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RESEARCH ARTICLE

CHIEF EXECUTIVE OFFICERS ATTRIBUTES AND ENVIRONMENTAL REPORTING OF QUOTED INDUSTRIAL GOODS FIRMS IN NIGERIA

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Abstract: Environmental degradation by company's activities and neglect on social welfare of both employees of the companies and public at large has been on the increase, yet the present reporting framework fails to capture company's performance on these issues. Based on this, this study examined the relationship between CEO attributes and environmental reporting of quoted industrial goods firms in Nigeria. However, the specific objectives included to ascertain the relationship between CEO ownership and environmental reporting of quoted industrial goods firms in Nigeria. *Ex-post facto* research design was adopted, and panel data covering ten (10) years (2013-2022) were collected across eleven (11) quoted industrial goods firms in Nigeria which formed the sample size of the study. The data collected were analyzed using descriptive statistics and panel multiple regression analysis via E-views 10.0 statistical package. Amongst others, the study findings revealed that CEO education has a significant positive relationship (Coeff. = 3.9351{0.0277}) with environmental reporting of quoted industrial goods firms in Nigeria while CEO compensation has an insignificant positive relationship (Coeff. = 0.8300{0.1621}) with environmental reporting of quoted industrial goods firms in Nigeria. A Prob (F-statistics) of 0.00000 suggests that CEO ownership (CEO_OWN), CEO origin (CEO_ORG), CEO education (CEO_EDU), CEO gender (CEO_GEN) and CEO compensation (CEO_COMP) have a combined significant effect on sustainability reporting at 5% significance level. Based on this, it is however concluded that CEO attributes significantly influences environmental reporting of industrial goods companies in Nigeria. The recommendations made included that firms should consider supporting and encouraging CEOs to enhance their understanding of environmental issues, regulations, and sustainability practices through executive education programs.

Keywords: *Chief Executive Officer (CEO), Environmental Reporting, Quoted Industrial Goods Firms and Nigeria.*

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INTRODUCTION

Background to the Study

The globe has undergone many changes in recent years, including economic, political, social, and technological changes, which have made the corporate world more competitive in order to be the best in the industry. This is done to attract the attention of society, particularly new investors, as well as to retain existing investors. Top manager attributes in context Chief Executive Officers (CEO) are one of the variables that investors consider when deciding whether or not to invest in a company.

As agents for shareholders, CEOs have a significant responsibility to maximize shareholder wealth and raise the value of their company. The ability and competency of senior managers, particularly CEOs, in managing organizations to compete in the market also influences corporate success or failure (Nzekwe *et. al.,* 2021). According to Ezeokafor and Amahalu (2019), the mind-set of financial investors in the economy may thus be heavily directed by a good corporate governance framework.

A solid structure will encourage prospective investors to depend largely through the unwavering quality of good corporate governance and disclosure practices.

It incorporates connections between, and responsibilities of the organization’s stakeholders, just as the laws, policies, methods, practices, norms and standards may influence the organization’s direction and control (Okudo and Amahalu, 2021). Environmental, entails meeting the needs of the present generation without compromising the ability of future generation to meet their own needs (Modozie and Amahalu, 2022). In other words, environmental advocates intergenerational equity. While, environmental report as posited by GRI (2021) is the practice of measuring, disclosing and being accountable for organizational performance while working towards the goal of sustainable development. GRI emphasizes the importance of meaningful stakeholder engagement throughout the reporting cycle (GRI, 2016).

Moreover, with information technologies in full swing, stakeholders want every organisation to be responsible, accountable and transparent. Environmental reporting involves assessing the economic performance in environmental and social terms. Regardless of its scope, reporting creates a coherent picture of the values, principles, governance practices and economic performance of corporate firms. It is against this backdrop that this study sought to examine the nexus between CEO attributes and environmental reporting of listed industrial goods firms in Nigeria.

Statement of the Problem

The economy of the world is currently faced with a complex range of economic, social and environmental issues including, ozone depletion, climate change, water shortage, labour rights, poverty, forest loss, biodiversity destruction, air pollution, water pollution, oil spillage, deforestation, desertification, erosion, and flooding, environmental degradation, and resource depletion.

The life-threatening implications of these challenges have drawn criticisms of the traditional capitalist paradigm, prompting calls for a "new accounting system" that recognize the social and environmental impact of organizational and business operations (Atairet, 2022).

Chief Executive Officers (CEOs) play key roles within corporate firms' boardrooms. Risk management, getting a grasp on competitive intelligence and defining a company strategy are some of the key challenges they face (Berggren *et. al.,* 2019). Environmental degradation by company's activities and neglect on social welfare of both employees of the companies and public at large has been on the increase, yet the present reporting framework fails to capture company's performance on these issues. Meanwhile users of accounting information need information on these emerging issues for proper assessment of firms' performance (Uford and Duh, 2021). Externalities caused by a business organization cannot be accurately measured, neither are they entirely recognized in financial accounting; also the likelihood of scarcity caused by resources used in the production process do not reflect in market prices of such resources (Yusuf and Yahaya, 2023).

Consequently, financial accounting alone is inadequate to portray a holistic picture of organizational performance, except it takes cognizance of environmental reporting. The accountability that, financial results of companies communicate an important aspect of their transparency that cannot be ignored; but financial results alone cannot communicate a company's social, environmental and sustainability impacts which are germane in enhancing firms' reputation and investors' confidence (Charles and Uford, 2023).

Extant literature on the subject matter is generally scanty and lacks consensus as mixed findings and conclusions were reached by previous researchers. The few studies in Nigeria (Oktapfiani *et. al.,* 2023; Oktapiani, *et. al.,* 2023; Yusuf and Yahaya, 2023; Law and Ningnan, 2022; Oduduabasi *et. al.,* 2022, Saidu, 2019) focused on surrogates such as financial performance, market value, share valuation etc. and failed to give credence to environmental reporting.

