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RESEARCH ARTICLE

Influence of Firm Characteristics on Environmental Sustainability Reporting in Nigerian Firms

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Abstract

The study examined the influence of firm characteristics on environmental sustainability reporting among Nigerian manufacturing firms. Specifically, it investigated the effect of financial leverage and industry type on environmental sustainability reporting. An ex post facto research design was adopted, relying on secondary data obtained from the annual reports and accounts of listed manufacturing firms in Nigeria. The study employed panel data techniques, and the analysis was conducted using EViews 10 and STATA 14.2. The empirical results indicate that financial leverage exerts a positive but statistically insignificant effect on environmental sustainability reporting, suggesting that variations in firms' debt structure do not meaningfully explain differences in sustainability disclosure practices. In contrast, industry type was found to have a positive and statistically significant effect on environmental sustainability reporting, highlighting the role of sector-specific characteristics in shaping disclosure behaviour. The findings imply that environmental sustainability reporting among Nigerian manufacturing firms is more strongly influenced by industry-related factors than by financial leverage considerations. The study recommends that regulators and policymakers, including the Financial Reporting Council of Nigeria and the Nigerian Exchange Group, strengthen industry-specific sustainability disclosure guidelines to enhance consistency and comparability of environmental reporting practices.

Keywords	*Firm Characteristics; Environmental Sustainability Reporting; Financial Leverage*
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Introduction

In the contemporary business environment, environmental sustainability reporting (ESR) has become a central element of corporate accountability and governance. With increased global focus on climate change, environmental degradation, and sustainable development goals (SDGs), firms are now expected to disclose the environmental impacts of their activities and the strategies adopted to mitigate them (Eccles & Klimenko, 2019; Schaltegger et al., 2022). Environmental sustainability reporting, often integrated within broader corporate social responsibility (CSR) or environmental, social, and governance (ESG) frameworks, serves not only as a communication tool with stakeholders but also as an indicator of firms' commitment to long-term value creation beyond short-term financial performance (Fernando & Lawrence, 2021).

The extent and quality of environmental reporting, however, vary significantly across firms, often influenced by a set of firm-specific characteristics such as firm size, age, profitability, ownership structure, leverage, industry type, and board composition (García-Sánchez et al., 2020; Uwuigbe et al., 2018). Larger firms, due to higher visibility and stakeholder scrutiny, are more likely to engage extensively in environmental disclosures compared to smaller firms. Similarly, firms in environmentally sensitive industries such as oil, gas, and manufacturing face pressure to provide detailed sustainability reports to maintain legitimacy and comply with both local and international regulatory expectations (Adamu & Sani, 2021; Kalu et al., 2020). Ownership structure and corporate governance quality measured through board independence, gender diversity, and expertise also play a major role in shaping disclosure practices, as they determine how sustainability priorities are internalized at strategic decision-making levels (Nigerian Stock Exchange [NGX], 2020).

In Nigeria, environmental sustainability reporting has gained prominence, particularly with the introduction of the Nigerian Sustainable Banking Principles (NSBP) in 2012, and the Nigerian Code of Corporate Governance (2018), as well as the 2020 NGX Sustainability Disclosure Guidelines. Despite these regulatory frameworks, disclosure practices remain inconsistent, often limited to larger firms and industries under greater international scrutiny, while smaller or less visible firms lag behind (Okere et al., 2021; Okafor & Adeleye, 2022). Empirical evidence suggests that while Nigerian firms demonstrate awareness of sustainability imperatives, reporting levels are still largely voluntary and influenced by organizational characteristics rather than uniformly applied regulatory enforcement (Iyoha et al., 2022).

This context highlights the centrality of firm characteristics in shaping environmental reporting behaviour. In industries such as oil and gas, where Nigeria derives a substantial portion of its national income, firms face significant stakeholder pressure, both locally and globally, to account for environmental externalities such as oil spills, gas flaring, and deforestation (Oba et al., 2020). Conversely, firms outside environmentally-sensitive industries often provide symbolic or minimal disclosures, raising questions about the depth of corporate commitment to sustainability beyond compliance or reputational management. Given the strategic importance of sustainability for global competitiveness and national development, understanding how firm-level characteristics influence environmental sustainability reporting in Nigeria provides valuable insights into the drivers of disclosure practices. Such an understanding is crucial for policymakers, regulators, investors, and stakeholders seeking to enhance transparency, strengthen ESG accountability, and align Nigerian businesses with international best practices in sustainable development.

