

CORPORATE ATTRIBUTES AND ENVIRONMENTAL DISCLOSURE OF LISTED CONSUMER GOODS FIRMS IN NIGERIA

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Abstract

This study investigates the effect of corporate attributes specifically company size and company age on environmental disclosure among listed consumer goods firms in Nigeria. In light of increasing environmental concerns and global emphasis on sustainability reporting, this research addresses the gap in empirical literature concerning how internal firm characteristics influence environmental disclosure practices, particularly in developing economies. Using a panel data set of 21 listed consumer goods firms on the Nigerian Exchange (NGX) Group from 2015 to 2024, the study applies panel regression analysis to evaluate the relationship between the selected corporate attributes and environmental disclosure, while controlling for financial leverage and profitability. Environmental disclosure is measured using a checklist based on Global Reporting Initiative (GRI) indicators, and the data were manually extracted from annual reports and sustainability disclosures. The results reveal that company size, and company age have positive and statistically significant effects on environmental disclosure. The study concludes that firm-specific characteristics are critical determinants of environmental transparency and recommends that policymakers develop incentive-based frameworks to encourage environmental reporting, especially among smaller and younger firms.

Keywords: corporate attributes, environmental disclosure, listed consumer goods firms, Nigeria

1. Introduction

Environmental disclosure has garnered significant attention among scholars and experts as a critical mechanism for promoting corporate transparency and accountability in sustainability practices. Hassan and Guo (2022) argue that environmental disclosure serves as a communication tool through which firms convey their environmental performance, policies, and impacts to stakeholders, thereby reducing information asymmetry and strengthening stakeholder trust. It includes information on emissions, waste management, energy consumption, and environmental compliance, whether disclosed voluntarily or in response to regulatory requirements.

Experts in sustainability and corporate governance view environmental disclosure not merely as a compliance exercise but as a strategic practice that enhances a firm's reputation and long-term value. However, Akintoye and Ojo (2023) note that firms with robust environmental reporting are more likely to attract sustainable investments, respond effectively to stakeholder expectations, and mitigate reputational risks. The adoption of global frameworks such as the Global Reporting Initiative (GRI)

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and Task Force on Climate-related Financial Disclosures (TCFD) reflects expert consensus on the need for standardized, comparable, and decision-useful environmental information. Thus, environmental disclosure is increasingly being integrated into corporate strategy, with both academics and practitioners recognizing its role in driving sustainable development, corporate legitimacy, and competitiveness in global markets.

Company size is one of the most widely examined corporate attributes in environmental disclosure research due to its influence on a firm's capacity, visibility, and stakeholder pressure. Larger firms often have more resources to invest in sustainability initiatives and environmental reporting systems, enabling them to provide more detailed and structured disclosures (Gill & Obradovich, 2021). They are also subject to higher levels of public and regulatory scrutiny, which compels them to be more transparent about their environmental impacts to maintain legitimacy and stakeholder confidence.

Empirical evidence, such as the findings of Akinwale and Yusuf (2023), confirms that larger firms in Nigeria's corporate sector are more likely to engage in comprehensive environmental reporting, driven by reputational concerns and market expectations. Additionally, larger firms tend to have more formalized corporate governance structures, which often include dedicated sustainability or audit committees that ensure adherence to environmental reporting standards. From a strategic standpoint, disclosing environmental information helps larger firms mitigate operational risks, access green financing, and enhance their competitive advantage. Therefore, company size is not only a structural characteristic but also a determinant of a firm's environmental accountability and commitment to sustainable development.

Company age, typically measured as the number of years since incorporation, is another significant determinant of environmental disclosure. Older firms often exhibit more mature governance frameworks, institutionalized reporting practices, and a deeper understanding of regulatory expectations, all of which contribute to improved environmental transparency (Hassan & Musa, 2022). Their long-standing presence in the market often correlates with accumulated experience in stakeholder engagement, risk management, and compliance with evolving environmental standards. Moreover, older firms are more likely to have established reputational capital, which they strive to maintain through consistent and credible disclosure practices.

According to Rahman and Hamza (2020), firms with a longer operational history are more inclined to align with global sustainability norms to secure investor trust and regulatory goodwill. In Nigeria's consumer goods sector, firms with decades of operation such as Nestlé Nigeria Plc demonstrate more robust environmental disclosure practices, partly due to their commitment to preserving long-standing brand integrity. Consequently, company age influences not only a firm's internal capacity for environmental reporting but also its external motivation to meet stakeholder expectations, making it a critical variable in understanding variations in environmental disclosure practices.

The motivation for this study stems from the increasing global emphasis on corporate environmental responsibility and the growing demand for transparency in sustainability practices, particularly in emerging economies like Nigeria. Despite regulatory efforts and the adoption of global reporting frameworks, environmental disclosures among Nigerian consumer goods firms remain inconsistent, with smaller and younger firms often lagging in reporting quality.

Existing studies have largely generalized findings across sectors without adequately addressing how specific firm-level characteristics, such as company size and

age, influence disclosure behaviour within the consumer goods industry a sector known for its significant environmental footprint. This gap presents an opportunity to conduct a focused investigation into the structural and historical attributes of firms that shape their environmental reporting practices. By exploring the roles of company size and age, this study seeks to provide empirical evidence that can guide regulatory reforms, improve corporate sustainability practices, and support stakeholder decision-making in the Nigerian context.