However, Essien, Ukpong and Akinninyi (2023) and Modozie and Amahalu (2022) placed emphasis on sustainability reporting but failed to inculcate CEO attributes in their studies. Same applies to studies conducted outside Nigeria such as Choi, Karim and Tao (2022) and Altuwaijri and Kalyanaraman (2020). This present study tends to fill these identified gaps by examining the relationship between CEO attriutes and environmental reporting of quoted industrial goods firms in Nigeria.

The study inculcates CEO attributes such as ownership percentage, origin and education with the environmental reporting index as outlined by the Global Reporting Initiative (GRI) helps in assessing the environmental reporting of quoted industrial goods firms In Nigeria.

Objectives of the Study

The main objective of this study was to examine the relationship between CEO attributes and environmental reporting of quoted industrial goods firms in Nigeria. However, the specific objectives were to:

- To ascertain the relationship between CEO ownership and environmental reporting of quoted industrial goods firms in Nigeria.
- To establish the relationship between CEO origin and environmental reporting of quoted industrial goods firms in Nigeria.
- To investigate the relationship between CEO education and environmental reporting of quoted industrial goods firms in Nigeria.
- To assess the relationship between CEO gender and environmental reporting of quoted industrial goods firms in Nigeria.
- To examine the relationship between CEO compensation and environmental reporting of quoted industrial goods firms in Nigeria.

Research Questions

The following research questions were formulated for this study.

- What effect does CEO ownership have on environmental reporting of quoted industrial goods firms in Nigeria?
- To what extent does CEO origin affect environmental reporting of quoted industrial goods firms in Nigeria?
- How does CEO education affect environmental reporting of quoted industrial goods firms in Nigeria?
- How does CEO Gender influence environmental reporting of quoted industrial goods firms in Nigeria?
- What magnitude of effect does CEO compensation have on environmental reporting of quoted industrial goods firms in Nigeria?

Research Hypotheses

The following hypotheses were formulated for this study.

Ho_1: CEO ownership has no significant relationship with environmental reporting of quoted industrial goods firms in Nigeria.

Ho_2: CEO origin has no significant relationship with environmental reporting of quoted industrial goods firms in Nigeria.

Ho_3: CEO education has no significant relationship with environmental reporting of quoted industrial goods firms in Nigeria.

Ho_4: CEO gender has no significant relationship with environmental reporting of quoted industrial goods firms in Nigeria.

Ho_5: CEO compensation has no significant relationship with environmental reporting of quoted industrial goods firms in Nigeria.

Scope of the Study

This study examined the relationship between CEO attributes and environmental reporting of industrial goods firms quoted on the floor of the Nigerian Exchange Group for the period of 10 years; from 2013 to 2022. The independent variable (CEO attributes) was proxied by CEO ownership, CEO origin, CEO education, CEO gender and CEO compensation. Environmental reporting index as outlined by the Global reporting initiative (GRI) was adopted in measuring environmental reporting of these industrial goods firms for the period under study.

LITERATURE REVIEW

Conceptual Framework

CEO Attributes

The characteristics, talents, and skills displayed by Chief Executive Officers (CEOs) that influence their leadership effectiveness and impact organizational success are referred to as CEO attributes (Yusuf and Yahaya, 2023). These characteristics include a wide range of personal, professional, and behavioural characteristics that influence the CEO's leadership style, decision-making, and interactions within the business and with external stakeholders.

The appointment process for a Chief Executive Officer (CEO) varies depending on the specific organization and its governance structure. In general, the CEO is typically appointed by the board of directors, who hold the responsibility of overseeing the management and strategic direction of the company. CEOs are often expected to possess a combination of attributes that contribute to their effectiveness in leading and guiding the company.

CEO Ownership

CEO ownership, also known as CEO equity ownership or CEO share ownership, refers to the level of the Chief Executive Officer's (CEO) ownership holding in the company they run. It denotes the percentage or number of shares of the company's stock in which the CEO holds or has a beneficial interest (Yusuf and Yahaya, 2023).

CEO ownership is a compelling factor to consider when examining the sustainability reporting practices of listed industrial goods firms in Nigeria. CEO ownership refers to the extent to which CEOs have substantial equity stakes in their respective companies, aligning their interests with those of shareholders and potentially influencing their commitment to sustainability reporting. Research has shown that CEO ownership can have a significant impact on sustainability reporting outcomes. When CEOs hold a considerable amount of company shares, they have a personal financial stake in the success of the firm, which may drive them to prioritize sustainable practices and transparency (Bushman, Chen, Engel & Smith, 2016). This alignment of interests between CEOs and shareholders can enhance the likelihood of more robust sustainability reporting practices.

CEO Origin

CEO origin refers to the background and origins of an individual who becomes a Chief Executive Officer (CEO) of a company. It encompasses the personal and professional journey of the CEO, including their education, work experience, career trajectory, and other factors that have led them to assume the top leadership position in an organization. This entails that a CEO is appointed either from within the firm workforce or appointed from outside the company, and whichever case, there are different interpretations to the mode of entry into the post (Saidu, 2019).

This means that the CEO is either an insider CEO or an outsider CEO. The concept of CEO origin holds significant importance when examining the sustainability reporting practices of listed Industrial goods firms in Nigeria. A CEO's background, experiences, and values play a crucial role in shaping a company's approach towards sustainability and its reporting practices.

CEO Education

CEO education refers to the educational background and qualifications of a company's Chief Executive Officers (CEOs). It includes the formal education, degrees, certifications, and training that CEOs have obtained throughout the course of their academic and professional development. The attainment of some level of education is one of the prerequisites of improved managerial performance. A CEO's educational background plays a vital role in shaping their understanding and commitment towards sustainability, which in turn influences the firm's sustainability reporting initiatives.