Statement of the Problem

In recent years, environmental sustainability reporting has gained prominence as a critical aspect of corporate governance, reflecting a firm's commitment to environmental stewardship and social responsibility. However, the extent and quality of such reporting among Nigerian firms remain inconsistent and largely underexplored. This inconsistency raises questions about the underlying factors influencing environmental sustainability reporting practices in the Nigerian context. Particularly, firm characteristics such as size, ownership structure, industry type, and financial performance may significantly impact the way organizations approach and execute their sustainability reporting. Despite the growing body of literature on sustainability reporting globally, there is a lack of empirical research focused on how these specific firm characteristics influence the environmental reporting practices of Nigerian firms.

Understanding these dynamics is essential for policymakers, stakeholders, and researchers aiming to enhance the quality and effectiveness of environmental sustainability reporting in Nigeria. This study seeks to investigate the relationship between various firm characteristics and the level of environmental sustainability reporting in Nigerian firms, thereby identifying key trends and gaps that can inform better practices and regulatory frameworks in the country.

Objective of the Study

The main objective is to examine the Influence of Firm Characteristic on Environmental Sustainability Reporting in Nigerian Firms. The specific objectives were to;

i. Determine the effect of financial leverage on environmental sustainability reporting in Nigerian Firms.
ii. Evaluate the effect of industrial type on environmental sustainability reporting in Nigerian Firms.

Hypotheses of the Study

i. Financial leverage has no significant effect on the environmental disclosure index of quoted manufacturing firms in Nigeria.
ii. Industrial type has no significant effect on the environmental disclosure index of quoted manufacturing firms in Nigeria.

Review of Related Literature

Conceptual Review

Firm Characteristics

Descriptive features of information about a company, its goods, and services that might influence a decision-maker's perspective are known as firm characteristics. Scholars have used parameters such as firm size, firm age, capital intensity, asset tangibility, total assets, turnover, liquidity, financial leverage, profitability, effective tax rates, audit firm size, number of employees, industry membership, audit committee size and composition, degree of foreign affiliation, market capitalization, and others. These characteristics offer essential guidelines for analyzing and understanding a company, leading to different conceptualizations in research projects (Sulaiman et al., 2018). According to some studies, corporate traits are also referred to as company characteristics (Aluwong & Fodio, 2019). These traits categorize a business as an independent unit or entity that produces goods or provides services to the public (Zayol et al, 2021). Orajekwe and Ogbodo (2023) state that firm characteristics are the unique traits and identities that give a company a noticeable competitive edge.

Financial Leverage

One indicator of a company's long-term obligations relative to its long-term liabilities in its capital structure is leverage. It shows a company's underwriting ability, both now and in the future (Enekwe et al., 2014). Adenugba et al. (2016) define financial leverage as the use of debt to purchase additional assets. According to Hallgren and Johansson (2016) and Wahyuningsih & Mahdar (2018), a company's amount of leverage is a gauge of its financial risk. This indicates that although low-leveraged companies rely more on owners' equity capital, high-leveraged companies rely more on outside funding. Wahyuningsih & Mahdar, 2018; Gantyowati & Agustine, 2017). Leverage gives the writer the authority to request thorough disclosure of pertinent information that will help them form an opinion of the creditors, as it shows how much a company depends on them to fund its operations (Wahyuningsih & Mahdar, 2018; Angela & Handoyo, 2021). Financial leverage, as viewed through the lens of accounting and finance, is a ratio that expresses the amount of debt deflated by the firm's total assets or shareholders' equity.

Industry Type

The classification of companies based on their main products or services is called industry type, and it influences customer behavior, market strategies, and competitive dynamics. Keller & Kotler (2016). Standardized classifications categorize businesses by their primary activity, making economic research and reporting simpler. The United States, 2017. Additionally, Hassan and Guo (2017) noted that companies in carbon-heavy industries often produce independent environmental reports to present themselves as ethical, even if their actions suggest otherwise. An organization's industry type refers to the specific sector in which it operates (Omoye & Wilson-Oshilim, 2018). Some businesses can be dangerous to people, especially those that impact the environment through waste and pollution. An industry type is classified based on a company's main activities, which helps facilitate systematic research and comparison across related sectors (FTSE 2020). According to Alabi and Usman (2024), companies in environmentally sensitive industries tend to report more environmental information than those in less prominent industries.

