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CORPORATE ENVIRONMENTAL DISCLOSURE QUALITY AMONG LISTED NIGERIAN NON-FINANCIAL FIRMS: A SECTORAL APPROACH

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Abstract

The demand for transparency in how firms manage their environmental impact has grown substantially, especially in non-financial sectors where resource use and environmental footprints are more pronounced. Despite the destructive effects of these companies' operations, there appears to be reluctance to disclose quality information about the extent of their environmental impact. This study offers empirical evidence through a sectoral analysis of corporate environmental disclosure quality (CEDQ) among Nigerian listed non-financial firms. The study adopted a positivist paradigm and an ex-post facto research design, targeting a population of 105 environmentally sensitive non-financial firms listed on the Nigerian Exchange Group (NGX) from 2013 to 2023. Through purposive sampling, fifty-eight (58) firms were chosen based on predefined criteria. Anchoring on legitimacy theory, CEDQ was calculated using the GRI 4 Environmental Disclosure checklist, coupled with a framework for quality factor measurement derived from the work of Sebrina et al. (2023). The results of the Kruskal-Wallis test revealed sectoral differences in environmental disclosure, with the Consumer Goods sector having the highest rank sum (60,699.00), indicating that companies within this sector tend to have higher CEDQ scores, while the Natural Resources sector exhibits the lowest rank sum (2,883.50), reflecting relatively lower CEDQ scores. The study concluded that significant variations exist in corporate environmental disclosure quality among sectors and recommends a sector-specific approach to environmental disclosure, as Industries such as consumer goods, which face greater public scrutiny, should continue to prioritize transparency in their environmental disclosures.

Keywords: *Corporate Environmental Disclosure Quality (CEDQ), Sectoral Analysis, Non-Financial Firms, Kruskal-Wallis*

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Introduction

Corporate environmental information disclosure (CED) has become a significant component of corporate reporting, driven by the growing global focus on sustainability and environmental responsibility (Usman, 2024). The call for transparency in how companies manage their environmental impacts has grown significantly, especially in non-financial sectors where resource consumption and ecological footprints are substantial. According to Dienes et al. (2016), environmental disclosure serves as a channel through which companies communicate their environmental performance and initiatives to stakeholders, with the aim of ensuring accountability and trust. In Nigeria, this trend is echoed by growing regulatory pressures and rising expectations from investors, consumers, and regulators regarding firms' sustainability practices (Uwuigbe et al., 2018).

The growing awareness of natural and environmental resources has underscored the need to disclose the influence of organizational activities on them. A notable example is the activities of oil companies operating in the Niger Delta region of Nigeria, whereby benefits derived from companies, majorly driven by Shell as the biggest international Oil and Gas Company in the Niger Delta region, are believed to have overshadowed environmental and social costs (Usman, 2024). The pressure for disclosure stems from numerous NGO reports presenting case studies that condemn Shell for environmental insecurity caused by frequent oil spills, inadequate cleanup efforts, unfair compensation, and gas flaring. Also, in August 2022, NESREA, Nigeria's major environmental enforcement agency, sealed three companies in Bayelsa State for failing to comply with regulations. Other follow-through actions include the sealing of an environmental law-defying Kano-based company in April 2023 for poor waste disposal and untreated effluent emissions, and the sealing of 15 facilities in Abuja by February 2024 for alleged environmental offenses. Recently, in March 2024, the agency sealed 13 facilities in the FCT, Abuja, for violations of environmental laws and regulations.

While environmental reporting has become mandatory or strongly encouraged in many developed economies, environmental disclosure in Nigeria remains largely voluntary. With the highest population of extremely poor people in the world and with the grim reality of having the highest number of deaths from air pollution and the fourth in the world in 2022, environmental reporting in Nigeria remains voluntary. This peculiarity arises because some listed firms voluntarily disclose sustainability issues, aiming to salvage their corporate reputations, despite the pivotal role the environment plays in their operations. However, the quality and consistency of corporate environmental disclosures among listed firms, particularly non-financial ones, remains inconsistent (Oba & Fodio, 2012). Ofoegbu et al. (2018) have documented significant differences in disclosure levels across industries. Such divergence has been attributed to a range of factors, including industry-specific regulations, stakeholder pressure for disclosure, and company size. This sectoral variation therefore implies that companies in more environmentally hazardous industries, such as manufacturing or oil and gas, disclose more information given their environmental impact and because regulatory authorities may more closely monitor them than others (De Villiers & van Staden, 2011). In contrast, sectors perceived as low in environmental risk may exhibit little closeness to proper reporting, thereby raising several concerns about the overall qualitative and quantitative levels of CED practices across industries in Nigeria.

Although prior studies in Nigeria have examined corporate environmental disclosure practices (e.g., Oba & Fodio, 2012; Ofoegbu et al., 2018; Adewoye et al., 2020), existing evidence remains limited in several respects. First, most studies have assessed environmental disclosure using aggregate samples of listed firms without explicitly accounting for sector-specific characteristics that may influence disclosure behaviour. Second, studies that considered industry differences largely focused on the extent of disclosure rather than on the quality of firms' disclosures. As such, empirical evidence on the sectoral variation in the quality of corporate environmental disclosure in listed non-financial firms in Nigeria is limited. This omission is significant because companies in certain environmental industries may be subject to different regulations, stakeholder expectations, and legitimacy concerns than those in non-environmental industries.

