



Corporate Board Diversity Effect on Environmental Sustainability Disclosure Evidence from Nigeria

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Author's contribution

The sole author designed, analysed, interpreted and prepared the manuscript.

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ABSTRACT

The board of directors is responsible for making important decisions relating to corporate climate strategy. However, there is a possibility that their focus on minimizing agency costs may lead them to compromise environmental policies. This study aims to examine the impact of board diversity on the tendency that consumer goods firms listed in Nigeria will report on their environmental sustainability activities with a focus on a ten-year period (2011 to 2020). This study adopts ex-post facto research design using a population of twenty (20) consumer goods firms listed on the Nigerian Exchange Group's (NGX). A sample of 16 firms were selected through purposive sampling techniques and the data set which were sourced from published audited annual report were analysed using binary logistic regression analyses approach. The result reveal that CEO nationality have a positive significant effect on environmental disclosure suggesting that engaging the services of a foreign CEO can be leveraged upon in the determination of corporate goals that are associated with reducing the adverse effect of firm's operation on the environment. The outcome is consistent with the stakeholders' theory and reflects a sign of CEOs commitment to the demands and interests of stakeholders. In view of the foregoing, the study advocate for policies that that will accommodate hiring CEOs from different nationality. Such policies when implemented will give support to environmentally friendly discussions and deliberations which can

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translate to improved value for the firm. Such policy actions will be fundamental to maintaining good relationships with powerful stakeholders hence help avoid undue pressure from stakeholders.

Keywords: Board diversity; environmental sustainability reporting; CEO nationality; binary logistic regression analyses.

1. INTRODUCTION

In the last two decades, there has been a growing focus on the significance of strong corporate governance originating from the board of directors' perspective. This has led to ongoing discuss among scholars globally, with [1] stating that corporate boards play a critical role in corporate governance, particularly in capital markets where external oversight may not be adequate [2] and [3], note that governance mechanisms include ownership structure, board structure, board meetings, protection of minority shareholder rights, and financial reporting. These factors all play a role in corporate decision-making, but the board structure is considered to be the most influential across the world [4] supports the view that board structure has a significant impact on firm performance and decision-making while [5] argue that the board of directors serves as an important monitoring mechanism to ensure that management acts in the best interests of shareholders. Overall, there is a consensus among scholars that the board structure is a critical element of governance mechanisms and has a significant impact on corporate decisions.

Failures in governance, such as the Enron Corporation scandal, have caused regulators and investors to pay closer attention to the monitoring role of boards. The "business case" for board diversity is commonly supported by two main perspectives: Resource Dependency which pertains to provision of service [6], and Agency [7], which pertains to control, task monitoring, and discipline roles [8]. Board diversity is one way to enhance corporate governance [9,10], either through demographic factors such as age, gender, and ethnicity, or structural factors such as CEO duality, board independence, and director ownership. According to [11], having people from diverse cultural, ethnic, and gender backgrounds can enhance a company's comprehension of its market position, innovation, and creativity [12] further suggested that this diversity could also improve problem-solving. The ideal board should consist of individuals with different abilities, expertise, insights, influence,

and availability to contribute, as stated by [13]. Therefore, [14] emphasized that board diversity is a crucial element of corporate governance.

In recent years, there has been an increased focus on environmental issues, leading to significant changes in how businesses operate. As a result, corporations are facing pressure to report on additional issues through complementary reports. However, studies exploring the link between board diversity and environmental sustainability reporting have produced mixed results, as seen in studies conducted by [15-18 and 19]. In Nigeria, despite the government's efforts to promote gender equality, social roles are often stereotyped by gender, and discriminatory traditions and cultural biases often hinder women's representation in managerial roles. This is due to Nigeria's cultural perspective, which views men as society's leaders, creating a highly patriarchal society. Nevertheless, according to [20] companies with a higher proportion of female directors are more likely to be perceived as ethical and demonstrate good corporate citizenship.

The theories of human and social capital can be closely connected to the resource dependence theory, which suggests that a board can maximize its social and human capital by carefully selecting board members. In this context, the impact of nationality diversity on firm performance through non-financial information (such as environmental disclosure) can be either positive or negative. By increasing nationality diversity, a more diverse social and human capital can be gained compared to a homogeneous board. However, according to agency theory, a board with a high proportion of foreign directors can increase agency costs and may lead to poor firm performance, contradicting the firm's goal of profit maximization [21].

In Nigeria, corporate boards are predominantly composed of male CEOs, indicating a lack of diversity and significant gender gap, as highlighted by [22]. This is a pressing concern for public, private, and non-governmental organizations, as research has demonstrated that more diverse boards tend to be more

socially responsible, transparent, and philanthropic, while avoiding fraud [23]. According to [24] and [25], factors such as demographic, class, ethnic, disciplinary, ideological, and value positions influence how sustainability ideas are perceived and acted upon in everyday decision-making. [26] suggest that an extended analysis is needed to examine the relationship between board diversity and sustainability beyond economic and legitimacy metrics. In response to this call, this study aims to investigate the existing literature on how board diversity, from the perspective of CEO nationality diversity and board gender diversity, influences environmental sustainability reporting. To the best of the researcher's knowledge, prior literature on this topic in Nigeria has overwhelmingly focused on the effect of board gender diversity on environmental sustainability disclosure. This study extends the analysis to include CEO nationality diversity, using listed non-finance firms in Nigeria.