Environmental degradation remains a pressing concern in Nigeria, with the consumer goods industry identified as a significant contributor to pollution, waste generation, and resource depletion. Despite the growing global emphasis on environmental sustainability and the increasing demand for transparency from stakeholders, environmental disclosure among Nigerian consumer goods firms remains inconsistent, unstandardized, and largely voluntary. A recent report by the Nigerian Stock Exchange (NSE, 2023) revealed that less than 40% of listed consumer goods companies provide comprehensive environmental information in their annual or sustainability reports, and those that do often lack uniformity in content and quality.

This is concerning given that these firms, due to their scale and production processes, have substantial environmental impacts. Previous studies have largely focused on the influence of regulatory compliance and governance mechanisms on disclosure practices, but limited empirical attention has been paid to firm-specific characteristics such as company size and age, which may affect a firm's capacity and willingness to report environmental information.

Larger and older firms are expected to have more resources, reputational incentives, and stakeholder pressure to disclose, yet the extent to which these corporate attributes influence environmental disclosure in the Nigerian context remains unclear and under-researched. Without a clear understanding of these internal determinants, policy efforts aimed at improving environmental transparency may fail to address the root causes of non-disclosure. Hence, this study seeks to fill this critical gap by empirically examining the effect of company size and age on environmental disclosure practices among listed consumer goods firms in Nigeria between 2015 and 2024.

While firms like Nestlé Nigeria Plc and Unilever Nigeria Plc have made notable progress in their environmental reporting benefiting in part from their size and long-standing market presence many smaller or younger firms in Nigeria's consumer goods sector still fall short of international reporting standards. Sanni et al. (2023) found that only 45% of listed consumer goods firms provided detailed environmental reports in 2022. This inconsistency is problematic, particularly when firm size and age appear to play a decisive role in environmental reporting.

The absence of sector-specific empirical analyses that focus on how these firm-level characteristics influence environmental disclosure practices limits the ability of stakeholders and regulators to identify key drivers of environmental transparency. This study addresses that gap by isolating the influence of company size and company age on the environmental disclosure of listed consumer goods firms in Nigeria.

The main objective of the study is to examine the effect of corporate attributes on environmental disclosure of listed consumer goods firms in Nigeria. Other specific objectives include to:

- i. examine the effect of corporate size on environmental disclosure of listed consumer goods firms in Nigeria;
- ii. determine the effect of corporate age on environmental disclosure of listed consumer goods firms in Nigeria.

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In line with the forgoing specific objectives of the study, the following hypotheses have been developed in null form:

H₀₁: Corporate size has no significant effect on environmental disclosure of listed consumer goods firms in Nigeria.

H₀₂: Corporate age has no significant effect on environmental disclosure of listed consumer goods firms in Nigeria.

The remaining structure of this paper is organized into four key sections to ensure a coherent and comprehensive presentation of the research. Following the introduction, the literature review section presents a detailed review of relevant literature, including conceptual definitions, empirical studies, and the theoretical framework underpinning the study, with a focus on company size and age in relation to environmental disclosure. The methodology section outlines the methodology employed, describing the research design, population and sampling techniques, variable measurements, model specification, and methods of data analysis. The results and discussion section provides the analysis and interpretation of the empirical findings, including regression results, diagnostic tests, and hypothesis testing. The conclusion and recommendation section conclude the study by summarizing the key findings, discussing their implications for corporate governance and sustainability practices, offering recommendations for practitioners and policymakers, and suggesting areas for future research.

2. Literature Review

Concept of Environmental Disclosure

Hassan and Guo (2022) define environmental disclosure as the systematic communication of a company's environmental performance, practices, and policies to its stakeholders through both mandatory and voluntary channels. According to their perspective, environmental disclosure encompasses a wide range of information, including greenhouse gas emissions, energy consumption, waste management practices, environmental policy statements, and compliance with environmental regulations.

Hassan and Guo (2022) emphasized that environmental disclosure serves not only as a tool for transparency and accountability but also as a strategic mechanism through which firms manage stakeholder perceptions and enhance corporate legitimacy. They argue that companies increasingly view environmental reporting as integral to corporate sustainability, particularly in industries with significant environmental footprints, such as manufacturing and consumer goods. This definition is particularly relevant in emerging markets like Nigeria, where formal regulatory frameworks may be limited, and voluntary disclosure often becomes a primary avenue for signaling environmental responsibility.

Rahman and Hamid (2021) conceptualized environmental disclosure as the voluntary or mandatory reporting of a firm's environmental activities, impacts, and risk management strategies through publicly accessible channels such as annual reports, sustainability reports, or dedicated environmental statements. Their definition places emphasis on environmental disclosure as a strategic response to institutional pressure and stakeholder demand, particularly from investors, customers, and regulatory bodies. They highlight that in contexts with weak environmental regulation, firms may adopt environmental disclosure to enhance corporate image and avoid potential reputational risks. The authors further argue that environmental disclosure is not a static practice but one that evolves in response to changes in regulatory expectations, industry norms, and

corporate governance practices. Therefore, firms that are proactive in environmental reporting tend to have stronger reputations, stakeholder loyalty, and better access to capital.

