environmental performance tend to have higher financial performance, suggesting that effective environmental management not only minimizes risks but also enhances operational efficiency, reducing costs over time.

2.2 Empirical Review

Hassel et al. (2020) analysed the value relevance of environmental performance and its relationship to asset turnover. Using regression and correlation analysis, they reported that firms with superior environmental disclosures achieved greater operational efficiency. Stakeholders viewed these firms as more competent in managing resources, further driving their asset turnover. Additionally, Daniel and Ambrose (2020) employed a simultaneous equations model to examine the interplay between environmental disclosures, environmental performance, and economic outcomes. Their findings confirmed a strong positive association between environmental reporting and asset turnover, indicating that such practices enhance resource efficiency and operational capabilities.

Brammer and Pavelin (2020), for instance, studied UK firms and reported that environmental disclosures improved operational efficiency and asset turnover. However, the effect was stronger in industries with heightened regulatory and stakeholder scrutiny. Similarly, Akbas (2014) examined Turkish firms. They found that the strength of the relationship between ECD and asset turnover varied by sector, with manufacturing and energy firms demonstrating more substantial effects than service-based companies.

Clarkson et al. (2020) investigated the effects of proactive environmental strategies on firm performance, including asset turnover. Their study, using regression analysis on a sample of firms from environmentally sensitive industries, found that robust environmental disclosures were associated with increased asset turnover. The study attributed this to improved operational processes and stronger stakeholder trust. Similarly, Egbunike and Tarilaye (2017) focused on Nigerian firms and demonstrated through panel data regression that companies with comprehensive ECD experienced enhanced asset utilisation, resulting in higher turnover ratios.

Oba et al. (2012) explored how governance structures, such as the presence of non-executive directors, influence the impact of ECD on asset turnover in Nigerian firms. Their findings suggested that improved governance mechanisms encouraged better resource utilisation, indirectly enhancing asset turnover. However, the strength of this relationship was contingent on the quality of governance and industry-specific factors.

Zhang et al. (2019) analysed the effects of environmental cost disclosure (ECD) on asset turnover of Chinese firms in environmentally sensitive industries. Using structural equation modelling, the study showed that ECD practices contributed to better utilisation of assets by reducing inefficiencies and optimising resource allocation.

2.3 Theoretical Framework

This study is guided by agency theory and signalling theory. Agency theory, developed by Jensen and Meckling (2000), examines the relationship and conflicts between shareholders (principals) and managers (agents). It highlights how information asymmetry leads to agency costs, which include monitoring costs, bonding costs, and residual loss. Signalling theory, established by Spence (2002), elucidates how organisations use disclosures to convey their quality and performance to stakeholders in the context of information asymmetry. High-performing environmental entities are driven to reveal environmental expenditures to distinguish themselves, attract investors, reduce capital expenses, and augment company value.

III. METHODOLOGY

3.1 Research Design

This study adopted an ex-post facto research design. The population of the study consists of six (6) listed oil and gas firms on the Nigerian exchange group limited as of 31st December 2024. The study employed a census sampling method to select the six (6) listed oil and gas firms as the sample size. This study relied entirely on secondary data obtained from the published reports of listed downstream oil and gas companies in Nigeria from 2000 to 2024 financial periods. This study employed both descriptive and inferential statistics analysis.

3.2 Measurement of Variables

The dependent variable used in this study is the firm's financial performance, proxied by Asset Turnover (ATO). The independent variable is environmental cost disclosure, while the control variable employed is firm size.

Table 1: Summary of Variables Operationalisation

Variables	Proxy	Measurement	Sources

Dependent Variable	Asset turnover	Measured as Turnover / total assets.	(Chen et al. 2019)
Independent variables	Environmental cost disclosure	A dummy variable, if a firm fully disclosed cost or commitment on waste management, air pollution, or soil contamination, is ascribed 1, partial disclosure 2, non-disclosure 0.	(Abdussalam et al 2020)
Control variables	Firm size	Log of total revenue	(Abdulsalam et al. 2020;)

3.2 Model Specification

This study adapts the model of Khan et al. (2022). The adapted model was modified and stated as follows:

$$ATO_{it} = \beta_0 + \beta_1 ECD_{it} + \beta_3 FSZ_{it} + \mu_{it}$$

Where:

ATO = assets turnover ratio
ECD = environmental cost disclosure
FSZ = firm size

IV. RESULTS

4.1 Descriptive Statistics

The results of the descriptive statistics using mean, maximum, minimum, and standard deviation are presented in Table 2.