2. LITERATURE REVIEW

2.1 Sustainability Reporting

The term "sustainability reporting" lacks a universally agreed definition, but it generally refers to a company's disclosure of its economic, environmental, and social performance. [27] notes that although this term is sometimes used interchangeably with others, such as triple bottom line reporting, corporate responsibility reporting, and sustainable development reporting, they are gradually becoming subsets of sustainability reporting as their meanings become more specific. [28] define sustainability reporting as a type of accounting and reporting that involves recording, analysing, and reporting on the financial impacts induced by environmental and social factors, as well as the ecological and social impacts of an economic system, such as a company or production site. The concept of sustainability reporting centers around measuring, analysing, and communicating the connections and interplay among the three dimensions of sustainability, including social, environmental, and economic aspects.

2.2 Environmental Sustainability

Environmental sustainability is becoming an increasingly pressing issue for society, as demonstrated by the continuous promotion of sustainable development goals on political agendas. Movements like "Fridays for Future"

have intensified the pressure on businesses and politics to take measures against climate change [29]. The Guardian highlights the urgency of the situation, warning that irreversible environmental damage is on the horizon, and we are currently living in an age of extinction [30]. Therefore, it is crucial for both individuals and businesses to take immediate action. Businesses, particularly in developed countries, are significant contributors to greenhouse gas emissions and pollution [31]. Climate activists and scientists worldwide are urging businesses to take responsibility for their environmental impact and are reaching out to politicians and governments to enforce stricter regulations on firms regarding pollution and waste disposal [32]. Businesses are responding to this by giving more attention and priority to reporting environmentally friendly policies and sustainability efforts [33]. Many companies now have dedicated sections in their annual reports focusing on sustainability, or even publish separate reports exclusively covering environmental matters [34].

2.3 Corporate Board Diversity

The significance of "board diversity" has gained traction in corporate governance literature, with a focus on heterogeneity among directors on the board, [35 and 36]. In their study, [37,38 and 39] define board diversity as a combination of qualities, attributes, demography, and expertise among individual board members that may affect corporate environmental policy. Since board diversity is an essential corporate governance tool for effective management and oversight, it should be considered when selecting board members. Some scholars categorize board diversity as a demographic or structural phenomenon, such as CEO duality, board independence, and director ownership, as described by [9]. Diverse boards can be categorized into observable differences, such as race, ethnicity, nationality, gender, and age, and less noticeable diversity, such as educational level, educational background, functional and occupational background, industry experience, and organizational membership, [40]. Studies have shown that board diversity predicts success in international corporate practices, as reported by [41 and 42]. Agency and resource dependency theories are frequently employed to explain the link between board diversity and corporate social responsibility, where more diversity on the board promotes better monitoring and management of the corporation's activities, as [43 and 44] explain.

2.4 Board Gender Diversity

Gender diversity is a significant demographic diversity factor that has been extensively studied [45]. Three broad perspectives - the business case, theoretical, and ethical - have been used to describe gender diversity in corporate board studies. Scholars have demonstrated the beneficial effects of gender diversity using the theoretical axes of the resource dependence theory [6], the signalling theory [46], the resource-based perspective [47], the stewardship concept [48] and Higher strata theory [49]. According to these theories, gender diversity improves board effectiveness and company performance, thereby reducing the likelihood of corporate insolvency. Scholars have used the concepts of social identity and social categorization to analyse the effects of gender diversity on corporate performance and find that it can have negative consequences. Specifically, according to [1] and [49] gender diversity may lead to increased monitoring and decreased stock value. These findings have been supported by the outcomes of [50 and 51].

2.5 CEO Nationality

The CEO, or Chief Executive Officer, is typically the most influential decision maker in most organizations [52 and 53]. The CEO's international experience can be valuable in creating global competitiveness through international diversification, as it equips them with skills to deal with unexpected problems and new challenges that are not available in their home countries. As such, international experience has become a requirement for the CEO position [54 and 55]. Companies continue to demand and reward CEOs with international experience, particularly in the era of globalization [56 and 57], seeking foreign executives who can provide management talent and technical skills.

2.6 Board Gender Diversity and Environmental Sustainability Reporting

Having female directors on a board can improve the quality of the board and enhance management effectiveness [17,58,59]. Female directors are often less motivated by short-term personal agendas and more focused on societal benefits, making them better suited for long-term environmental sustainability reporting activities [60]. Including women on the board also leads to

better preparation, commitment, and diligence [61] and improves decision-making processes, attendance, and performance [50]. Adequate representation of women on the board can enhance the quality and integrity of sustainability reporting through quality deliberations [62]. Companies that have a greater representation of women on their boards are more prone to transparently disclosing sustainability issues, refraining from suppressing information or providing deceptive details to stakeholders. Additionally, the presence of women on the board positively influences economic, social, and governance information disclosure [63].