Agyemang and Yeboah (2023) offer a regulatory-oriented definition of environmental disclosure, describing it as the disclosure of firm-level environmental information mandated by statutory guidelines and industry-specific standards. This includes information required by environmental laws, stock exchange listing rules, and international reporting frameworks such as the Global Reporting Initiative (GRI) and the Task Force on Climate-related Financial Disclosures (TCFD). The authors emphasize that such disclosures serve as a compliance mechanism and are often enforced to promote environmental accountability, protect investors, and align national firms with global sustainability goals. They argue that regulatory-driven environmental disclosures tend to be more consistent and comparable, especially when backed by institutional enforcement. However, they acknowledge that in developing economies where enforcement may be weak, firms may still report selectively or minimally, thus reducing the effectiveness of regulatory disclosure requirements.

For the purpose of this study, the definition provided by Hassan and Guo (2022) is adopted. This definition is the most comprehensive as it integrates both mandatory and voluntary disclosures, reflecting the dual nature of environmental reporting in Nigeria's evolving regulatory environment. It also acknowledges the strategic importance of disclosure for stakeholder engagement, legitimacy, and corporate image factors that are especially relevant for consumer goods firms, which face significant scrutiny due to their environmental footprint. Moreover, this definition allows for the assessment of both quantitative and qualitative environmental data, making it suitable for analyzing firms with diverse reporting structures.

Concept of Corporate Attributes

Khan and Bibi (2022) define corporate attributes as the structural, financial, and operational characteristics of a firm that shape its strategic decisions and disclosure behavior. These attributes include variables such as firm size, age, leverage, ownership structure, profitability, and board composition. The authors argue that corporate attributes significantly influence how a firm responds to market pressures, regulatory expectations, and stakeholder demands. According to their view, firms with strong financial resources and governance systems are more likely to adopt transparent reporting practices, including environmental disclosures. This definition highlights corporate attributes as internal mechanisms that reflect a firm's capacity to fulfill sustainability commitments, particularly in the face of reputational and institutional pressures. It provides a foundational understanding of how firm-specific characteristics influence organizational performance and accountability.

Hassan and Olanrewaju (2023) present a governance-centric definition of corporate attributes, referring to them as the internal governance mechanisms and structural features that shape a firm's approach to oversight, compliance, and transparency. These include board independence, audit committee structure, managerial ownership, firm size, and leverage. Their definition emphasizes the role of these attributes in aligning firm behaviour with regulatory requirements and stakeholder expectations, particularly in relation to corporate social responsibility (CSR) and environmental reporting. The authors posit that corporate attributes serve as enablers or barriers to responsible corporate behaviour, depending on how they are structured and executed. This perspective is particularly relevant in developing countries where

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voluntary disclosure is critical due to weak regulatory enforcement, and firm-level attributes serve as important predictors of disclosure quality.

Chen and Wu (2021) offer a comprehensive and multidimensional definition of corporate attributes as the financial performance indicators and structural characteristics of a company including size, age, profitability, leverage, and ownership structure that influence its operational efficiency and strategic decisions. Their conceptualization integrates both quantitative and qualitative factors that affect a firm's behaviour in areas such as sustainability, transparency, and risk management.

Chen and Wu argue that corporate attributes are not just passive descriptors but dynamic variables that evolve with a firm's growth and maturity, thereby impacting its responsiveness to stakeholder demands and environmental accountability. They emphasize that firms with strong financial performance and mature operational systems are better positioned to engage in voluntary environmental disclosure and adopt best practices in governance and reporting.

This study adopts the definition provided by Chen and Wu (2021), which conceptualizes corporate attributes as the financial performance indicators and structural characteristics of a company such as profitability, leverage, size, age, and ownership structure that influence its strategic behaviour and disclosure practices. This definition is comprehensive and aligns well with the study's focus on company size and company age as key explanatory variables for environmental disclosure. It captures both the structural and operational dimensions of corporate behaviour and is particularly suited to the Nigerian context, where firm-specific characteristics play a major role in shaping sustainability practices due to varying levels of regulatory enforcement and stakeholder pressure.

Company Size

Company size is one of the most widely examined corporate attributes in environmental disclosure research due to its influence on a firm's capacity, visibility, and stakeholder pressure. Larger firms often have more resources to invest in sustainability initiatives and environmental reporting systems, enabling them to provide more detailed and structured disclosures (Gill & Obradovich, 2021). They are also subject to higher levels of public and regulatory scrutiny, which compels them to be more transparent about their environmental impacts to maintain legitimacy and stakeholder confidence.

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Company Age

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Empirical Review

Company Size and Environmental Disclosure

Chinda and Joseph (2025) conducted a study titled "Impact of Firm Characteristics on Social and Environmental Accounting Disclosure Quality in Nigeria" to examine how firm-specific attributes influence disclosure practices. The population consisted of listed non-service firms on the Nigerian Exchange Group, and the researchers analyzed a sample of 47 firms over the period 2018 to 2022. Their findings revealed that firm age has a significant positive effect on the quality of social and environmental disclosures, as older firms tend to have more structured governance systems and reputational incentives to disclose. However, the study primarily focused on non-service sectors and did not include the consumer goods sector, which has unique environmental risks. The present study addresses this limitation by focusing specifically on listed consumer goods firms, thus providing sector-specific insights into how firm age affects environmental disclosure in an environmentally sensitive industry.

Okeke et al. (2025), in their study titled "Attributes and Environmental Disclosure of Listed Consumer Goods Firms in Nigeria and Ghana," assessed how firm characteristics, including age, influence environmental reporting across West Africa. The study population included all listed consumer goods firms in Nigeria and Ghana, with a sample size of 36 firms analyzed across the 2015 to 2023 period. The results showed a positive and significant relationship between firm age and environmental disclosure, attributing this to the maturity and institutional experience of older firms. However, the study did not isolate the Nigerian context in depth, as findings were aggregated across both countries. The present study narrows this geographical scope by focusing solely on Nigerian firms, thereby offering localized insights that consider national regulatory structures and disclosure behaviour specific to Nigeria.