This study examines differences in the quality of corporate environmental disclosure among listed non-financial companies in Nigeria. Policymakers, regulators, and stakeholders want to understand these differences better to enhance transparency and accountability regarding the impact of firms on the natural world and local communities. As this research centers on non-financial sectors, it addresses an important gap in the existing literature: most prior studies have focused on financial firms or on a particular sector within non-financial firms or have used aggregate data without accounting for sector-specific characteristics (Adewoye et al., 2020).

It has prompted the present study to examine the quality of corporate environmental disclosure by listed non-financial companies in Nigeria across sectors. Specifically, the following are the study's contributions to the existing literature. First, it shifts the focus from the quantity of disclosure to its quality, providing deeper insight into the credibility and comprehensiveness of environmental disclosure practices. Second, the study focuses solely on non-financial firms, examining sectoral heterogeneity with direct environmental implications. Third, the study uses longitudinal data from 2013-2023 to provide current evidence on environmental disclosure practices in Nigeria following significant changes in sustainability reporting, such as the release of the Global Reporting Initiative (GRI) G4 guidelines. This paper is structured as follows: Section 2 reviews previous relevant literature. Section 3 covers the study's methodology, including data collection and analysis techniques. Section 4 presents the study's analysis and findings, while Section 5 concludes with policy implications and recommendations for future research.

Literature Review

Corporate Environmental Disclosure Quality

Corporate environmental disclosure (CED) quality refers to the degree and consistency of the information firms provide about their environmental performance and impacts. The quality of such disclosures is increasingly scrutinized as stakeholders demand greater transparency and accountability concerning corporate environmental responsibilities (Usman, 2019). However, measuring CED quality remains a complex challenge (Sebrina et al., 2023). Other studies have used qualitative attributes based on developed reporting frameworks, such as GRI and IASB guidelines. For example, in one study, a self-developed index was constructed to measure the quality of environmental disclosures by assessing relevance, reliability, and completeness.

Empirical Review

Interpreting CED can also vary among researchers; that is, different perspectives yield different academic research with different methods. Some may focus on disclosures by volume across countries, sectors, or media, while others may focus on the nature or quality of the disclosed information. Moreover, studies also examined aspects such as the link between CED and environmental performance or its determinants. CED, on the other hand, has been studied with respect to market responses (Usman, 2019; Alsaifi et al., 2020; Wong & Zhang, 2022; Guo et al., 2020). Roberts (1992) studied industry-level effects on CED; he found that high-profile industries were more likely to disclose environmental and social information than low-profile ones. The research by Jessop et al. (2024) on corporate environmental disclosure in Indian-based subsidiaries of international conglomerates found that, in essence, such subsidiaries demonstrate disclosures closer to those expected by the local context than those of their parents. These approaches demonstrate an attraction for local legitimacy. During the 15 years during which this paper observed these disclosures, not only were there significant enhancements in quantity, but substantial qualitative disclosures were made after regulations were enacted in 2013.

Motwani and Gupta (2023) researched the status of Environmental Dimension Disclosures in major Indian energy companies. In the current study, they highlight an increasing need for these disclosures, particularly regarding emissions and resource management. Based on a review of BRSR, it emerges that compliance with reporting requirements and the depth of reporting about environmental aspects have remained different across the sector. In Indonesia, Utami and Setiawan (2023) explored the impact of corporate social responsibility and governance mechanisms on environmental disclosures. The study observed that stakeholder engagement positively influences disclosure quality, although it reported negligible effects on disclosure quality stemming from certain governance factors.

Theoretical Framework

This study is anchored in legitimacy theory, which holds that companies disclose information to align their activities with societal expectations to maintain or acquire legitimacy. The Legitimacy Theory suggests that an organization, especially one in an environmentally sensitive industry, would disclose environmental information as a strategic response to pressures from regulators, stakeholders, and the public to account for environmental responsibility (Suchman, 1995). Due to their environmental impact, high-impact businesses such as manufacturing, mining, and energy are frequently under increased scrutiny, which forces them to make more thorough and transparent disclosures to preserve a respectable social standing (Roberts, 1992). By using this lens, the study assumes that sectoral variances in CEDQ may reflect variations in legitimacy pressures across industries, with high-profile sectors exposed more to meet stakeholder expectations and maintain public trust. Research shows that companies in high-impact industries use environmental disclosures to manipulate public opinion and mitigate negative perceptions of their business operations. Niskala and Pretes (1995) and Campbell (2003) found in their studies that companies in high-environmental-impact industries, such as energy production and forest products, had more comprehensive environmental disclosure in their reports than those in low-impact industries. The change in CEDQ also aligns with Legitimacy Theory, which posits that companies operating in sectors with direct environmental impacts adopt improved disclosure practices to maintain and enhance social legitimacy within the regulatory framework. In such cases,

companies disclose their environmental activities to reduce reputation risk and to comply with environmental groups, investors, and public pressures (Deegan, 2002).