CEO Gender

The concept of CEO gender refers to the gender composition of Chief Executive Officers (CEOs) within organizations. It involves examining the representation, experiences, and challenges faced by individuals of different genders in top leadership positions. Research has shown that there is a significant underrepresentation of women in CEO roles across industries and countries. According to a study conducted by Catalyst (2019), women held only 6.6% of CEO positions in S&P 500 companies in the United States.

Similarly, a report by Grant Thornton (2020) indicated that globally, women held just 29% of senior management positions, with an even smaller proportion occupying CEO roles. The underrepresentation of women in CEO positions can be attributed to various factors, including bias and discrimination. Research has highlighted the existence of both explicit and implicit biases that contribute to the perception that leadership is primarily a masculine trait (Eagly and Carli, 2007). These biases may result in women facing barriers to advancement, such as limited access to networks, gender stereotypes, and unconscious biases during the selection and promotion processes.

CEO Compensation

The concept of CEO compensation refers to the financial package and rewards given to Chief Executive Officers (CEOs) for their role in leading and managing organizations. It encompasses various elements such as base salary, bonuses, stock options, and other benefits. CEO compensation has been a topic of extensive research and discussion.

There are several factors that influence CEO pay, including company size, industry, financial performance, and market conditions. For instance, a study by Bebchuk and Fried (2004) found that CEO pay tends to be higher in larger companies and those with greater profitability. One prominent aspect of CEO compensation is the use of performance-related incentives such as bonuses and stock options.

These incentives are designed to align the interests of CEOs with those of shareholders and motivate them to achieve specific performance targets. Research suggests that CEO pay-performance sensitivity can vary across organizations and industries (Murphy, 1999). In some cases, pay-performance sensitivity may be weak, meaning that CEOs receive substantial compensation regardless of company performance, which can lead to concerns about excessive pay.

Global Reporting Initiative

The Global Reporting Initiative (GRI) is a widely recognized framework that provides guidelines for sustainability reporting. It sets the standards and provisions that help organizations report their economic, environmental, and social performance in a comprehensive and consistent manner. The GRI framework has become a global benchmark for sustainability reporting due to its inclusive approach, relevance, and credibility (GRI, 2021).

The GRI framework consists of several key provisions that assist companies in navigating the complex landscape of sustainability reporting. One of the primary provisions is the emphasis on materiality. GRI requires organizations to identify and report on the issues that are most relevant and significant to their business and stakeholders (GRI, 2016). This helps companies focus their reporting efforts on areas that have the greatest impact on sustainability performance, allowing for more efficient use of resources. Another important provision is the requirement for companies to engage stakeholders in the reporting process.

The Global Reporting Initiative (GRI) framework also provides essential provisions and guidelines for organizations embarking on sustainability reporting. Its focus on materiality, stakeholder engagement, multi-dimensional reporting, sector-specific supplements, and reporting principles helps companies report their economic, environmental, and social performance effectively and transparently.

By aligning with the GRI framework, organizations can enhance the credibility of their sustainability reporting and contribute to the global movement towards a more sustainable future. The environmental reporting index as outlined by Global reporting initiative is as shown in Table 1 below;

Table 1: Environmental reporting checklist

GRI Ref.	Indicator	Check
GRI 305-1	Net carbon emissions	Does the company disclose adequate information regarding the net carbon emissions generated during the year?
GRI 305-2	Indirect carbon emissions	Does the company disclose their indirect CO_2 emissions (indirect energy from purchased electricity) generated in the year?
GRI 302-1 & 3	Energy management	Does the company disclose the total energy consumed during the year including specific heat consumption?
GRI 303-5	Water management	Does the company disclose its water consumption intensity for the year?
GRI 303-4	Waste management	Does the company disclose the total waste generated during the year and the measures put in place to manage them?
GRI 302-4	Circular economy and alternative fuel	Does the company disclose its alternative fuel resources (AFR) co-processed during the year?

Source: Researcher's compilation (2023)

Environmental Reporting Index

The Environmental Reporting Index (ERI) is a comprehensive framework designed to guide organizations in reporting their environmental performance and impacts. Developed by the WBCSD and CDSB, this index aims to enhance transparency, comparability, and consistency in environmental reporting across different sectors and regions (WBCSD, 2019). One key aspect of the ERI is its emphasis on materiality. The ERI requires organizations to conduct a robust materiality assessment to identify the most significant environmental issues (CDSB, 2020). This assessment helps companies focus their reporting efforts on areas that are most relevant to their stakeholders and business operations.

The ERI also provides specific provisions for reporting on climate-related information. Given the increasing importance of addressing climate change, the ERI aims to help companies improve their reporting on greenhouse gas emissions and climate-related risks and opportunities (CDSB, 2020).

Another notable feature of the ERI is its focus on aligning reporting with financial disclosures. In recognition of the interconnectedness between financial and environmental performance, the ERI encourages organizations to integrate environmental information into their financial reports (WBCSD, 2019).

This integration enhances the understanding of the financial implications of environmental risks and opportunities for both internal and external stakeholders. Furthermore, the ERI advocates for the use of science-based targets (SBTs) in environmental reporting. SBTs provide companies with a framework for setting emission reduction goals that are consistent with the objectives of the Paris Agreement (WBCSD, 2019).

CEO Attributes and Environmental Reporting

CEO Ownership and Environmental Reporting

Environmental reporting has gained significant attention globally as businesses face increasing pressure to disclose their environmental impacts and sustainability practices.

CEO ownership can influence a firm's commitment to sustainable practices (Zayol *et. al.,* 2017). CEOs holding higher ownership stakes are more likely to view environmental performance as an integral part of long-term business success. Their personal financial interests become aligned with the firm's sustainability objectives, impacting decision-making processes (Appah, 2022). Higher CEO ownership may motivate CEOs to engage in proactive environmental reporting to demonstrate their commitment to stakeholders.