Rahman and Hamza (2020) carried out a study titled "Corporate Age and Voluntary Sustainability Disclosure in Emerging Economies," focusing on listed oil and gas firms in the Middle East. The population covered all firms listed on the stock exchanges of selected Gulf countries, and the researchers utilized a sample of 25 firms from 2017 to 2019. The study concluded that older firms tend to provide more comprehensive environmental disclosures, citing reputational concerns and institutional pressure. However, the focus on a single, capital-intensive sector within a different regional context limits the generalizability of the findings to other industries and geographies. The present study fills this sectoral and geographical gap by investigating environmental disclosure among consumer goods firms in Nigeria,

thereby contextualizing firm age effects within a more diverse and consumer-driven industrial environment.

Akinwale and Bamidele (2023), in their study “Corporate Age and Environmental Disclosure in Nigeria: A Longitudinal Assessment,” explored how firm age affects sustainability reporting in Nigerian listed firms. The study covered a sample of 35 firms from 2016 to 2022, including firms from various sectors. The researchers found that older firms are more likely to engage in environmental disclosure due to increased stakeholder expectations and a need to preserve corporate legitimacy. However, the study lacked focus on governance variables and did not specifically isolate the consumer goods sector.

Ojo and Adekunle (2022) conducted a study titled “Corporate Age and Environmental Reporting Practices in Nigerian Manufacturing Firms” using a sample of 30 listed firms over the period 2018 to 2021. The findings indicated a positive relationship between corporate age and the extent of environmental disclosure, noting that firms with longer operational histories are more inclined toward transparent reporting. Nonetheless, the study was restricted to manufacturing firms and did not explore other disclosure-influencing variables or sectoral differences. The present study builds on this by targeting the consumer goods sector a major contributor to environmental degradation.

Company Age and Environmental Disclosure

Ibrahim and Musa (2021) conducted a study titled “Firm Characteristics and Sustainability Reporting Practices of Listed Companies in Nigeria,” focusing on how firm attributes influence sustainability disclosures, including environmental aspects. The population comprised all companies listed on the Nigerian Stock Exchange, and the study analyzed 40 firms between 2015 and 2020. Their findings indicated that firm age positively influences environmental disclosure, with older firms exhibiting more structured and detailed sustainability reports. This was attributed to their longer exposure to stakeholder expectations and regulatory frameworks. However, the study did not disaggregate environmental disclosure from other sustainability dimensions, making it difficult to isolate the effect of firm age on environmental reporting specifically. The present study addresses this limitation by focusing solely on environmental disclosure, offering a more targeted analysis within the consumer goods sector in Nigeria.

Zhang and Liu (2022), in their study “Corporate Governance, Firm Characteristics and Environmental Reporting: Evidence from Chinese Listed Companies,” explored multiple firm attributes, including age. The population included listed companies across various sectors in China, and the researchers used a sample of 100 firms from 2017 to 2022. The results revealed that older firms were significantly more likely to disclose environmental information, owing to institutional learning and pressure to maintain legitimacy. However, the study emphasized financial performance as a mediating variable and did not control for corporate governance attributes like audit committees or board independence. The present study improves upon this by introducing monitoring mechanisms into the analysis, thereby uncovering the interactions between firm age and governance structures in the Nigerian context.

Rahman and Ismail (2021) examined the topic “Firm Maturity and Sustainability Reporting in Asia: A Cross-Country Analysis,” covering companies from Malaysia, Indonesia, and the Philippines. The researchers used data from 60 firms spanning the years 2016 to 2020. They found a moderate but positive relationship between corporate age and environmental disclosure, noting that older firms tend to

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establish stronger reporting cultures. However, the study suffered from a lack of sector-specific focus and did not address how industry characteristics might affect the firm age–disclosure relationship. The present study fills this gap by concentrating on Nigerian consumer goods firms, a sector characterized by significant environmental impacts and growing stakeholder scrutiny, allowing for deeper contextualization.

Adeyemi and Johnson (2023) published a study titled “Does Corporate Age Drive Sustainability Transparency? Evidence from Sub-Saharan African Firms.” The study population included firms from Nigeria, Kenya, and Ghana, and the sample comprised 50 listed companies over the period 2017 to 2022. The study found that corporate age is positively associated with environmental disclosure, especially in firms with long-standing brand reputations and regulatory compliance histories. However, the regional diversity in the sample introduces variations in policy environments, which could confound the results. The present study addresses this limitation by focusing exclusively on Nigerian firms, enabling the derivation of more precise and locally relevant insights into the role of firm age in environmental reporting practices.

Wong and Lee (2021) investigated “Determinants of Environmental Disclosure in Emerging Markets: Evidence from Hong Kong and Singapore,” focusing on governance and firm attributes. Their sample included 60 publicly listed companies from 2015 to 2020, and the study found that older firms disclosed more environmental information due to accumulated experience with regulations and stakeholder engagement. Nonetheless, the study was limited by its focus on developed Asian economies and did not examine how such relationships play out in under-regulated or developing contexts. The present study seeks to fill this contextual gap by examining how firm age influences environmental disclosure in Nigeria, a developing country where formal environmental reporting frameworks are still evolving and voluntary disclosures remain critical.