Table 2: Descriptive Statistics Analysis

Variables	Mean	Std. Dev	Min	Max.
ATO	1.2929	2.9510	5.8477	5.5006
ECD	0.0	0.0	0.0	0.0
FSZ	10.712	0.7606	8.6361	12.218

Source: E-View 14 Output (2025).

The average mean value for financial performance, measured with Asset Turnover (ATO is 1.2, while the average mean value for environmental cost disclosure is 0.0. The average mean value of 1.2 indicates that firms are generating a modest level of revenue relative to their total assets. This suggests some level of efficiency in asset utilisation, although variability among firms may exist. The average value of 0.0 suggests a lack of variability in how firms disclose their environmental costs, possibly indicating a compliance-driven approach rather than genuine transparency.

4.2 Multicollinearity Test

The multicollinearity test is carried out to ensure the regression model is properly specified, that the relationships between variables are not redundant, and that the results are statistically valid and meaningful. The results are presented in Table 3.

Table 3: Results of Multicollinearity Test

Variables	NED	FSZ
ATO	-0.1124	-0.5230
NED	1	0.0749
FSZ	0.0749	1

Source: E-View 14 Output (2025).

Table 3 revealed the results of the multicollinearity via correlation. Evidence from the findings suggested that there is no presence of multicollinearity among the parameters used in this model, as is evident by the coefficient correlation of less than 0.70 across all the parameters employed in this model.

4.3 Regression Estimation Results

Table 4: Results of the Adopted Model (PMG Estimation)

LONG RUN				
Dependent Variable: ATO				
Independent Var.	**Coefficient**	**Standard Error**	**z- Statistics**	**P-value**
ECD	-0.0523	0.2093	-0.25	0.802
FSZ	77.835	5.3250	14.62	0.000***
SHORT RUN				
Dependent Variable: ATO				
Independent Var.	**Coefficient**	**Standard Error**	**z- Statistics**	**P-value**
ECD	-0.0123	0.2080	-0.06	0.953
FSZ	-43.716	10.562	-4.14	0.000***
Constant	21.806	11.021	1.98	0.048**

Source: E-View 14 Output (2025). **Note**: Significance Sign. 1%, 5%, and 10%

The results in Table 4 present the adopted Pooled Mean Group (PMG) estimation for the effect of the explanatory variables on ATO, separating the long-run and short-run dynamics. In the long run, ECD has a coefficient of -0.0523 with a p-value of 0.802, indicating that it has a negative but statistically insignificant effect on ATO. This means that, although ECD tends to reduce ATO, its influence is too weak to be considered meaningful in the long run.

Similarly, FSZ has a coefficient of 77.835 and a p-value of 0.000, suggesting that it exerts a positive and statistically significant influence on ATO in the long run. This means that firm size contributes meaningfully to improving ATO over time. The significance of this variable indicates that larger firms are likely to experience better asset turnover in the long-run period.

In the short run, ECD has a coefficient of -0.0123 with a p-value of 0.953, showing that it has a negative but insignificant effect on ATO. This means that short-run changes in ECD do not produce any meaningful immediate effect on ATO.

Likewise, FSZ has a coefficient of -43.716 with a p-value of 0.000, indicating a negative and significant short-run effect on ATO. This means that short-run increases in firm size reduce ATO significantly, possibly because expansion may initially come with inefficiencies or adjustment pressures before long-run gains are realised.

4.4 DISCUSSION OF RESULTS

This section presents the discussion of findings on examining the effect of environmental cost disclosure on the financial performance of listed oil and gas companies on the Nigerian Exchange Group (NGX). In the short run, the study reveals a non-significant relationship between environmental cost disclosure and financial performance, measured by the asset turnover ratio. This implies that increased transparency in environmental costs does not immediately influence the efficiency with which companies utilise their assets. Environmental initiatives such as investment in cleaner technologies, waste management systems, and regulatory compliance often involve substantial initial costs and usually require time before they translate into measurable operational or financial benefits. This finding is consistent with the studies of Erinoso and Oyedokun (2022) and Ayuba T, et al (2023), which concluded that environmental initiatives often take time to yield tangible benefits and that the weak enforcement or voluntary nature of disclosure may limit their immediate effect on asset efficiency.