CEO Origin and Environmental Reporting

The relationship between CEO characteristics and corporate practices has attracted significant interest in recent years. CEOs' cultural background and national origin can influence their commitment to sustainable practices (Choi, Karim and Tao (2022). CEOs originating from countries with strong environmental regulations and sustainability practices may have a greater inclination towards promoting and supporting environmental reporting initiatives within their companies. Culture plays a crucial role in shaping an individual's values, beliefs, and attitudes towards environmental issues (Oktapiani, *et. al.,* 2023).

CEOs hailing from countries with a strong environmental awareness and a history of sustainable practices may be more likely to prioritize environmental reporting as part of their corporate strategy. CEO origin can also interact with the regulatory environment regarding environmental reporting.

CEO Education and Environmental Reporting

Corporate environmental reporting has become an essential aspect of corporate social responsibility (CSR). The CEO plays a critical role in promoting sustainability practices within organizations. Research suggests that CEOs' level of education can influence their awareness and concern for environmental issues (Okonkwo and Emmanuel, 2023).

CEOs with higher levels of education may be more likely to understand the benefits of environmental reporting and its importance in achieving sustainable development. CEOs with educational backgrounds in environmental studies or sustainability may be more likely to prioritize environmental reporting as part of their corporate strategy (Ewereoke, 2018).

Such CEOs may have a deeper understanding of environmental issues and the benefits of environmental reporting, which could motivate them to establish more robust environmental reporting mechanisms in their organizations.

CEO Gender and Environmental Reporting

The role of gender diversity in corporate governance has gained significant attention in recent years. Gender diversity at the top management level can positively influence corporate social responsibility practices (Nwafor and Amahalu, 2021). Female CEOs may be more likely to prioritize environmental reporting as stakeholders increasingly expect organizations to demonstrate their commitment to sustainability.

Female CEOs might exhibit leadership styles that emphasize collaboration, empathy, and long-term decision-making, which are often associated with greater environmental concern (Adeniji, 2021). Such leaders may drive environmental reporting initiatives and promote sustainable practices within their organizations.

CEO Compensation and Environmental Reporting

The relationship between CEO compensation and sustainability reporting practices has been widely examined in the literature. CEO compensation packages that include financial incentives tied to performance and thus influences firm behavior (Williamson & Akpomedaye, 2021). CEOs seeking to maximize their compensation may be motivated to improve the company's environmental reporting practices to align with stakeholder expectations and demonstrate responsible corporate citizenship.

Nigeria's industrial goods firms often face institutional pressures related to environmental regulations and stakeholder demands for transparent environmental reporting (Anachedo *et. al.,* 2021). CEOs may respond to these pressures by prioritizing and investing in robust environmental reporting systems to avoid reputational risks and maintain stakeholder trust. Shareholder activism has emerged as a powerful force in influencing corporate behavior, including environmental practices (Jubril, 2014).

Theoretical Framework

Stakeholder theory by Edward Freeman (1984)

Stakeholder theory, which was propounded by R. Edward Freeman in 1984, is a relevant framework for understanding the relationship between CEO attributes and sustainability reporting of quoted industrial goods firms in Nigeria. Stakeholder theory suggests that CEOs consider a broader range of stakeholders beyond shareholders when making decisions and shaping their reporting practices.

According to Freeman (1984), stakeholders are individuals or groups who can influence or are influenced by the activities and decisions of an organization. In the context of sustainability reporting, stakeholders may include employees, customers, communities, suppliers, regulators, and non-governmental organizations (NGOs).

In the case of industrial goods firms in Nigeria, CEOs may be motivated to engage in sustainability reporting to meet the demands and expectations of these various stakeholder groups. Customers may prefer to purchase products from companies that demonstrate a commitment to environmental conservation or ethical sourcing as opined by Nzekwe, Okoye and Amahala (2021).

Stakeholders demand that industrial goods firms operating in their vicinity disclose their environmental impact and contribute to local development. By considering the needs and concerns of stakeholders, CEOs can align their sustainability reporting efforts with the interests of these groups, which can lead to improved stakeholder relationships and enhanced reputation (Ezeokafor and Amahalu, 2019).

Sustainability reporting can serve as a tool for transparently communicating the company's environmental, social, and governance (ESG) performance to stakeholders, fostering trust and accountability.

The Upper Echelons theory by Hambrick and Mason (1984)

The Upper Echelons theory was propounded by Donald C. Hambrick and Phyllis A. Mason in 1984.

According to the Upper Echelons theory, the characteristics of top executives, such as their values, experiences, and cognitive frames, significantly influence organizational outcomes and decision-making processes. CEO attributes play a crucial role in shaping a firm's commitment to and implementation of sustainable practices. The beliefs and values held by CEOs can influence their perceptions of the importance of sustainability and their commitment to incorporating it into the company's reporting practices (Gillan, Jiang and Starks, 2019).

For instance, a CEO who has a strong environmental consciousness and a belief in the impact of climate change may be more likely to prioritize sustainability reporting and implement initiatives to reduce the firm's carbon footprint. Conversely, a CEO who prioritizes short-term profitability or lacks awareness of environmental issues may not prioritize sustainability reporting or allocate resources to sustainability efforts.

Furthermore, CEO attributes such as educational background, industry experience, and network connections can also impact the extent and quality of sustainability reporting. CEOs with prior knowledge and experience in sustainable practices may have a better understanding of the benefits and challenges of sustainability reporting, and thus, be more inclined to engage in it. Additionally, CEOs with extensive networks of contacts in the sustainability field may have access to expertise, resources, and best practices that can enhance the firm's environmental reporting.