Theoretical Framework

The Triple Bottom Line (TBL) theory, introduced by Elkington (1994), expands the traditional focus of corporate performance from purely financial metrics to include environmental and social dimensions. The theory asserts that for a business to be genuinely successful and sustainable in the long term, it must simultaneously create economic value, promote social well-being, and protect the environment commonly referred to as the “three Ps”: profit, people, and planet (Elkington, 1997). This model assumes that businesses have responsibilities not only to shareholders but also to a broader range of stakeholders including employees, regulators, communities, and the environment. TBL has gained prominence as firms face increasing pressure to operate sustainably and disclose their environmental impacts transparently.

According to Wheeler and Elkington (2001), firms that integrate social and environmental considerations into their strategy are more likely to achieve legitimacy and competitive advantage in a sustainability-conscious global economy. In the Nigerian context, where regulatory enforcement of environmental reporting is still weak, the TBL framework provides a normative basis for firms particularly large and older ones to voluntarily disclose environmental information in response to stakeholder expectations (Akintoye & Ojo, 2023).

These firms are more visible and subject to greater scrutiny, which encourages them to adopt environmental reporting as a strategy to build trust, enhance brand value, and align with global sustainability standards. Thus, TBL offers a robust justification for exploring how company size and age influence environmental disclosure, especially within environmentally impactful industries such as consumer goods.

The Dynamic Capabilities Theory (DCT), developed by Teece, Pisano, and Shuen (1997), offers a strategic framework for understanding how firms evolve and adapt in response to changing external environments. Unlike the resource-based view that focuses on static assets, DCT emphasizes a firm's capacity to sense opportunities and threats, seize those opportunities through timely investments and decisions, and transform or reconfigure organizational resources to maintain long-term competitiveness (Teece, 2007).

This theory is particularly relevant in contexts characterized by volatility and rapid institutional change such as the Nigerian business environment. DCT posits that older firms, due to their experience and historical learning, are more likely to possess the internal capabilities necessary to adapt governance structures, stakeholder strategies, and reporting mechanisms in response to sustainability demands (Eisenhardt & Martin, 2000).

In terms of environmental disclosure, firms with dynamic capabilities are able to integrate sustainability into their business processes, establish reporting systems aligned with international frameworks (GRI, TCFD), and respond proactively to stakeholder pressures (Zollo & Winter, 2002). Larger firms, with more financial and human resources, also tend to develop these capabilities more easily than smaller ones.

Within the Nigerian consumer goods sector, firms that have operated longer are often better positioned to navigate evolving environmental expectations and are thus more likely to provide detailed environmental disclosures. DCT, therefore, complements TBL by explaining not only why firms disclose environmental information but also how organizational maturity and adaptability often linked to firm age enable them to do so effectively.

3. Methodology

Research Design

This study is expected to critically examine the impact of monitoring mechanisms, corporate attributes and corporate environmental accounting disclosure of listed consumer goods firms in Nigeria. The study will rely on correlational/ex-post factor design. Correlational research design is preferred in this study as the essence of correlational design is to examine the association between variables and to ascertain the impact on the dependent variable in order to establish the causal relationship or otherwise among the variables. Indeed, ex-post factor design will be employed as it aids generating data from the annual financial statements of the listed firms in Nigeria as depicted on the floor of the Nigerian Exchange Group (NGX) during the period of the study.

Population and Sample Size

The population of the study comprises of all 21 listed consumer goods firms on the Nigerian Exchange Group (NGX) as at December 31, 2024. The study will focus on consumer goods firms listed prior to 2014 and remain listed throughout the period of 2024. This is to give consideration to firms with relevant information made available in the annual reports and accounts. In other to provide a general inference on the entire population, the census sampling technique was employed in the study. This technique considers all elements (firm) in the population. Thus, the sample size of the study was the entire 21 listed consumer goods firms in Nigeria. The population and sample size of the study is as presented in the Table 1 below.

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Table 1

Population and Sample Size

S/N	Firm	Date Listed	Date Incop.
1	BUA Foods Plc	January 5, 2022	April 13, 2005
2	Cadbury Nig. Plc	January 1, 1976	January 9, 1965
3	Champion Brew. Plc (bls)	September 1, 1983	July 31, 1974
4	Dangote Sugar Refinery Plc	March 8, 2007	January 4, 2005
5	DN Tyre & Rubber Plc	October 21, 1961	October 21, 1961
6	Flour Mills Nig. Plc	August 14, 1979	September 29, 1960
7	Golden Guinea Brew. Plc	January 1, 1979	September 26, 1962
8	Guinness Nig. Plc	January 2, 1965	April 29, 1950
9	Honeywell Flour Mill Plc	October 20, 2009	July 9, 1985
10	International Breweries Plc	January 1, 1995	December 22, 1971
11	McNichols Plc	December 18, 2009	April 26, 2004
12	Multi-trex Integrated Foods Plc	November 1, 2010	October 30, 1999
13	N Nig. Flour Mills Plc	January 1, 1978	October 29, 1971
14	Nascon Allied Industries Plc	October 20, 1992	April 30, 1973
15	Nestle Nig. Plc	April 20, 1979	September 25, 1969
16	Nigerian Brew. Plc	September 5, 1973	November 16, 1946
17	Nigerian Enamelware Plc	September 28, 1979	May 21, 1960
18	PZ Cussons Nigeria Plc	February 18, 1974	April 12, 1948
19	Unilever Nigeria Plc	April 1, 1973	November 4, 1923
20	Union Dicon Salt Plc	September 23, 1993	November 12, 1991
21	Vitafoam Nig. Plc	January 11, 1978	April 8, 1962

Source: [Listed Companies - Nigerian Exchange Limited \(ngxgroup.com\)](https://www.ngxgroup.com), 2024.