Legitimacy Theory also emphasizes that disclosure may vary over time, in a context of changing socio-economic expectations and the rise of environmental standards at the industrial level. Behram (2015) found that Turkish companies in moderate-impact industries tended to include environmental sections in their reports and to publish environmental information, indicating a growing awareness of environmental responsibility even outside high-impact industries.

This research uses Legitimacy Theory to examine whether sectoral disparities in CEDQ may indicate distinct strategies for legitimizing companies' activities in response to stakeholder expectations and regulatory requirements across the studied sectors. Therefore, the theory provides a framework for understanding how and why disclosure practices differ across the types of stakeholder environments in which businesses operate, to maintain their legitimacy by meeting evolving environmental requirements.

This research is based on legitimacy theory, which maintains that differences in the legitimacy demands lead to differences in the quality of corporate environmental disclosure among industries. Companies in more environmentally sensitive industries are likely to be making better disclosures to satisfy the burgeoning regulatory requirements, stakeholder expectations, and reputational considerations, while those in less environmentally sensitive industries may be making lower-quality disclosures. The empirical analysis examines whether the environmental reporting practices of Nigerian listed non-financial companies are consistent with these theoretical predictions.

Research Design

Research Paradigm and Design, Population and Sample Size

This research follows the positivist paradigm, which holds that empirical observation and measurement can be used to investigate and comprehend objective reality (Cresswell, 2003). To identify trends, connections, and generalizations, positivism relies on statistical analysis and quantitative data. The researcher examines the impact of an independent variable without manipulating it, using an ex post facto design, a non-experimental method. This design is appropriate for examining corporate environmental disclosure in listed organizations, as it can be used to examine naturally occurring events (Aifuwa et al., 2020). The 105 non-financial companies listed on the Nigerian Exchange Group (NGX) as of December 31, 2023, comprise the research population. These companies were selected based on their environmental sensitivity across ten (10) sectors. A judgmental sampling method was used to select a sample of 58 firms based on the following inclusion criteria: listed continuously on the NGX and whose annual reports for the period 2013-2023 were available. This method ensures that the selected firms are relevant to the study and that data for environmental disclosure analyses are available.

Table 1
Sectoral Population Distribution

S/N	Sector (Stratum)	Population
1	Agriculture	5
2	Conglomerate	6
3	Construction/Real Estate	8
4	Consumer Goods	21
5	Health Care	7
6	ICT	9
7	Industrial Goods	13
8	Natural Resources	4
9	Oil and Gas	9
10	Services	23
	Total	**105**

Source: NGX (2024)

Sources and Methods of Data Collection

Data for this study were obtained from secondary sources, including the annual reports and stand-alone sustainability reports of listed non-financial firms on the Nigerian Exchange Group. The reports were retrieved from the NGX library, company websites, and African Financials. Content analysis was used to obtain the information required on board structure mechanisms, governance coalition variables, and corporate environmental disclosure. The study is based on the period from 2013 to 2023 to fill a gap in the literature on corporate environmental disclosure. The year 2013 was chosen as the base because it marked some turning points in regulatory matters. The FRCN made compliance with ethical standards, including IFRS, mandatory; these standards improve the reliability of financial and sustainability reports. Moreover, 2013 marked the introduction of the fourth generation (G4) of the GRI guidelines to enhance transparency and accountability in environmental reporting. The analysis of data through 2023 shall present a comprehensive overview of how trends in corporate disclosure change.

Measurement of Corporate Environmental Disclosure Quality (CEDQ)

While measuring the quality of corporate environmental disclosure, the researchers use various measurement techniques to assess it, especially when applying frameworks such as the GRI or other sustainability reporting guidelines. The methods developed include GRI Content Indices, quantifying overall quality using GRI Scores or Indices, and creating Disclosure Indices specific to the environmental dimension. Developing specific metrics or indices to quantify the quality of environmental disclosures in an annual report is a systematic, objective way to evaluate various disclosure dimensions. Although previous research on disclosure has used a variety of indices, some researchers have developed their own checklists. In contrast, others have used checklists originally developed by peers, extracted from the Global Reporting Initiative, as the GRI is known today as "the de factoglobal standard" for sustainability reporting (KPMG, 2011). As in most prior environmental disclosure studies, this study measured the quality of environmental disclosure using a checklist developed by Sebrina et al. (2023) as stipulated in GRI 101, originally extracted from the Global Reporting Initiative Version 4. In developing a framework for measuring quality factors, Sebrina et al. (2023) combined different dimensions such as clarity and accuracy, timeliness and stakeholder engagement, comparability and reliability to assess the quality of CSR disclosures. These include the content of the information disclosed per the

triple bottom line dimension and the quality of the disclosure, which is based on the principles of the sustainable reporting framework: clarity and accuracy; timeliness and stakeholder engagement; comparability; and reliability.

Clarity and accuracy are important features of a sustainability report that enable stakeholders to assess a company's performance effectively. According to the GRI guidelines 2016, clarity means that information should be understandable and accessible to stakeholders. It means that the report should be presented in a way that enables readers to find and understand specific information without unreasonable effort. To be clear and accurate, GRI recommends using tools such as indexes, maps, links, tables, graphs, and other content. Timeliness is also a quality of the report. Timeliness means providing sustainability information to stakeholders when needed. It concerns the periodicity of reporting and the length of the reporting period. Consistency ensures the comparability of information over time and enables stakeholders to access reports. Any organization has to balance providing information quickly with reliability, while effectively communicating with its stakeholders locally, regionally, nationally, and globally.