Empirical Review or Framework

Several studies have been conducted by some scholars on CEO attributes and environmental reporting of listed firms in Nigeria. Some of the studies are:

Okonkwo and Emmanuel (2023) investigated the influence of CEO Education on Environmental Reporting in Listed Industrial Goods Firms in Nigeria. The research design used was *ex-post* facto, while twenty (20) quoted Industrial Goods Firms on the Nigerian Stock Exchange as at 31st December 2021 was the population of the study, of which eight (8) firms were selected using purposive sampling technique as the sample size. The period of the study is from 2012 to 2021. Data was analyzed using multiple regression analysis. The study found a significant positive relationship between CEO education and the level of environmental reporting in Nigerian listed industrial goods firms.

Essien, *et. al.,* (2023) examined the moderating effect of corporate attributes and social accounting reporting: the moderating role of chief executive officers' educational qualification in Nigeria. This study adopted ex-post facto research design. Secondary data derived from the financial statements of listed healthcare and consumer's firms were reviewed for the study for the period 2017-2021.

The data set was first subjected to pre-regression analyses which include descriptive statistics analyses, correlation analyses and the test for normality of residua. Logistic regression was used for the data analysis. Findings of the study revealed there is a significant moderating effect of CEO educational qualification on the influence of firm size, leverage and board size on financial, social reporting disclosures of listed Nigerian companies.

Oktapiani, *et. al.,* (2023) looked into the impact of CEO ownership and CEO origin on the performance of non-financial firms listed on the Indonesia Stock Exchange from 2010 to 2018. The data was collected from annual reports of firms in non-financial sectors published by the Indonesia Stock Exchange during the specified period.

A purposive sampling technique was used, resulting in 1,976 observations. The research model employed unbalanced panel data analysis with a fixed-effect model approach. The findings indicated that CEO ownership has a significant influence on firm performance when measured using Tobin's Q as a market proxy. However, CEO origin does not have a significant effect on Tobin's Q.

Yusuf and Yahaya (2023) examined the impact of CEO nationality and tenure on the financial performance of listed firms in Nigeria. The data for this study was collected from 112 listed firms over a period of ten years. Using descriptive and inferential statistical analyses, the study found that both CEO nationality and tenure significantly affect financial performance.

The findings supported the Agency theory and the cost and benefit hypothesis. However, the study was limited by the sample size of 112 listed firms. The results of the study provided insights for regulators and investors, helping them understand the potential performance implications of appointing CEOs with different nationalities and tenures.

Appah (2022) evaluated the effects of corporate governance mechanisms on the value of deposit money banks in Nigeria from 2010 to 2020. Specifically, the relationships between board size, board independence, board ownership, gender diversity, board meetings, and Tobin q (a measure of firm value) were investigated.

The sample consisted of all deposit money banks, and data was collected from their published financial statements. Univariate, bivariate, and multivariate analyses were conducted to analyze the data. The results indicated that board independence, board size, ownership structure, gender diversity, and board meetings positively and significantly influence the value of deposit money banks. The study concluded that corporate governance attributes have a positive and significant impact on the value of deposit money banks in Nigeria.

Recommendations included enhancing board sizes and having non-executive directors as professional advisers to maximize shareholder value. The findings implied that implementing effective corporate governance characteristics can enhance firm value in Nigerian deposit money banks.

METHODOLOGY

Research Design: *Ex-post facto* research design was used in this study. *Ex-post facto* research, also known as after-the-fact research, is a type of study in which the examination begins after the event has occurred, without the intervention of the researcher (Uford and Etim, 2018). This study used an *ex-post facto* research strategy because the data for the analysis has already transpired, leaving little or no room for the researcher to manipulate it.

Population of the Study: In this study, the population was made up of all industrial goods companies listed on the floor of the Nigerian Exchange Group from 2013 to 2022. As of December 31st, 2022, the total number of industrial goods companies was thirteen (13).

Sample Size and Sample size Determination: The sample of this research was calculated by using Taro Yamane (Yamane, 1973) formula with 95% confidence level. The Taro Yamane Formula is given as:

$\boldsymbol{n} = \frac{\mathrm{N}}{1+\mathrm{N}(e)^2}$ ***Where: n = sample size required***

N = Population e = significant level = 5% From the formula above, the sample size of this study is computed as: $\boldsymbol{n} = \frac{13}{1.0325}$ $\boldsymbol{n} = 13$

Sampling Techniques: In a bid to derive homogeneous sample, the researcher adopted purposive sampling technique to select eleven out of thirteen industrial goods companies. To obtain this homogeneous sample, the researcher deselected the company that got listed or merged and acquired after the study period (2013) and got delisted before the end of the study period (2022). Therefore, BUA Cement Plc and Notore Chemical Industrial Plc were deselected and the final sample size remained 11 companies.

Source of Data and Method of Data Collection: In this study, secondary data source was employed which has been justified in studies of Appah (2022) and Yusuf & Yahaya (2023). Secondary data was preferred due to its reliability, acceptability, and availability. The data for the sampled listed industrial goods companies were sourced from the Nigerian Exchange Group fact books and related companies and annual financial reports for the periods covered in the study.

Method of Data Analysis: In examining the relationship between CEO attributes and sustainability reporting of industrial goods companies in Nigeria, panel least square regression analysis was used in analysing the data via the aid of E-views 10.0 statistical package. The decision was based on 5% level of significance. Accept null hypothesis (Ho) if probability value (i.e. P-value or Sig.) is greater than or equals to (≥) stated 5% level of significance (α); otherwise, reject and accept alternate hypothesis (H_1), if p-value or sig calculated is less than 5% level of significance.