The study also found a negative and statistically significant short-run relationship between firm size and asset turnover ratio, implying that larger firms in the Nigerian oil and gas sector may experience lower asset utilisation efficiency in the immediate term. Larger firms often operate with more complex administrative structures and slower internal processes, which can reduce responsiveness and operational efficiency. Similarly, major investments in infrastructure may not become productive immediately or may exceed current operational demand, thereby depressing asset turnover in the short run. This result is in line with the findings of Ehiedu and Chika (2022), who reported that firm size had no significant relationship with return on assets in Nigerian oil and gas firms.

The results of this study reveal that environmental cost disclosure has no significant long-run relationship with the asset turnover ratio of listed oil and gas companies in Nigeria. This implies that, despite the growing global emphasis on environmental transparency, such disclosures have not yet translated into improved operational efficiency within the Nigerian context. This finding is consistent with the studies of Abiodun et al. (2024) and Uwuigbe et al. (2020), who argued that, in many developing economies, environmental disclosures are often symbolic or compliance-driven rather than strategically embedded in core business operations.

The study found a positive and statistically significant relationship between firm size and the asset turnover ratio of listed oil and gas companies in Nigeria. This indicates that larger firms tend to perform better in terms of asset utilisation. This finding is in line with Ibrahim and Lawal (2023) and Egbunike and Tarilaye (2022), who maintained that larger firms often benefit from economies of scale, more efficient asset management systems, and better access to technology and finance, all of which contribute to improved asset turnover.

V. Concluding Remarks

5.1 Conclusion

The study concludes that environmental cost disclosure has no significant effect on asset turnover in both the short run and the long run of listed oil and gas firms in Nigeria. This implies that in the absence of strict regulatory enforcement, firms may engage in minimal or symbolic environmental disclosures, sometimes described as greenwashing, which do not necessarily reflect meaningful environmental performance or operational improvement. Firm size interacts with environmental cost disclosure in complex ways, at times strengthening and at other times weakening financial

performance. This means that organisational scale and complexity may shape the extent to which board oversight and disclosure practices translate into improved firm performance.

5.2 Recommendation

The paper recommends that the regulators, the Financial Reporting Council (FRC) and the National Oil Spill Detection and Response Agency (NOSDRA) should review the existing reporting framework to include more environmental cost disclosure items.

REFERENCES

Abdulsalam, N., & Babangida, M. A. (2020). Effect of sales and firm size on sustainability reporting practice of oil and gas companies in Nigeria. *Quest Journals Journal of Research in Business and Management*, *8*(1), 2347–3002.

Abiodun, A. O., Ukhurebor, K. E., Alamu, F., Ayodeji, I., Adeyemo, A., Emuoyibofarhe, O. N., & Talabi, A. A. (2024). Factors associated with poor perceptions of the COVID-19 pandemic in Africa. *Journal of Infrastructure, Policy and Development*, *8*(8), 4770.

Ayuba, T., & Yunusa, G. (2023). Impact of environmental and social disclosure on return on assets of listed oil and gas companies in Nigeria. *International Journal of Finance and Accounting*, *8*(1), 23-35.

Brammer, S., & Millington, A. (2022). Does it pay to be different? An analysis of the relationship between corporate social and financial performance. *Strategic Management Journal, 29*(12), 1325–1343.

Buallay, A. (2019). Between cost and value: Investigating the effects of sustainability reporting on a firm's performance. *Journal of applied accounting research*, *20*(4), 481-496.

Al-Tuwaijri, S. A., Christensen, T. E., & Hughes, K. E. (2019). *The relations among environmental disclosure, environmental performance, and economic performance: A simultaneous equations approach.* Accounting, Organisations and Society, 29(5-6), 447–471.

Akbas, H. E. (2019). The relationship between board characteristics and environmental disclosure: Evidence from Turkish listed companies. *South East European Journal of Economics and Business (Online)*, *11*(2), 7.

Brigham, E. F., & Houston, J. F. (2019). *Fundamentals of financial management*. Cengage Learning.