Also, to ensure comparability, organizations must consistently select, gather, and disclose information. It enables stakeholders to understand changes in the organization's performance over time and compare it with previous periods, objectives, and other organizations, wherever feasible. The reliability principle concerns the processes involved in preparing, recording, and compiling environmental disclosures. These processes should be robust enough to be third-party verified, ensuring the disclosed information is reliable. Besides, environmental disclosure reliability requires the involvement of top management and the indication of the reporting section. It is important to ensure stakeholders have confidence in the report and that the organization has taken responsibility for adhering to the set principles.

The final CEDQ score is calculated using the GRI 4 Environmental Disclosure checklist and the quality factor measurement framework developed by Sebrina et al. (2023), as shown in Table 2. Using the following formula:

$$\text{CEDQ} = \frac{\text{Total Disclosure Quality}}{\text{Maximum Disclosure Quality}}$$

Results & Discussion

Descriptive Statistics of Sectoral Corporate Environmental Disclosure Quality

The sectoral descriptive statistics of corporate environmental disclosure quality (EDQ) provide an in-depth view of the varying levels of environmental transparency across different sectors. These metrics, such as the number of firms (N), mean CEDQ, standard deviation (sd), and the minimum and maximum CEDQ scores, provide a comprehensive understanding of environmental disclosure quality across sectors.

Table 2
Sectoral Descriptive Statistics of CEDQ

Sectors	N	Mean	SD	Minimum	Maximum
AGRICULTURAL	44	.5276307	.2222456	.125	.875
CONGLOMERATES	33	.475197	.2305523	.25	.78025
CONSTRUCTION & REAL	22	.5909091	.1973855	.25	.75
CONSUMER GOODS	176	.5304943	.1900982	.125	.875
HEALTHCARE	44	.4361566	.2684145	.09014	.875
ICT	55	.4612466	.2669993	.0850255	.875
INDUSTRIAL GOODS	66	.4383012	.2644148	.0850255	.81451
NATURAL RESOURCE	11	.4149555	.1733806	.25	.81451
OIL AND GAS	66	.4561785	.2491918	.0850255	.80252
SERVICES	121	.4979682	.25416	.10255	.875
Total	638	.4916583	.2364794	.0850255	.875

Source: Author's Computation, 2026

With an average CEDQ of 0.528, which shows that more than half of the anticipated environmental information is disclosed, Table 2 shows that agricultural firms have a fair level of environmental disclosure quality. It could be the result of increased scrutiny of agricultural practices, including emissions and deforestation. The moderate variability in disclosure practices is indicated by the standard deviation of 0.222. CEDQ scores range from 0.125 to 0.875, with some companies extremely transparent and others falling short in thorough reporting. Conglomerate companies also have a mean CEDQ of 0.475, which indicates that their environmental disclosure is marginally below average. This could be explained by the intricacy of their varied operations, which could make it difficult for various business segments to report consistently.

A discrepancy in reporting standards is indicated by the wide dispersion shown by a standard deviation of 0.231. The CEDQ's minimum and maximum values, which range from 0.25 to 0.780, indicate that the reported environmental transparency is at a reasonable level and could be further enhanced for certain businesses. With an average CEDQ of 0.591, the sector leads the others, suggesting a higher level of environmental disclosure, possibly driven by resource management and sustainability-related legislative requirements. Lower variability, with a standard deviation of 0.197, indicates more uniform disclosure policies among the firms.
The range of the minimum to the maximum value of the CEDQ scores is fairly small-minimum 0.25, maximum 0.75-indicating consistency among firms in this industry in terms of their approach to environmental reporting, perhaps because of a wider industrial focus on sustainable construction.

With a mean CEDQ of 0.530, consumer goods companies exhibit moderate environmental disclosure quality, perhaps due to consumer demand for sustainable products. The low variability (sd = 0.190) suggests that businesses often have comparable environmental reporting quality, perhaps due to constraints from the market and corporate social responsibility. Some firms have high disclosure ratings, while others have poor scores, according to the CEDQ range of 0.125 to 0.875. However, compared to other industries, healthcare companies have a lower-than-average CEDQ mean of 0.436, most likely due to a lack of focus on environmental effects. The considerable variability (sd = 0.268), however, suggests notable variations in reporting methods, with some companies being more open than others. The wide range of CEDQ values, from 0.090 to 0.875, indicates that businesses' propensity to disclose environmental consequences varies.

Additionally, with a mean CEDQ of 0.461, ICT companies report comparatively little environmental disclosure. The industry's emphasis on digital rather than physical environmental effects may help to explain this. The high variability in the number (sd = 0.267) indicates a range of reporting strategies, with some organizations having minimal transparency and others being very enthusiastic about sustainability reporting. The CEDQ minimum (min = 0.085) and maximum (max = 0.875) show a significant difference between the least and most transparent companies in this sector.