Model Specification and Variable Measurement: The model for this study was adapted from the work of Saidu (2019) and modified to suit our study. The econometric function of the model is given below:

Environmental reporting = *f* (CEO attributes)

$$ERI_{it} = \partial_0 + \partial_1 CEO\_OWN_{it} + \partial_2\ CEO\_OR\ G_{it} + \partial_3 CEO\_EDU_{it} + \partial_4 CEO\_GEN_{it} \partial_5 CEO\_COMP_{it} + £_{it}$$

Where: ERI = Environmental reporting index (Measure of sustainability reporting), CEO_OWN = CEO ownership, CEO_ORG = CEO origin, CEO_EDU = CEO education, CEO_GEN = CEO gender, CEO_COMP = CEO compensation , ∂_0 =Model intercept, $\partial_1 \ldots\ldots \partial_3$=Coefficient to be estimated, where $\partial_1 \ldots\ldots \partial_3 > 0$, it = Cross section of listed companies with time variant, $£_{it}$ = Stochastic error term

Table 2: Measurement of variables

Variable	Measurement	Sources
Environmental reporting index (Dependent variable)	$\frac{\text{Total level of environmental disclosure}}{\text{Total environmental occurence as stipultaed by GRI}}$	Nzekwe *et. al.*, (2021)
CEO ownership (Independent variable)	Ownership of CEO measured; as % of ownership held by a CEO	Saidu (2019); Ali and Xin (2020)
CEO origin (Independent variable)	Insider or outsider, 1 if CEO = insider CEO (appointed from within the organization), otherwise 0	Saidu (2019); Ishak and Latif (2012)
CEO education (Independent variable)	Educational level of CEO, 1 if CEO = postgraduate (master and above), 0 otherwise	Razali *et. al.*, (2022); Saidu (2019)
CEO gender (Independent variable)	Female CEO is represented by 1, otherwise 0	Nwafor and Amahalu (2021), Innocent *et. al.*, (2020)
CEO Compensation (Independent variable)	Natural logarithm of total remuneration and allowances received by CEO.	Williamson and Akpomedaye (2021), Ali and Xin (2020)

Source: Author's compilation, 2023.

DATA PRESENTATION, ANALYSIS AND DISCUSSION OF FINDINGS

Data Analysis

Various statistical techniques were utilized in the analysis of data presented in (Appendix II). These include descriptive statistics, regression assumption tests and panel multiple regression analysis. The results from the panel multiple regression analysis were used in the testing of the research hypotheses which had been stated in the first section of this work.

Descriptive Statistics

This was conducted to understand the behaviour of the data using various statistics including mean, standard deviation, skewness, and kurtosis. The result for the descriptive statistics analysis is as presented in Table 3 below;

Table 3: Descriptive statistics of variables

	ER_INDEX	CEO_OWN	CEO_ORG	CEO_EDU	CEO_GEN	CEO_COMP
Mean	63.03030	5.438636	0.536364	0.636364	0.027273	9.595212
Median	66.66667	0.000000	1.000000	1.000000	0.000000	9.980765
Maximum	100.0000	86.60000	1.000000	1.000000	1.000000	14.74767
Minimum	33.33333	0.000000	0.000000	0.000000	0.000000	0.000000
Std. Dev.	19.85958	14.70364	0.500958	0.483247	0.163622	3.549302
Skewness	-0.062960	2.624548	-0.145841	-0.566947	5.804714	-1.565664
Kurtosis	1.972323	8.155142	1.021270	1.321429	34.69470	5.341029
Jarque-Bera	4.913223	248.0889	18.33541	18.80687	5221.943	70.05915
Probability	0.085725	0.000000	0.000104	0.000082	0.000000	0.000000
Sum	6933.333	598.2500	59.00000	70.00000	3.000000	1055.473
Sum Sq. Dev.	42989.90	23565.49	27.35455	25.45455	2.918182	1373.132
Observations	110	110	110	110	110	110

Source: Researcher's computation using E-views 10.0 (2023)

The results in table 3 above indicates that the dependent variable dependent variable-Environmental reporting index (ERI) and the independent variables which were CEO ownership (CEO_OWN), CEO origin (CEO_ORG), CEO education (CEO_EDU), CEO gender (CEO_GEN) and CEO compensation (CEO_COMP) of quoted industrial goods firms in Nigeria have mean scores of approximately 63%, 5.43%, 54%, 63%, 3% and 9.59respectively.

This indicates the central or average values for these variables from 2013 to 2022. The median values obtained for the dependent variable-environmental reporting index (ER_INDEX) and the independent variables which were CEO ownership (CEO_OWN), CEO origin (CEO_ORG), CEO education (CEO_EDU), CEO gender (CEO_GEN) and CEO compensation (CEO_COMP) of quoted industrial goods firms in Nigeria were approximately 1.73, 0.00, 1.00 and 1.00 respectively. These constituted the middle values for the distributions of these variables under the period covered in this study (2013-2022).

In terms of the level of variability and dispersion in the distribution of these variables, the standard deviations obtained for the dependent variable – environmental reporting index (ER_INDEX) and the independent variables which were CEO ownership (CEO_OWN), CEO origin (CEO_ORG), CEO education (CEO_EDU), CEO gender (CEO_GEN) and CEO compensation (CEO_COMP) of quoted industrial goods firms in Nigeria were approximately 66.66, 0.00, 1.00, 1.00, 0.00 and 9.98 respectively. This indicates varying levels of variability in the distribution with environmental reporting index indicating high variations in the distributions. Similarly, the skewness values obtained for dependent variable – environmental reporting index (ER_INDEX) and the independent variables which were CEO ownership (CEO_OWN), CEO origin (CEO_ORG), CEO education (CEO_EDU), CEO gender (CEO_GEN) and CEO compensation (CEO_COMP) of quoted industrial goods firms in Nigeria were -0.06, 2.62, -0.14, -0.56, 5.80 and -1.56 respectively. This quantifies the asymmetry of the distributions.