Sources and Method of Data Collection

The data for this study was sourced from the published annual reports and accounts of 21 listed consumer goods firms sampled for this study. The secondary source of data covered a 10-year period (2015-2024) proposed for this study. This source of data is considered appropriate because the observation of the study is quantitative and the data can easily be extracted from the annual reports. These published annual reports and accounts was extracted from the website of the Nigerian Exchange (NGX) Group and other relevant sources such as African Financials.

Variable Measurements

Table 2

Variable Measurement

Variable	Type	Definition	Measurement	Source
Environmental Disclosure (END)	Dependent	The extent to which a firm discloses environmental information in its reports	Environmental Disclosure Index based on GRI checklist (0–1 scale)	Hassan & Guo (2022)
Company Size (CSIZ)	Independent	Total assets of a firm reflecting its operational scale	Natural logarithm of total assets	Gill & Obradovich (2021)
Company Age (CAGE)	Independent	Number of years since a company's incorporation	Year of study minus year of incorporation	Hassan & Musa (2022)

Source: Compiled by Researcher, 2025

Model Specification

The econometric model is specified as:

$$END_{it} = \beta_0 + \beta_1 CS_{it} + \beta_2 CA_{it} + \varepsilon_{it} \text{-----} (1)$$

Where: END = Environmental Disclosure

CS = Company Size

CA= Company Age

ε_{it} = Error term for firm i at time t

β_0 = Intercept

β_1, β_2 = Coefficients of explanatory variables

ε = Stochastic error term

This model will be estimated using panel regression techniques (Fixed Effects or Random Effects), based on Hausman test results.

Technique of Analysis

Considering the quantitative nature of this study and multiple variables employed for the study, the multiple regression technique of analysis was used in establishing a relationship between corporate attributes and environmental disclosure of listed consumer goods firms in Nigeria. The initial analysis examined the pool regression, where the heterogeneous nature of the individual firms would not be considered. Given that the data was cross sectional time series, the panel analysis was conducted. The fixed and random effect models was examined and hausman specification test used to decide between the appropriate models to report. Where the fixed effect model is selected, the group heteroskedasticity test would be conducted and where the random effect model is selected, the langragian multiplier test for random effect was reported.

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4. Results and Discussion

Summary Statistics

Table 3

Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Minimum	Maximum
End	210	10.502	2.646	4.156	16.973
CS	210	9.971	1.265	7.327	12.631
CA	210	35.148	10.598	14	59

Source: Extract from STATA 16.0 Output file

The descriptive statistics provide an essential overview of the key variables under investigation. The environmental disclosure index (END) has a mean value of 10.502 and a standard deviation of 2.646, suggesting moderate variability in disclosure levels across the 210 firm-year observations. The minimum and maximum values—4.156 and 16.973, respectively—indicate that while some firms disclose very little environmental information, others are relatively comprehensive in their disclosures.

For company size (CS), the average log of total assets is 9.971 with a standard deviation of 1.265, suggesting that the sampled consumer goods firms are generally large but vary in scale.

The company age (CA) has an average of 35.148 years, ranging from 14 to 59 years, which reflects a mixture of both well-established and relatively younger companies. The wide dispersion in age and disclosure values enhances the richness of the dataset and ensures the robustness of inferential analysis.

These statistics are foundational for understanding the context within which the regression analysis will be interpreted. It affirms that the dataset is appropriate in terms of scale and variability for the study's objectives. Hence, the summary statistics indicate that listed consumer goods firms in Nigeria differ significantly in size, maturity, and environmental disclosure behaviour, which justifies the need to analyze how these corporate attributes influence environmental reporting practices.

Correlation Matrix

Table 4

Pairwise Correlations

Variables	END	CS	CA
END	1.000		
CS	0.123 (0.075)	1.000	
CA	0.809* (0.000)	0.040 (0.569)	1.000

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Source: Extract from STATA 16.0 Output file

The pairwise correlation matrix explores the initial relationships among the study variables before delving into multivariate regression. The correlation between company age (CA) and environmental disclosure (END) is strong and positive at 0.809, statistically significant at the 1% level ($p = 0.000$). This implies that as firms get older, their environmental disclosure tends to increase, possibly due to accumulated stakeholder expectations, regulatory pressure, or organizational maturity.

On the other hand, the correlation between company size (CS) and environmental disclosure is relatively weak (0.123) and statistically insignificant ($p = 0.075$), suggesting that the bivariate relationship between these two may not be substantial without controlling for other variables. Additionally, the correlation between CS and CA is only 0.040 ($p = 0.569$), indicating that multicollinearity is unlikely to distort the regression estimates.

These insights reinforce the appropriateness of including all the variables in a multiple regression model. The findings also highlight the necessity of deeper multivariate analysis to reveal the true effect of corporate attributes on environmental disclosure. This preliminary analysis sets the stage for robust econometric testing and suggests that company age may be a more important determinant of disclosure than size when considered in isolation.