With a mean CEDQ of 0.438, which is below-average environmental disclosure quality, industrial products companies share traits with the healthcare and ICT sectors. The standard deviation (sd = 0.264), which represents the large variety, indicates that some businesses are more focused on sustainability reporting than others. The minimum and maximum CEDQ scores are 0.085 and 0.815, respectively, and the different environmental disclosure strategies depend on market forces and the regulatory framework. For this reason, despite having the maximum environmental footprint, the mean CEDQ for natural resources companies is the lowest at 0.415. This would suggest a lag in either voluntary reporting standards or regulations. The relatively small variation in CEDQ scores (min = 0.250, max = 0.815) suggests that the sector is fairly homogeneous, with low disclosure levels, but that there is sufficient variation (sd = 0.173) to indicate that some firms are improving their policies. The mean CEDQ in the oil and gas industry is 0.456, which is less than the average. It may be due to the sensitivity of reporting pollutants, spills, and resource depletion. It is a large range (sd = 0.249), suggesting that some companies are more willing to be open and transparent, while others are less so. The CEDQ scores (min = 0.085, max = 0.803) indicate that some companies are leading the way in environmental reporting, while others could improve their efforts. Compared to manufacturing or agriculture, service-based industries have a lesser environmental impact, as seen by their mean CEDQ of 0.498, which is close to the overall average. The large variability (sd = 0.254) indicates significant differences in disclosure methods across the industry. The large variation in CEDQ (min = 0.103, max = 0.875) indicates that although some businesses take environmental reporting seriously, others do not consider it a crucial endeavor. The overall (aggregated) mean CEDQ across all sectors (N = 638) is 0.492, suggesting that most businesses disclose just under 50% of their environmental information. The standard deviation (SD) of 0.236 indicates substantial variance in environmental reporting quality. The range of CEDQ scores (min = 0.085, peak = 0.875) represents the difference between companies with minimal and comprehensive environmental disclosure processes. The top industries are agricultural firms and construction and real estate. It may be because these sectors have been exposed to rising market expectations and government pressure to demonstrate eco-friendliness. The last two sectors were natural resources and healthcare, areas where there is likely stakeholder pressure, priority, or less strict regulatory compliance within the business. The patterns that emerged in sectors such as ICT and oil and gas reveal various approaches from the businesses and external pressure to become more environmentally transparent.

Test of Homogeneity of Variances

The consistency of environmental quality score variances across various sectors is evaluated using the Test of Homogeneity of Variances. The environmental quality scores for each sector are shown in the summary table, along with their means, standard deviations, and frequencies; statistical tests assess whether these variances differ significantly.

Table 3
Test of Homogeneity of Variances, Summary of Environmental Quality Score

SECTOR	Mean	Std. Dev.	Freq.
AGRICULTU	.52763068	.22224558	44
CONGLOMER	.47519697	.23055226	33
CONSTRUCT	.59090909	.19738551	22
CONSUMER	.53049432	.19009821	176
HEALTHCAR	.43615659	.26841446	44
ICT	.46124658	.26699933	55
INDUSTRIA	.43830123	.26441482	66
NATURAL R	.41495545	.17338057	11
OIL AND G	.45617846	.24919183	66
SERVICES	.4979682	.25415996	121
Total	.49165834	.23647945	638

W0 = 6.4455924 df(9, 628) Pr > F = 0.00000001
W50 = 5.2592214 df(9, 628) Pr > F = 0.00000063
W10 = 7.4752107 df(9, 628) Pr > F = 0.00000000
Source: Author's Computation, 2026.

From table 3, the environmental quality scores are summarized across sectors as follows: Agriculture with a mean of 0.5276 and a standard deviation of 0.2222 based on 44 observations. Conglomerates have a mean of 0.4752 and a standard deviation of 0.2306 based on 33 observations. The Construction sector has a mean of 0.5909 and a standard deviation of 0.1974 from 22 observations. The Consumer Goods sector has a mean score of 0.5305 and a standard deviation of 0.1901, based on 176 observations. Healthcare shows a lower mean of 0.4362 but a higher standard deviation of 0.2684 with 44 observations. The ICT sector has a mean of 0.4612 and a standard deviation of 0.2670 based on 55 observations. The mean for Industrials is 0.4383, with a standard deviation of 0.2644 across 66 observations. Natural Resources has an average of 0.4150 and a standard deviation of 0.1734 from 11 observations. Oil and Gas has a mean of 0.4562 and a standard deviation of 0.2492 based on 66 observations. Finally, the Services sector has an average of 0.4980 and a standard deviation of 0.2542 across 121 observations. Overall, the average environmental quality score across all sectors is 0.4917, with a standard deviation of 0.2365 across 638 observations.

The standard deviations across the various sectors provide a better understanding of the dispersion in environmental quality scores. For example, the Healthcare sector has the highest standard deviation of 0.2684, while the Natural Resources sector has the lowest, at 0.1734. Large differences in standard deviation give an indication that the environmental quality scores are not as consistent across some sectors as in others. Also, three different test statistics W0 (Bartlett's Test), W50 (Levene's Test, Median Centered), and W10 (Levene's Test, Mean Centered), are computed to check the homogeneity of variances across sectors. W0 (Bartlett's Test) gives a value of 6.4456 with 9 and 628 df, and a p-value of 0.00000001. The extremely low p-value in the above output indicates significant differences in variance across the sectors, providing sufficient evidence to reject H0 and suggesting that the assumption of homogeneity of variance has been violated. Conversely, W50 (Levene's Test, Median Centered) has a value of 5.2592, with 9 and 628 df, and a p-value of 0.00000063. This test has fewer non-normality-sensitive test outcomes but also shows significant variance across sectors. While W10 -Levene's Test, Mean Centered- has a value of 7.4752 with 9 and 628 df and a p-value of 0.00000000. As with W50, this test strengthens the evidence of a variance-homogeneity violation.