Clarkson, P. M., Overall, M. B., & Chapple, L. (2020). Environmental reporting and its relation to corporate environmental performance. *Abacus*, 47(1), 27-60.

Daniel, M. M. & Ambrose, J. (2020). Environmental Accounting and Firm Profitability: An Empirical Analysis of Selected Firms Listed in Bombay Stock Exchange, India. *International Journal of Humanities and Social Science, 3*(18), 248–256.

Egbunike, C. F., & Tarilaye, N. K. (2022). Environmental cost disclosure and financial performance of quoted firms in Nigeria. *Research Journal of Finance and Accounting, 8*(4), 36–47.

Ehiedu, V. C. (2022). Tax revenue volatility and its implications on Nigeria's economic growth. *Finance & accounting research journal*, *4*(4), 109–128.

Okoye, N. C., Oranefofor, P. C., & Agu, S. I. (2024). Empirical study of the effect of sustainability accounting disclosures on the financial performance of Brewery firms in Nigeria: Evidence from Nigerian Breweries PLC. *European Journal of Accounting, Auditing and Finance Research*, *12*(4), 109–123.

Gitman, M. R., Shaban, M. V., Paniz-Mondolfi, A. E., & Sordillo, E. M. (2021). Laboratory diagnosis of SARS-CoV-2 pneumonia. *Diagnostics*, *11*(7), 1270.

Erinnoso, O. Mary and Oyedokun, E. Godwin published the 2022 study, *"Environmental Conservation, Sustainability and Financial Performance of listed Oil and Gas Companies in Nigeria"*

Hassel, L., Nilsson, H., & Nyquist, S. (2020). The value relevance of environmental performance. *European Accounting Review, 14*(1), 41–61.

Helfert, E. A. (2001). Financial Analysis Tools and Techniques: A Guide for Managers. McGraw-Hill.

Ibrahim, M., & Lawal, S. (2023). Taxpayers' Compliance Behaviour Under Self-Assessment Basis: A Study of Small and Medium Enterprises (SMES) in Gombe State, Nigeria. In *Proceedings. 7th Annual International Academic Conference on Accounting and Finance Disruptive Technology: Accounting Practices, Financial and Sustainability Reporting: Port Harcourt*.

Spence, M. (2002). Signaling in retrospect and the informational structure of markets. *American Economic Review*, *92*(3), 434–459.

Ross, R., Chaput, J. P., Giangregorio, L. M., Janssen, I., Saunders, T. J., Kho, M. E., ... & Tremblay, M. S. (2020). Canadian 24-hour movement guidelines for adults aged 18–64 years and adults aged 65 years or older: an integration of physical activity, sedentary behaviour, and sleep. *Applied physiology, nutrition, and metabolism*, *45*(10), S57-S102.

Jensen, M. C., & Meckling, W. H. (2000). Theory of the firm: Managerial behaviour, agency costs, and ownership structure. *Journal of Financial Economics, 3*(4), 305–360.

Liu, X., Li, S., & Wang, T. (2021). Non-executive directors, environmental cost disclosure, and corporate financial performance. *Journal of Business Ethics, 157*(2), 475–490.

Oba, V. C., Fodio, M. I., & Soje, B. (2019). Determinants of Voluntary Environmental Disclosures in Nigeria. *Research Journal of Finance and Accounting*, 3(7), 27-37.

Zhang, J., Zhao, Y., Chen, C., Huang, Y. C., Dong, C. L., Chen, C. J., ... & Wang, G. (2021). Tuning the coordination environment in single-atom catalysts to achieve highly efficient oxygen reduction reactions. *Journal of the American Chemical Society*, *141*(51), 20118–20126.

Appendix

Table 3.1: Population of the Study

S/N	Firm	Status of companies	Year of Incorporation	Year of Listing
1	Conoil Plc	Listed	1960	1989
2	Eternal O & G Plc	Listed	1989	1998
3	MRS Oil Nig. Plc	Listed	1969	1978
4	Total Nigeria Plc	Listed	1956	1979
5	Capital Oil Plc	Listed	1985	1990
6	Sepalat Pet. Comp Plc	Listed	2009	2013

Source: Nigerian Exchange Group (2024).