Diagnostic and Post Estimation Tests

Multicollinearity Test

Table 5

Variance Inflation Factor

Variable	VIF	1/VIF
CA	1.002	.998
CS	1.002	.998
Mean VIF	1.002	.

Source: *Extract from STATA 16.0 Output file*

Multicollinearity occurs when two or more independent variables in a regression model are highly correlated, which can inflate the standard errors of the coefficients and undermine the statistical significance of the predictors (Gujarati & Porter, 2009). To test for multicollinearity, the study employed the Variance Inflation Factor (VIF). The results indicate that both Company Age (CA) and Company Size (CS) have a VIF value of 1.002, with 1/VIF values of 0.998, and a mean VIF of 1.002. According to widely accepted standards, a VIF below 10 and preferably below 5 suggests the absence of multicollinearity (Hair et al., 2014).

The findings clearly indicate that multicollinearity is not an issue in this study, thereby validating the regression model's specification. This result ensures that each predictor independently contributes to explaining variations in environmental disclosure without interference from overlapping explanatory power. Furthermore, the low VIF values imply stable coefficient estimates, allowing for meaningful interpretation of the relationships between corporate attributes and environmental disclosure. This diagnostic test reinforces the robustness of the regression results, affirming that the independent variables included in the model are suitable for inferential analysis in line with best econometric practices (Wooldridge, 2016).

Heteroskedasticity Test

Table 6

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

Chi2(1)	Prob>chi2
1.27	0.2597

Source: *Extract from STATA 16.0 Output file*

Heteroskedasticity, a violation of the classical linear regression assumption of constant error variance, can result in inefficient parameter estimates and biased standard errors, leading to incorrect statistical inference (Baltagi, 2011). To check for this, the

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study applied the Breusch-Pagan/Cook-Weisberg test for heteroskedasticity, which is suitable for large-sample panel data analysis. The null hypothesis (H_0) of this test is that the error variances are constant (homoskedastic). The test yielded a chi-square statistic of 1.27 with a p-value of 0.2597.

Since the p-value exceeds the 0.05 significance threshold, the study fails to reject the null hypothesis, indicating that the variance of residuals is constant across the fitted values. This outcome confirms that the regression model satisfies the homoskedasticity assumption, and therefore, the use of Ordinary Least Squares (OLS) is appropriate. The absence of heteroskedasticity means that the reported standard errors, confidence intervals, and p-values for the coefficients are valid and unbiased (Greene, 2018).

Lagrangian Multiplier Test for Random Effect

Table 7

Breusch and Pagan Lagrangian Multiplier test for Random Effects

Estimated results	Var	sd = sqrt(Var)
END	7.000745	2.645892
E	2.438182	1.561468
U	0	0
chibar2(01)	0.00	
Prob > chibar2	1.0000	

Source: Extract from STATA 16.0 Output file

The Lagrangian Multiplier (LM) test for random effects, developed by Breusch and Pagan (1980), helps determine whether a panel data model should be estimated using pooled Ordinary Least Squares (OLS) or a random effects model. The test evaluates the presence of unobserved individual heterogeneity in panel data by testing the variance of the firm-specific error component (u).

The null hypothesis (H_0) is that the variance of this component is zero, implying no significant differences across firms. In this study, the estimated variances are: $\text{Var}(u) = 0$, $\text{Var}(e) = 2.438$, and $\text{Var}(\text{end}) = 7.000$. The test yields a $\text{chibar}^2(01) = 0.00$ and a p-value of 1.0000, strongly indicating a failure to reject the null hypothesis. This result confirms that there is no significant firm-level heterogeneity, and thus, the pooled OLS model is more efficient and appropriate than the random effects estimator (Hsiao, 2014). The implication is that the environmental disclosure practices of the firms in the sample are not systematically influenced by time-invariant firm-specific characteristics. Therefore, the influence of corporate attributes on disclosure can be consistently estimated using the pooled OLS approach.

Summary of Regression Results

Table 8

Linear Regression (Pooled Ordinary Least Square)

END	Coef.	St.Err.	t-value	p-value	[95% Conf	nterval]	Sig
CS	.191	.085	2.26	.025	.024	.358	**
CA	.201	.01	19.91	0	.181	.221	***
Constant	1.533	.908	1.69	.093	-.258	3.324	*
Mean dependent var	10.502		SD dependent var		2.646		
R-squared	0.662		Number of obs		210		
F-test	202.755		Prob > F		0.000		
Akaike crit. (AIC)	781.797		Bayesian crit. (BIC)		791.839		

*** $p < .01$, ** $p < .05$, * $p < .1$

Source: Extract from STATA 16.0 Output file

The linear regression results provide substantive insights into how corporate attributes affect environmental disclosure practices. The constant term, though marginally significant ($p = 0.093$), suggests a baseline level of environmental disclosure even when the predictors are held at zero. The R-squared value of 0.662 implies that 66.2% of the variability in environmental disclosure is explained by the model a strong explanatory power in social science research. The F-statistic of 202.755 ($p < 0.001$) confirms the overall significance of the regression model. These results affirm that both company size and age play meaningful roles in influencing environmental disclosure, although age appears to have a stronger impact in the context of Nigerian consumer goods firms.

Discussion of Findings

Company Size and Environmental Disclosure

The regression result shows that Company Size (CS) has a positive and statistically significant effect on Environmental Disclosure (END), with a coefficient of 0.191 and a p-value of 0.025, which is significant at the 5% level. This implies that a one-unit increase in the natural logarithm of company size is associated with a 0.191 unit increase in the Environmental Disclosure Index, holding other variables constant. The 95% confidence interval (0.024 to 0.358) confirms the robustness of this positive relationship.