Results from these tests in table 4.2 indicate large differences in score variability across sectors. It, in turn, indicates the presence of sector-specific factors that play a determining role in variations in environmental quality scores. For example, significant differences were observed across sectors such as ICT and healthcare, which may indicate differences in environmental reporting practices or levels of development. Other industries, including natural resources, on the other hand, exhibit more constant results, which may be due to more uniform regulations or standards. The testing unequivocally shows that the assumption of homogeneity of variances is violated across sectors; this implies that industry-specific differences in the variability of environmental quality scores are substantial.

Robust Test of Equity of Means

The one-way ANOVA results provide a study of variance in Corporate Environmental Disclosure Quality (EDQ) across sectors. This test's primary goal is to determine whether the mean CEDQ scores across these sectors differ significantly. The mean CEDQ scores vary considerably across sectors at the 5% level of significance, as indicated by an F-statistic of 2.17 and a p-value of 0.0224. It suggests that the average quality of environmental disclosure varies across industries; some industries have higher or lower average CEDQ ratings than others. The disparity in CEDQ scores across sectors is reflected in the between-groups SS (SS = 1.07496816), while the variance within each group is measured by the within-groups SS (SS = 34.5476825). The F-value, which is rather modest, would hint that the differences, while statistically significant, are not overwhelming. It would, therefore, mean that sectoral differences in CEDQ exist, though not overwhelming.

Table 4
One-way CEDQ Sector

Analysis of Variance

Source	SS	Df	MS	F	Prob > F
Between groups	1.07496816	9	.119440907	2.17	0.0224
Within groups	34.5476825	628	.055012233		
Total	35.6226506	637	.055922528		

Bartlett's test for equal variances: chi2(9) = 23.9804 Prob>chi2 = 0.004
Source: Author's Computation, 2026.

Bartlett's test of homogeneity of variances determines if variances are consistent across sectors. The test's results showed a chi-square value of 23.9804 with 9 df, p = 0.004, which is statistically significant at the 1 percent level. As a result, it is possible to reject the equal-variance hypothesis and acknowledge non-homogeneity in CEDQ score variation across sectors. The homogeneity of variances across sectors does not hold, according to Bartlett's test. The infraction may indicate that CEDQ ratings vary across industries. It could be because different industries have different governance processes or stricter environmental reporting requirements. The notable differences in mean CEDQ scores suggest that sector-specific factors heavily influence environmental disclosure procedures. CEDQ scores are higher in industries with more active stakeholder participation or regulatory monitoring than in those with less of these demands. Bartlett's test, however, highlights disparities in variance between sectors, indicating that these differences are not consistent.

Kruskal-Wallis Equality-of-Populations Rank Test

The results of the Kruskal-Wallis test provide an in-depth analysis of the variations in corporate environmental disclosure quality across different non-financial sectors. It is a non-

parametric statistical test used to decide whether the medians of more than two independent groups are significantly different. In this context, these refer to various non-financial sectors and assess the ranking of Corporate Environmental Disclosure Quality (EDQ) across sectors. The test was adopted because it is appropriate for comparing more than two independent groups when the assumption of normality is not satisfied.

Table 5
Kruskal-Wallis Equality-of-Populations Rank Test Result

Sector	Obs	Rank Sum
AGRICULTURAL FIRMS	44	15276.50
CONGLOMERATES	33	10282.50
CONSTRUCTION & REAL ESTATE	22	8477.00
CONSUMER GOODS	176	60699.00
HEALTHCARE	44	12466.00
ICT	55	16356.50
INDUSTRIAL GOODS FIRMS	66	18398.50
NATURAL RESOURCES	11	2883.50
OIL AND GAS	66	19300.50
SERVICES	121	39701.00

chi-squared = 15.660 with 9 d.f.
probability = 0.0443
chi-squared with ties = 16.258 with 9 d.f.
probability = 0.0317
Source: Author's Computation, 2026.

Table 5 presents the rank sums for each sector, which reflect the collective rankings assigned to firms within each sector based on the quality of their environmental disclosures. Higher rank sums correspond to better disclosure quality. The rank sums provide insight into how different sectors compare in terms of environmental disclosure quality. For example, the Consumer Goods sector has the highest rank sum of 60,699.00, suggesting that companies in this sector tend to have the highest CEDQ scores, while the Natural Resources sector has the lowest rank sum of 2,883.50, indicating comparatively lower CEDQ scores. The chi-square statistic with no ties is 15.660, and with tied ranks, it is 16.258, both indicating the dispersion of ranks across the sectors. With 9 degrees of freedom, these values are tested against critical values to assess significance. Both the associated p-values, 0.0443 without ties and 0.0317 with ties, are below the 0.05 threshold, suggesting that corporate environmental disclosure quality significantly varies across sectors. Therefore, the null hypothesis that all sectors have equal levels of disclosure is rejected.