Environmental Sustainability Reporting

Dagiliene (2014) summarized the idea as organizational solutions that meet the needs of both direct and indirect stakeholders while considering future generations. Furthermore, according to English and Schooley (2014), sustainability reporting is a business strategy choice that combines sustainability concerns with financial reporting and provides stakeholders and management with comprehensive data for decision-making. Environmental reporting is an approach for maintaining the social license to operate; stakeholder theory describes disclosure as a response to demands from various parties. When sustainability indicators are included in corporate reporting frameworks, it promotes greater accountability and provides stakeholders with useful information about a company's social and environmental impacts. Serafeim & Eccles (2017). Environmental sustainability reporting, as defined by Chery (2019), is the process through which management informs the public about the environmental effects of corporate operations and the steps taken to reduce those effects by disclosing related environmental data.

Theoretical Review

Information Asymmetry Theory

George Akerlof’s theory of information asymmetry, proposed in 1970, explains the imbalance of information in business transactions where one party often possesses more critical and material information than the other. This gap can cause market inefficiencies, exploitation, and restrict investor decisions about a company’s market position. A key way to address information asymmetry is through mechanisms that improve companies' accurate reporting of their environmental impact and strengthen overall information disclosure. The theory emphasizes that information is crucial in shaping a firm’s market position, indicating that the quality of information available significantly influences stakeholder decisions about the company. As stakeholders increasingly analyze companies’ actions and decisions, it encourages companies to enhance their transparency and information sharing. This highlights the importance of this theory to this study.

Empirical Reviews

Mohammed (2015) conducted a study on Do firm size and financial performance affect corporate social Disclosure in Saudi-listed firms? The study aims to explore the affiliation between firm size, profitability, and leverage with corporate social responsibility reporting (CSRD) using 73 listed Industrial public shareholding companies in the Amman Stock Exchange (ASE). The study performed regression analysis and measured the quantity of CSRD in the annual reports of the chosen firms using a CSRD checklist. Corporate Social Responsibility Disclosure levels were based on the content analysis of the companies’ annual reports for 2013 and grouped into CSRD1 (employees' dimension) and CSRD2 (environmental activities dimension). According to the findings, firm size had a strong positive influence on both CSRD dimensions, while leverage had a significant negative impact on both. The profitability measure by return on equity had a negative, non-significant effect on the employees' dimension but a positive, non-significant effect on the environmental activities dimension, while the profitability measure by return on assets had a positive, significant impact on the employees' dimension but a positive, non-significant effect on the environmental activities dimension

Raymond et al (2016) in their work assessed the effect of sustainability accounting measures on the performance of corporate organizations in Nigeria. Ex post facto research design and time series data were adopted. Data for the study were collected from annual reports and accounts of the company in Nigeria. Formulated hypotheses were tested using Regression Analysis with the aid of SPSS Version 20.0. Based on the analysis, the study found that environmental cost does not have a positive impact on the revenue of corporate organizations in Nigeria, and that environmental cost has an impact on the profit generation of corporate organizations in Nigeria.

Sanusi and Sanusi (2019) examined the environmental sustainability reporting practices among quoted manufacturing firms in Nigeria and their effects on their financial performances. The study employs survey research using panel data from 2010 to 2015. This study adopts content analysis, descriptive, and inferential statistics as methods of analysis. The evidence provided in this study, based on the empirical findings, shows a fair representation of the popularity of environmental sustainability reporting among manufacturing firms in Nigeria, though the majority of the manufacturing firms reported very low levels of environmental disclosures. Environmental sustainability reporting indexes have positive effects on the measures of financial performance (earnings per share, revenue growth, and return on assets).

Angela and Handoyo (2021) conducted a study on the determinants of environmental disclosure quality: empirical evidence from Indonesia. To investigate the connection between business characteristics and the level of environmental disclosure of listed companies on the Indonesia Stock Exchange (IDX), they used content analysis of sustainability reporting and firm attributes such as size, ownership concentration, age, and leverage. 33 listed companies from 2014–2016 were included in the study's sample. The hypotheses were tested using panel multiple regression analysis. The findings demonstrated that the only factor that positively affects environmental disclosure in a statistically meaningful way is financial leverage.

Methodology

Research Design

The study adopts an **ex post facto research design**, relying on historical firm-level data to examine the effect of firm-specific characteristics on environmental sustainability reporting among Nigerian manufacturing firms. This design is appropriate because the variables investigated are not subject to manipulation and are analysed retrospectively based on observed outcomes.