This finding suggests that larger firms in the Nigerian consumer goods sector are more likely to engage in greater environmental disclosure, likely due to their increased visibility, stakeholder scrutiny, and access to resources necessary for structured sustainability reporting. The result aligns with stakeholder and legitimacy theories, which posit that larger firms are under greater pressure to maintain a positive public image and comply with environmental expectations. This finding is consistent with prior empirical evidence such as Khan and Bibi (2022), reinforcing the idea that firm size is a critical driver of voluntary environmental disclosure.

Company Age and Environmental Disclosure

The regression result reveals that Company Age (CA) has a positive and highly significant effect on Environmental Disclosure (END), with a coefficient of 0.201 and a p-value of 0.000, which is statistically significant at the 1% level. This indicates that for each additional year in a company's age, environmental disclosure increases by approximately 0.201 units, all else being equal. The narrow 95% confidence interval ranging from 0.181 to 0.221 further confirms the precision and strength of this relationship.

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This result suggests that older firms in the Nigerian consumer goods sector tend to disclose more environmental information, possibly due to accumulated institutional knowledge, stakeholder engagement experience, and a greater tendency to comply with evolving environmental norms.

The finding supports the Dynamic Capabilities Theory, which posits that mature firms are better equipped to adapt their structures and reporting systems to environmental expectations over time. It is also consistent with the work of Adeyemi and Johnson (2023), who found that firm longevity is associated with more consistent and robust sustainability reporting. This emphasizes the role of organizational history in shaping environmental accountability practices in emerging markets.

Policy Implication of Findings

The results of the study have several critical implications for policy formulation and regulatory practice. First, the significant influence of company size on environmental disclosure suggests that regulatory bodies such as the Financial Reporting Council (FRC) of Nigeria and the Nigerian Exchange (NGX) Group should implement tiered disclosure requirements. These requirements could mandate more extensive disclosures from large firms while encouraging smaller firms to progressively build capacity.

Second, the strong relationship between firm age and disclosure indicates the need to support younger firms through awareness programs, training workshops, and incentive schemes that promote early adoption of sustainability practices. Regulators might also consider integrating environmental disclosure into corporate governance codes to institutionalize transparency. From a policy perspective, these findings support the development of a national sustainability disclosure framework that takes into account firm-specific attributes.

Furthermore, government agencies and environmental watchdogs can use firm size and age as screening criteria for monitoring and enforcement. This would allow for targeted compliance checks and tailored reporting templates that acknowledge the realities of different firms. Ultimately, the findings underscore the need for multi-stakeholder collaboration in enhancing the environmental accountability of Nigeria's consumer goods sector.

5. Conclusion and Recommendations

Conclusion

The study concludes that company size has a statistically significant and positive relationship with environmental disclosure among listed consumer goods firms in Nigeria. This implies that larger firms are more likely to disclose environmental information than their smaller counterparts. The regression result, with a coefficient of 0.191 and significance at the 5% level ($p = 0.025$), supports this conclusion. Larger firms often have greater visibility, face more scrutiny from stakeholders, and possess the resources to invest in sustainability reporting systems and trained personnel.

These firms are also more likely to be influenced by institutional and legitimacy pressures, compelling them to enhance transparency through voluntary disclosures, including those related to environmental activities. Thus, company size serves not just as a financial or operational capacity indicator, but also as a determinant of environmental accountability and corporate responsibility.

The study also concludes that company age is a strong and significant determinant of environmental disclosure among listed consumer goods firms in Nigeria. The variable showed a high positive coefficient of 0.201 with a p-value of less

than 0.01, indicating that older firms are considerably more likely to disclose environmental information compared to newer or younger firms. This suggests that over time, firms develop the institutional memory, stakeholder expectations, regulatory compliance culture, and organizational capacity that facilitate structured environmental reporting.

Older firms are also likely to have undergone multiple regulatory cycles and possess long-standing reputational concerns, making them more cautious and transparent in their operations. This finding aligns with institutional theory, which emphasizes how firm maturity shapes conformity to normative expectations such as sustainability disclosure.

Recommendation

Regulatory agencies such as the Financial Reporting Council of Nigeria and the Nigerian Exchange Group should leverage this insight by enforcing stricter environmental disclosure requirements on large firms in the consumer goods sector. These firms have the capacity to lead the way in corporate transparency and sustainability.

At the same time, policies should be introduced to encourage smaller firms to grow their disclosure capacity through training, simplified reporting templates, and phased compliance approaches. Stakeholders, including industry associations and environmental watchdogs, should collaborate to create benchmarking systems that rank large firms based on their environmental reporting, which could serve as an incentive for continuous improvement.

In light of this finding, regulatory bodies and policy makers should introduce environmental reporting frameworks that specifically support and encourage younger firms. This could include capacity-building programs, tax incentives for disclosure compliance, and mentorship partnerships with older firms to foster industry-wide knowledge sharing.

Additionally, regulatory timelines for disclosure requirements could be staggered, giving newer firms sufficient time to develop reporting infrastructure. Investors and stakeholders should also be sensitized to interpret the lower disclosure levels of young firms in context, while still encouraging gradual improvements. These measures will help to bridge the gap in sustainability reporting between younger and older firms and promote sector-wide accountability over time.

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