In addition, the kurtosis values obtained for environmental reporting index (ER_INDEX) and the independent variables which were CEO ownership (CEO_OWN), CEO origin (CEO_ORG), CEO education (CEO_EDU), CEO gender (CEO_GEN) and CEO compensation (CEO_COMP) of quoted industrial goods firms in Nigeriawere given as approximately 1.97, 8.15, 1.02, 1.32, 32.69 and 5.34 respectively. Since the values of the kurtosis are greater than zero (0), it indicates a leptokurtic distribution, hence the presence of outliers in the data.

Test of Hypotheses

Each of the hypotheses in this study was tested based on the result obtained from the panel multiple regression analysis. The result that relate to these hypotheses is summarized in table below;

Table 4: Panel multiple regression results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	56.12107	7.385409	7.598912	0.0000
CEO_OWN	-0.299045	0.151704	-1.971243	0.0514
CEO_ORG	-2.438702	4.034830	-2.604412	0.0069
CEO_EDU	3.935168	4.001299	2.983472	0.0277
CEO_GEN	-22.93092	11.19902	-2.547582	0.0431
CEO_COMP	0.830086	0.589520	1.408071	0.1621
R-squared	0.147922	Mean dependent var		63.03030
Adjusted R-squared	0.106957	S.D. dependent var		19.85958
S.E. of regression	18.76749	Akaike info criterion		8.755131
Sum squared resid	36630.75	Schwarz criterion		8.902430
Log likelihood	-475.5322	Hannan-Quinn criter.		8.814876
F-statistic	3.610908	Durbin-Watson stat		1.865298
Prob(F-statistic)	0.004726			

Source: E-views 10.0 (Output in Appendix II)

The multiple regression line is as written below:

ERI = 56.12107-0.299045CEO_OWN-2.438702CEO_ORG+3.935168 CEO_EDU-

22.93092 CEO_GEN+0.830086CEO_COMP +$_\mu$

Considering the regression results above, when the independent variables- CEO ownership (CEO_OWN), CEO origin (CEO_ORG), CEO education (CEO_EDU), CEO gender (CEO_GEN) and CEO compensation (CEO_COMP) of quoted industrial goods firms in Nigeria are held constant (equal Zero), the dependent variable– environmental reporting as measured by environmental reporting index (ERI) will increase at a constant average of approximately 56.12%.

However, a one percent (1%) rise in CEO education (CEO_EDU) and CEO compensation (CEO_COMP)will increase environmental reporting as measured by environmental reporting index (ERI) of quoted industrial goods firms by approximately 3.93% and 0.83% respectively while a one percent (1%) rise inCEO ownership (CEO_OWN), CEO origin (CEO_ORG) and CEO gender (CEO_GEN) will decrease environmental reporting as measured by environmental reporting index (ERI) of quoted industrial goods firms in Nigeria by approximately 0.29%, 2.43% and 22.93% respectively.

The Prob (F-statistics) of 0.00000 suggests that CEO ownership (CEO_OWN), CEO origin (CEO_ORG), CEO education (CEO_EDU), CEO gender (CEO_GEN) and CEO compensation (CEO_COMP) have a combined significant effect on environmental reporting at 5% significance level.

DISCUSSION OF FINDINGS

CEO Ownership and Environmental Reporting

The study findings revealed that CEO ownership has an insignificant negative relationship (Coeff. = -0.2990{0.0514}) with environmental reporting of quoted industrial goods firms in Nigeria. This means that there is no statistically significant impact of CEO ownership on the extent to which firms report their environmental activities. A one percent increase in CEO ownership does not have a meaningful effect on environmental reporting. The insignificant negative relationship between CEO ownership and environmental reporting suggests that owning a significant portion of the company does not necessarily lead to a greater emphasis on environmental reporting. However, it is essential to note that while the relationship is statistically insignificant, it does not necessarily mean there is no relationship at all.

There might be other factors not accounted for in this study that could mediate or moderate the relationship between CEO ownership and environmental reporting. This finding challenges the assumption that CEOs with higher ownership stakes would prioritize reporting on environmental initiatives. It implies that CEO ownership may not inherently drive environmental stewardship or disclosure. This misaligns with the findings of Modozie and Amahalu (2022) which documented that Board members shareholding has a positive effect on environmental sustainability reporting.

CEO Origin and Environmental Reporting

The study found a significant negative relationship (Coeff. = -2.6044{0.0069}) between CEO origin and environmental reporting. This implies that insider CEOs are associated with lower levels of environmental reporting in quoted industrial goods firms in Nigeria. This implies that CEOs who are not originally from Nigeria are less likely to prioritize environmental reporting in their firms. A one percent increase in CEOs with non-Nigerian origin is associated with a 2.6044 decrease in the extent of environmental reporting.

Executives who are not native to Nigeria may have different perspectives on environmental issues, or they may face challenges in understanding and integrating local sustainability practices. These factors can contribute to a reduced emphasis on environmental reporting.

To enhance environmental reporting, it may be beneficial for organizations to provide cross-cultural training, promote awareness, and foster a deeper understanding of the importance of sustainability practices among CEOs from diverse backgrounds. This finding raises intriguing questions about cultural differences, values, and priorities among CEOs based on their place of origin or previous designation. This is in agreement with the findings of Choi, Karim and Tao (2022).

This study focused on the increasing trend of recruiting CEOs from outside the firm, as opposed to promoting from within as well as the implications of CEO origin. This is in agreement with the findings of Choi, Karim and Tao (2022). This study focused on the increasing trend of recruiting CEOs from outside the firm, as opposed to promoting from within as well as the implications of CEO origin.