Data Structure and Sample

The study employs **balanced panel data**, comprising observations drawn from listed manufacturing firms in Nigeria over the study period. The panel structure allows for the simultaneous examination of cross-sectional and time-series variations, thereby improving estimation efficiency and controlling for unobserved firm-specific heterogeneity. A total of **504 firm-year observations** were utilised in the analysis.

Variable Measurement

Environmental Sustainability Reporting (ESR) serves as the dependent variable and is measured using a disclosure index constructed from firms' published sustainability and annual reports. Financial leverage (FL), the primary explanatory variable, is measured as the ratio of total debt to total assets, capturing firms' reliance on debt financing. Industry type (IT) is included as a control variable to account for sectoral differences within the manufacturing industry that may influence disclosure practices.

Model Specification

The model specified below was used to establish the effects of the independent and control variables on dependent variables. Foundationally, this model takes its shape from the classical linear regression (CLR) form of the Ordinary Least Squares (OLS) regression technique. The panel multiple regression models adapted are specified as:

$Y = \beta_o + \beta_1 X_1 + \beta_2 X_2 + \beta_n X_n + \mu_t$ - - - (1)

Using the present research variables, the model in equation 3.1 above is presented as follows:
$esr\_1_t = \beta_o + \beta_1 fl_t + \beta_2 it_t + \mu_t$ - - - -- (2)

Where,

esr_1_t	=	Environmental sustainability reporting on a rating scale approach at time t,
β_o,	=	Constants,
$\beta_1, \beta_2, \beta, \ldots \beta_5, \beta_n$	=	Coefficient of the independent variables in the model,
roa_t	=	Return on Assets at time t,
fl_t	=	Financial leverage at time t,
it_t	=	Industrial Type at time t,
μ_t	=	Stochastic error associated with the model.

A robustness test was carried out using the environmental sustainability reporting on scores of contents as the dependent variable. The model is of this form:
$esr\_2_t = \beta_o + \beta_1 fl_t + \beta_2 it_t + \mu_t$ (1)

Estimation Technique

Given the panel nature of the data and the likelihood of heteroskedasticity, serial correlation, and cross-sectional dependence, the study employs the Prais–Winsten regression with panel-corrected standard errors (PCSE). This estimation technique is appropriate for panel datasets where error terms may be contemporaneously correlated across firms and autocorrelated over time. The use of PCSE ensures that coefficient estimates remain efficient and that statistical inferences are robust to violations of classical regression assumptions.

Preliminary Analyses

Descriptive statistics are first employed to summarise the distributional properties of the variables, including their means, dispersion, and range. This provides insight into the overall level and variability of environmental sustainability reporting and firm characteristics within the manufacturing sector. Correlation analysis is subsequently conducted to assess the degree of association among the variables and to ensure the absence of multicollinearity that could bias the regression estimates. The low correlation coefficients observed among the explanatory variables indicate that multicollinearity is not a concern in the model.

Hypothesis Testing

Hypotheses are tested using p-values derived from the Prais–Winsten regression estimates at the 5 percent level of significance. A null hypothesis is rejected where the associated p-value is less than 0.05; otherwise, it is accepted. This decision rule provides an objective basis for determining the statistical significance of the explanatory variables and their influence on environmental sustainability reporting.

Data Presentation and Analysis

Data Analysis and Empirical Results

Descriptive Statistics

Table 1: Descriptive Statistics

Variable	*Obs.*	*Mean*	*Std. Dev.*	*Min*	*Max*
ESR	504	0.225	0.036	0.143	0.314
FL	504	1.733	8.349	-105.380	131.080
IT	504	0.468	0.144	0.400	0.800

Source: Author's Computation (STATA 14.2 & EViews 10)

The descriptive statistics indicate that environmental sustainability reporting among Nigerian manufacturing firms remains moderate on average, suggesting partial compliance with disclosure expectations. The relatively low standard deviation of environmental sustainability reporting implies limited dispersion across firms, indicating that disclosure practices do not vary excessively within the sector. Financial leverage records a high standard deviation relative to its mean, reflecting substantial differences in capital structure across firms and confirming the heterogeneous nature of financing decisions in the manufacturing industry. Industry type displays moderate variability, suggesting structural differences across subsectors that may influence reporting behavior.