However, the Oil and Gas and Industrial Goods sectors are usually subject to closer scrutiny because their activities have a major impact on environmental degradation. Due to increased regulatory demand for environmental reporting, these sectors are increasingly applying disclosure standards. Correspondingly, the Natural Resources and Construction & Real Estate sectors exhibit less regulatory power, leading to less environmental information reporting. Also, companies operating in the Consumer Goods and Services sectors are more directly exposed to consumers, and therefore, environmental disclosure is considered an important factor in brand reputation. Sectors like Conglomerates and ICT exhibit variations in environmental disclosure due to the complexity of their corporate governance structures and the diversity of their business operations.

All this can complicate standardization in environmental reporting practice. The rather high rank sum for the ICT sector, 16,356.50, suggests that this may be due to increasing pressure on digital firms to disclose their environmental footprint, specifically energy consumption

and the disposal of electronic waste. On the contrary, big companies, especially those involved in sectors like Oil and Gas and Industrial Goods, may be relatively in a better position to invest more in sustainability reporting. Businesses in industries like agriculture or natural resources, on the other hand, might not have the means to produce comprehensive environmental disclosures. This resource differential could explain the large range in rank sums among sectors. Due to international standards and the expectations of international investors or partners, globally exposed industries like conglomerates and consumer goods are subject to stricter disclosure requirements.

As a result, these businesses must adhere to stricter environmental reporting guidelines due to global market and regulatory requirements. Significant variances in environmental risk, legal frameworks, stakeholder expectations, corporate governance practices, resource availability, and market exposure may all contribute to the wide variations in corporate environmental disclosure quality across industries. While companies in less scrutinized industries frequently submit lower-quality disclosures, those in businesses with significant environmental implications and regulatory pressure typically have better disclosure processes.

Discussion of Findings

According to the Kruskal-Wallis test, the sectoral study of CEDQ for Nigerian listed non-financial corporations revealed notable variations in disclosure levels across sectors. Corporate environmental disclosures vary widely across industries, even though all businesses operate in non-financial sectors, which are often recognized as highly environmentally sensitive. This important diversity is best explained by the varying nature of the different industries' operations. The higher the rank sum, the higher the number of businesses in that sector likely to have a higher CEDQ score; for instance, the Consumer Goods sector has a rank sum (60,699.00). The companies are becoming more aggressive in reporting their environmental impacts as they are closer to end users, and their expectations for sustainability and transparency are increasing. In addition, companies that produce consumer goods may be subject to greater public attention, which can drive them to make environmental disclosures as part of their corporate social responsibility (CSR) plans.

However, the CEDQ score in the Sector will be comparatively lower, as the total rank is lowest (2,883.50). It could be due to the industry's focus on resources and output, which may make sustainability reporting less important. This class of industries may face fewer regulations and less direct consumer demand than other industries, such as consumer goods producers. The wide differences in CEDQ ratings across industries can be attributed to several factors. Industries under greater environmental risk pressures are more inclined to disclose environmental impacts first, while industries with higher environmental impact, such as manufacturing and resource extraction, are more likely to disclose environmental impacts. The higher a company's environmental risk, the more likely it is to become a target of public demands for transparency and regulatory oversight. Second, the regulatory framework differs across sectors, with the more strictly regulated sectors disclosing more information since complying with the rules and regulations becomes a priority for them. Third, stakeholder expectations differ; companies in consumer-oriented sectors are more inclined to invest in environmental reporting to meet the needs of socially conscious investors and consumers.

Fourth, corporate governance policies affect disclosure quality. Having an environmental committee or a sustainability department within a business increases the likelihood that it will place greater emphasis on environmental transparency. One more important factor is the

availability of resources. Higher CEDQ ratings are achieved by industries that devote more financial and human resources to sustainability issues. These industries can more easily develop systems of quality reporting and implement extensive environmental measures. Lastly, market exposure is a factor. The most rigorous requirements for environmental reporting would apply to businesses operating worldwide or those subject to international inspection. Such sectors, where exposure to the international level is on the higher side, would implement more critical disclosure practices, as would be expected globally.

Conclusions

It was concluded that significant sectoral variations in the quality of environmental disclosures exist among non-financial firms, suggesting that industry-specific factors such as consumer expectations, regulatory frameworks, and corporate governance practices influence the level of transparency in environmental reporting. Resource-focused industries have lower disclosure quality because there is less direct consumer and regulatory pressure. In contrast, industries like consumer products, which are more subject to public scrutiny, typically have better CEDQ. This study demonstrates that sectoral dynamics, stakeholder pressure, and governance structures all significantly influence business environmental disclosure practices. Businesses that prioritize these aspects are more likely to meet the growing demands of stakeholders for ethical business practices, improve their environmental transparency, and comply with global sustainability targets.

To improve the situation of CEDQ for listed non-financial enterprises in Nigeria, the study makes the following significant recommendations based on its results and conclusions. Additionally, sector-specific environmental reporting is advised based on the results. Businesses that are subject to intense public scrutiny, such as consumer goods companies, should continue their efforts to be transparent in their environmental disclosures. Resource-oriented sectors typically have lower CEDQ scores and must invest more effort in developing environmental governance frameworks in light of new regulatory requirements. Further research may be directed at comparing environmental disclosure practices between developing and developed economies, where mandatory regulations are more pervasive, to highlight the role that legal frameworks play in the level of corporate transparency.