CEO Education and Environmental Reporting

The study found a significant positive relationship Coeff. = 3.9351{0.0277}) between CEO education and environmental reporting. This indicates that CEOs with higher levels of education are associated with higher levels of environmental reporting in quoted industrial goods firms in Nigeria. The coefficient of 3.9351 suggests that a unit increase in CEO education is associated with a 3.9351 unit increase in environmental reporting. This highlights the importance of CEO education in driving environmental reporting practices. CEOs with higher education levels may have better knowledge and understanding of the benefits and importance of environmental reporting.

CEOs with extensive educational backgrounds may possess a stronger understanding of environmental issues, regulations, and the business case for sustainable practices. They may also have developed skills in stakeholder engagement and communication, enabling them to effectively implement and report on environmental initiatives.

To encourage environmental reporting, organizations could consider prioritizing executive education on sustainability topics or seeking CEO candidates with relevant educational qualifications. This finding aligns with previous research that emphasizes the role of education in shaping individuals' environmental awareness and commitment to sustainability.

This can influence their decision-making process and commitment to integrating environmental practices into the firm's operations. This aligns with the findings of Essien, Ukpong and Akinninyi (2023) and that of Saidu (2019). These studies concluded that CEO educational qualification influences social reporting disclosures of listed Nigerian companies.

CEO Gender and Environmental Reporting

The study also revealed that CEO gender has a significant negative relationship (Coeff. = -22.9309{0.0431}) with environmental reporting of quoted industrial goods firms in Nigeria. This indicates that female CEOs are less likely to prioritize environmental reporting in their firms compared to male CEOs. A one percent increase in female CEOs is associated with a 22.9309 decrease in the extent of environmental reporting.

The significant negative relationship between CEO gender and environmental reporting suggests that female CEOs, compared to their male counterparts, are less likely to prioritize environmental reporting in quoted industrial goods firms in Nigeria. Possible explanations could include societal biases, limited representation of women in leadership positions, or differences in how male and female CEOs perceive and prioritize sustainability issues.

Bridging this gender gap in environmental reporting requires addressing systemic barriers, promoting diversity and inclusion in leadership roles, and fostering gender equality in decision-making processes. This finding shed light on the potential gender-related disparities in environmental leadership and decision-making.

This however disagrees with the findings of Innocent, Ibanichuka and Micah (2020). Innocent, Ibanichuka and Micah (2020) explored the relationship between CEO gender and environmental disclosure in Nigerian listed industrial goods firms. The study however revealed a significant positive relationship between CEO gender and the level of environmental disclosure in Nigerian listed industrial goods firms.

CEO Compensation and Environmental Reporting

In addition, the study also documented that CEO compensation has an insignificant positive relationship (Coeff. = 0.8300{0.1621}) with environmental reporting of quoted industrial goods firms in Nigeria. This suggests that CEO compensation does not have a significant impact on the extent of environmental reporting in quoted industrial goods firms in Nigeria. A one percent increase in CEO compensation does not lead to a meaningful change in environmental reporting. The insignificant positive relationship between CEO compensation and environmental reporting implies that CEO pay does not significantly influence the extent of environmental reporting for quoted industrial goods firms in Nigeria. This finding suggests that monetary incentives alone may not be sufficient to motivate CEOs to prioritize and report on environmental initiatives.

While CEO compensation plays a vital role in motivating executives, it is important to recognize that environmental reporting goes beyond financial considerations. Organizations need to adopt a broader perspective by emphasizing non-financial incentives, such as recognition for sustainability achievements, reputational benefits, and alignment with stakeholder expectations.

Integrating sustainability goals and metrics into executive performance evaluation criteria can further incentivize CEOs to proactively report on environmental matters. This is line with the findings of Williamson and Akpomedaye (2021) who investigated the effect of CEO compensation on environmental reporting in Nigerian industrial goods companies. The study's findings reveal a positive relationship between CEO compensation and the level of environmental reporting in Nigerian industrial goods companies.

CONCLUSION AND RECOMMENDATIONS

This present study reveals interesting insights into the relationship between CEO attributes and environmental reporting in quoted industrial goods firms in Nigeria. These findings highlight the importance of CEO attributes in influencing the environmental reporting practices of industrial goods firms in Nigeria. The results suggest that CEOs with higher levels of education are more likely to prioritize environmental reporting, while CEOs with non-Nigerian origin and female CEOs are less likely to prioritize it. Additionally, CEO ownership and compensation do not seem to significantly impact environmental reporting. Considering these implications, it is crucial for organizations to consider the diverse backgrounds and qualifications of CEOs when it comes to promoting environmental reporting. Companies may benefit from appointing CEOs with higher education levels, irrespective of their origin or gender, as they are more likely to prioritize and drive environmental reporting initiatives.

A Prob (F-statistics) of 0.00000 suggests thatCEO ownership (CEO_OWN), CEO origin (CEO_ORG), CEO education (CEO_EDU), CEO gender (CEO_GEN) and CEO compensation (CEO_COMP) have a combined significant effect on sustainability reporting at 5% significance level. Based on this, it is however concluded that CEO attributes significantly influences environmental reporting of industrial goods companies in Nigeria.

The following recommendations should be considered necessary.

- The position of CEO should be vested on people with a good number of shares held in the firm at least 5.43% as this was the average percentage found in this study. This was found to account for a positive effect on the dependent variable.
- CEO positions should be elected more to outsiders of firms as they could be more independent and compromise less than the insiders.
- CEOs should be individuals with a post graduate degree. A master's degree at least because they can have more knowledge and understand the business more.
- Firms should consider supporting and encouraging CEOs to enhance their understanding of environmental issues, regulations, and sustainability practices through ongoing executive education programs.
- Firms should look beyond financial rewards and consider non-financial incentives such as recognition for sustainability achievements, reputational benefits, and stakeholder alignment.

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