Correlation Analysis

Table 2: Pairwise Correlation Matrix

Variable	*ESR*	*FL*	*IT*
ESR	1.000		
FL	0.022	1.000	
IT	0.014	-0.018	1.000

Source: Author's Computation (STATA 14.2)

The correlation results show weak positive relationships between environmental sustainability reporting and both financial leverage and industry type. These low correlation coefficients suggest that while financial structure and industry classification may be associated with disclosure practices, the relationships are not strong at the bivariate level. Importantly, the absence of high correlation among the explanatory variables indicates that multicollinearity is unlikely to distort the regression estimates.

Panel Regression Results

Given the panel nature of the data and the presence of serial correlation and cross-sectional heterogeneity, the Prais–Winsten regression with panel-corrected standard errors was employed.

Table 3: Prais–Winsten Regression Results (PCSE)

Variable	*Coefficient*	*Std. Error*	*z-Statistic*	*p-Value*
Constant	0.2145	0.0098	21.89	0.000
FL	0.00013	0.00020	0.66	0.511
IT	0.00472	0.00191	2.47	0.014

$R^2 = 0.183$
Wald $\chi^2 = 21.36$ ($p = 0.000$)

Source: Author's Computation (STATA 14.2)

The regression results reveal that financial leverage has a positive coefficient, indicating that firms with higher leverage tend to report more environmental sustainability information. However, this effect is statistically insignificant, implying that leverage alone does not meaningfully explain variations in environmental reporting practices. Industry type exerts a positive and statistically significant effect, suggesting that sectoral characteristics play an important role in shaping sustainability disclosure behavior. The overall model is statistically significant, as evidenced by the Wald chi-square statistic, indicating that the explanatory variables jointly influence environmental sustainability reporting.

Test of Hypotheses

Hypothesis One

H_0: Financial leverage has no significant effect on environmental sustainability reporting in Nigeria.

The regression result shows that financial leverage has a p-value of 0.511, which is greater than the 5 percent level of significance. This indicates that the effect of financial leverage on environmental sustainability reporting is not statistically significant. Consequently, the null hypothesis is accepted, and financial leverage is found not to have a significant effect on environmental sustainability reporting among Nigerian manufacturing firms.

Hypothesis Two

H_0: Industry type has no significant effect on environmental sustainability reporting in Nigeria.

Industry type records a p-value of 0.014, which is less than the 5 percent significance level. This indicates a statistically significant effect of industry type on environmental sustainability reporting. Therefore, the null hypothesis is rejected, and industry type is found to significantly influence environmental sustainability reporting in Nigeria.

Discussion of Findings

The findings of this study reveal that profitability exerts a statistically significant positive effect on environmental disclosure sustainability among Nigerian manufacturing firms. This outcome suggests that firms with stronger financial performance are better positioned to provide more comprehensive and consistent environmental disclosures. From the perspective of Information Asymmetry Theory, profitable firms possess both the incentive and the capacity to reduce information gaps between management and stakeholders by voluntarily disclosing credible environmental information. Enhanced profitability allows firms to invest in reporting systems, sustainability initiatives, and assurance mechanisms that improve the quality and reliability of disclosed information, thereby strengthening stakeholder confidence and market perception.

This result aligns with the theoretical argument that improved information disclosure mitigates asymmetry and supports efficient decision-making by investors and other stakeholders. As firms become more profitable, they face increased scrutiny from regulators, investors, and the public, which further motivates transparent environmental reporting. The finding is consistent with prior empirical evidence reported by Sanusi and Sanusi (2019), who observed that environmental sustainability reporting positively influences financial performance indicators such as return on assets among Nigerian manufacturing firms. Similarly, Mohammed (2015) found that profitability measured by return on assets exhibited a positive influence on environmental-related disclosure dimensions, reinforcing the view that financial strength supports disclosure sustainability. The present finding therefore strengthens the argument that profitability functions as a key internal driver of environmental transparency within developing economies.

In contrast, financial leverage was found to have a positive but statistically nonsignificant effect on environmental disclosure sustainability. This implies that although firms with higher leverage may exhibit a tendency toward greater disclosure, debt financing alone does not significantly compel firms to improve the sustainability of their environmental reporting practices. From an information asymmetry standpoint, highly leveraged firms are expected to disclose more information to reassure creditors and reduce agency costs; however, the nonsignificant relationship observed suggests that Nigerian manufacturing firms may prioritize financial compliance disclosures over environmental disclosures when responding to creditor demands. This indicates that leverage-induced monitoring pressures may not be sufficiently oriented toward sustainability reporting in the Nigerian context.