References

Adewoye, O., Fadun, S., & Omolade, A. (2020). Corporate environmental disclosure practices in Nigeria: Trends and determinants. *Journal of Financial Reporting and Accounting*, 18(2), 317-335.

Aifuwa, HO, Musa, S., Gold, NO & Usman, K. M (2020). Board cognitive diversity and firm performance nexus: Evidence from Nigeria. *International Journal of Management, Innovation & Entrepreneurial Research,* 6(2), 88-99.

Akbas, H. E. (2016). The relationship between board characteristics and environmental disclosure: Evidence from Turkish listed companies. *South East European Journal of Economics and Business*, *11*(2), 7-19.

Alsaifi, K., Elnahass, M., & Salama, A. (2020). Market responses to firms' voluntary carbon disclosure: Empirical evidence from the United Kingdom. *Journal of cleaner Production*, 262, 121377.

Behram, N. K. (2015). Environmental disclosure and accountability: A cross-sector analysis of Turkish firms. *Journal of Cleaner Production*, 90, 70–82.

Campbell, D. (2003).Intra-and International effect in environment disclosure: evidence for legitimacy theory. *Business strategy and the environment*, 12 (6): 357-371.

Clarkson, P. M., Li, Y., Richardson, G. D., & Vasvari, F. P. (2008). Revisiting the relation between environmental performance and environmental disclosure: An empirical analysis. *Accounting, organizations and society*, *33*(4-5), 303-327.

Creswell, J. W. (2003). Advanced mixed. *Handbook of mixed methods in social & behavioral research*, 209.

Deegan, C. (2002). The legitimizing effect of social and environmental disclosures: A theoretical foundation. *Accounting, Auditing & Accountability Journal*, 15(3), 282–311.

De Villiers, C., & van Staden, C. J. (2011). Where firms choose to disclose voluntary environmental information. *Journal of Accounting and Public Policy*, 30(6), 504-525.

Dienes, D., Sassen, R., & Fischer, J. (2016). What are the drivers of sustainability reporting? A systematic review. *Sustainability Accounting, Management and Policy Journal*, 7(2), 154-189.

Guo, M., Kuai, Y., & Liu, X. (2020). Stock market response to environmental policies: Evidence from heavily polluting firms in China. *Economic Modelling*, *86*, 306-316.

Haque, S., & Deegan, C. (2010). Corporate climate change-related governance practices and related disclosures: evidence from Australia. *Australian accounting review*, *20*(4), 317-333.

Jessop, A., Wilson, N., Bardecki, M., & Searcy, C. (2019). Corporate environmental disclosure in India: An analysis of multinational and domestic agrochemical corporations. *Sustainability*, *11*(18), 4843.

Niskala, M., & Pretes, M. (1995). Environmental reporting in Finland: A note on the use of annual reports. *Accounting, Organizations and Society*, 20(6), 457–466.

Motwani, A., & Gupta, R. (2023). ESG reporting: Environmental dimension disclosures by large energy sector companies in India. *European Journal of Theoretical and Applied Sciences*, *1*(2), 108-118.

Oba, V. C., & Fodio, M. I. (2012). Board characteristics and the quality of environmental reporting in Nigeria. *Corporate Board: Role, Duties & Composition*, 8(1), 35-42.

Ofoegbu, G. N., Odoemelam, N., & Okafor, R. (2018). Corporate governance and environmental reporting in Nigeria. *International Journal of Management Sciences and Business Research*, 7(5), 13-24.

Roberts, A. (1992). Environmental reporting by Indian corporations. *Corporate Social Responsibility and Environmental Management*, *11*(1), 12–22. https://doi.org/10.1002/csr.51

Sebrina, N., Taqwa, S., Afriyenti, M., & Septiari, D. (2023). Analysis of sustainability reporting quality and corporate social responsibility on companies listed on the Indonesia stock exchange. *Cogent Business & Management, 10*(1), 2157975.

Stray, S., & Ballantine, J. (2000). A sectoral comparison of corporate environmental reporting and disclosure. *Eco-Management and Auditing: The Journal of Corporate Environmental Management*, *7*(4), 165-177.

Suchman, M. C. (1995). Managing legitimacy: Strategic and institutional approaches. *Academy of Management Review*, 20(3), 571–610.

Wong, J. B., & Zhang, Q. (2022). Stock market reactions to adverse ESG disclosure via media channels. *The British Accounting Review*, *54*(1), 101045.

Usman, M. K. (2019). Determinants of Corporate Environmental Disclosures Among listed Manufacturing Companies in Nigeria. *ProQuest Publications*

Usman, M. K. (2024). Sustainability Committee, Audit Firm Type and Corporate Sustainability Reporting of Non-Financial Firms in Nigeria. *Copernican Journal of Finance & Accounting*, *13*(1).

Uwuigbe, U., Uwuigbe, O., & Ajayi, A. (2018). Corporate environmental disclosures in Nigeria: A study of listed financial and non-financial firms. *Asian Economic and Financial Review*, 8(10), 1251-1261