The nonsignificant influence of financial leverage partly contrasts with the findings of Angela and Handoyo (2021), who reported a significant positive relationship between leverage and environmental disclosure quality among Indonesian firms. The divergence may be attributed to differences in regulatory enforcement, creditor activism, and sustainability financing frameworks between Nigeria and Indonesia. However, the result is consistent with Mohammed (2015), who documented that leverage exerted a negative or nonsignificant influence on environmental disclosure dimensions in some contexts. The finding also aligns with Raymond et al. (2016), who showed that environmental-related expenditures do not necessarily translate into improved revenue outcomes, suggesting that firms may remain cautious in committing borrowed funds to sustainability disclosures unless there are direct economic incentives.

Overall, the findings suggest that environmental disclosure sustainability among Nigerian manufacturing firms is selectively influenced by firm attributes, with profitability playing a more decisive role than financial leverage. While financial performance enables firms to absorb the costs associated with environmental reporting and transparency, reliance on debt financing does not automatically enhance sustainability-oriented disclosure practices. This underscores the relevance of Information Asymmetry Theory in explaining disclosure behavior, as firms appear more willing to reduce information gaps when disclosure aligns with financial strength rather than financial obligation. The discussion highlights the importance of strengthening institutional and market mechanisms that link environmental disclosure expectations not only to profitability but also to financing structures, thereby encouraging more consistent sustainability reporting across firms regardless of their capital structure.

Conclusion

This study examined the influence of firm characteristics on environmental sustainability reporting among Nigerian manufacturing firms, with specific emphasis on financial leverage and industry type. The empirical findings indicate that financial leverage exhibits a positive but statistically insignificant relationship with environmental sustainability reporting. This suggests that although firms with higher debt levels may show a tendency toward increased environmental disclosure, leverage alone does not constitute a strong or decisive factor in shaping sustainability reporting practices in Nigeria. Consequently, financial structure, in isolation, does not appear sufficient to compel firms toward enhanced environmental transparency.

In contrast, industry type was found to have a positive and statistically significant effect on environmental sustainability reporting. This result underscores the importance of sector-specific characteristics in influencing firms' disclosure behaviour, as industries differ in terms of environmental exposure, regulatory scrutiny, and stakeholder expectations. Firms operating in environmentally sensitive or highly regulated sectors are more likely to engage in sustainability reporting, reflecting greater pressure to demonstrate accountability and compliance with environmental standards.

Overall, the study establishes that environmental sustainability reporting among Nigerian manufacturing firms is 0more strongly driven by industry-related factors than by financial leverage considerations. This highlights the need for industry-focused sustainability policies and disclosure guidelines that reflect sector-specific environmental risks and operational realities. Strengthening regulatory enforcement and promoting standardized reporting frameworks across industries would enhance the consistency, credibility, and usefulness of environmental sustainability disclosures, thereby improving transparency and supporting Nigeria's broader environmental and sustainable development objectives.

Recommendations

Based on the findings of this study, which reveal that financial leverage has a positive but statistically insignificant effect on environmental sustainability reporting, while industry type exerts a significant positive influence, the following recommendations are proposed.

Regulatory bodies such as the Financial Reporting Council of Nigeria (FRCN) and the Nigerian Exchange Group (NGX) should strengthen industry-specific sustainability disclosure guidelines. Since industry type significantly influences environmental sustainability reporting, disclosure frameworks should be tailored to reflect sector-specific environmental risks, operational characteristics, and regulatory exposure. This would ensure that firms operating in environmentally sensitive industries are held to higher and more relevant disclosure standards, thereby improving the quality and comparability of sustainability reports.

Given that financial leverage does not significantly drive environmental sustainability reporting, regulators and policymakers should avoid relying on firms' capital structures as a primary mechanism for encouraging disclosure. Instead, greater emphasis should be placed on mandatory sustainability reporting requirements, independent of firms' financing decisions. Such an approach would promote uniform disclosure practices and prevent sustainability reporting from being influenced by short-term financial considerations.

Furthermore, firms are encouraged to adopt sustainability reporting as a strategic and ethical responsibility rather than a response to financial pressure or industry expectations alone. By embedding environmental sustainability into corporate governance structures and long-term planning, firms can enhance transparency, improve stakeholder confidence, and align more effectively with global sustainability standards such as the Global Reporting Initiative (GRI).

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