2.7 CEO Nationality and Environmental Sustainability

The CEO's personality traits can have a significant impact on a company's strategic decisions [64]. Nationality is identified as one of the drivers of corporate social responsibility reporting [65]. The CEO is accountable for making decisions, delegating responsibilities to employees, overseeing diverse activities, monitoring organizational functions, and representing the company to the public, other companies, and government entities. The CEO's ability to act consistently with the expectations, values, and laws of the countries in which they do business is critical. In international business, foreign CEOs play a vital role in the external environment. It is expected that foreign CEOs will meet the public's expectations for high levels of environmental sustainability disclosure in accordance with the values and laws of the CEO's country of work, according to various studies, including those of [66] and [67]. In this frame, [68] support the idea that firms with foreign managers tend to have a higher level of corporate social disclosure in multi-culture countries. Further, [69] discovered that firms managed by foreign CEOs are more likely to disclose higher degrees of corporate social performance compared to those managed by indigenous CEOs.

2.8 Theoretical Framework

2.8.1 Legitimacy theory

Legitimacy theory states that society and organizations have a close relationship based on a 'social contract' [70,71 and 72] identified two types of legitimacy: strategic and institutional. Strategic legitimacy focuses on the organization's motives and desires, while

institutional legitimacy is about the organization's conformity to the norms and values of society [73] argue that legitimacy is a way of communicating an organization's image [74] suggest that legitimacy involves reactive and proactive strategies while [75] defines legitimacy as the degree to which stakeholders demand immediate action. Organizations receive direct and indirect pressure from various stakeholders towards their social and economic functions in society. Therefore, management engages in socially beneficial programs or attempts to avoid behaviours detrimental to society and its expectations [76]. Sustainability reporting is a tool used by organizations to communicate with society and legitimize their environmental performance to various stakeholders [75 and 77]. As legitimacy is threatened when companies breach their social contracts (such as environmental protections), environmental reporting can help mitigate these pressures [75]. Management believes that legitimacy not only increases opportunities to attract economic resources and reduce threats from external pressures but also ensures social and political support."

2.8.2 Empirical review

The study conducted by [55] aimed to explore how corporate governance affects a company's decision to disclose environmental information. The researchers focused on four attributes of corporate governance, namely, board-size, CEO duality, domestic institutional ownership, and foreign institutional ownership. The study utilized a checklist of items based on Global Reporting Initiative guidelines and Indian environmental regulations to measure environmental disclosures. To analyze the data, the researchers employed a content analysis of annual reports for 177 companies in India that were identified as the most polluting for the period of 2009-2015. The study found that foreign institutional ownership was the most significant corporate governance attribute that influenced managers to engage in environmental disclosure behaviors.

In their study, [78] investigated how the characteristics of a CEO influence the environmental performance of Indonesian banks. Specifically, they looked at the CEO's gender, age, expertise, and international experience, and analysed secondary data from annual and sustainability reports using panel data regression. The study found that a CEO's international experience and education level had

a positive impact on a bank's environmental performance, while having a foreign CEO or a CEO who studied abroad had a negative effect. These results suggest that the CEO plays a crucial role in driving a bank's environmental activities and that their decisions are essential in promoting environmental practices that lead to better performance.

Haladu et al. [79] conducted a study to evaluate the effectiveness of government environmental agencies in promoting the disclosure of environmental information of environmental sensitive firms in Nigeria. The researchers collected secondary data from financial, sustainability, and triple bottom line statements of firms selected randomly from six sectors of the economy covering the period from 2009 to 2014. The regression analysis showed a disclosure index of approximately 55%, which is a positive result.

Kolk et al. [80] conducted a conceptual study that aimed to explore the relationship between board governance mechanisms and sustainability reporting quality (SRQ) in Malaysia. The research approach involved reviewing previous literature on sustainability reporting practices and SRQ to develop an understanding of how board attributes affect the SRQ of public listed companies in Malaysia. The study confirms that the SRQ of firms is influenced by board attributes and posit that there is a positive relationship between the examined board governance elements and SRQ based on multiple theories.

Shahab et al. [81] motivated by environmental policies, regulations, and management in China conducted a study on the effects of CEO characteristics on sustainable performance, environmental performance, and environmental reporting among Chinese listed firms. The authors analyzed a comprehensive dataset of 2,854 Chinese listed firms for the period between 2010 and 2017, resulting in over 16,000 firm-year observations. Engaging the upper echelons theory, the study produced four main outcomes. First, CEOs with research backgrounds were more likely to engage in activities that improve sustainable performance, environmental performance, and environmental reporting compared to those who did not. Second, CEOs with financial expertise were linked to increased sustainable performance and environmental reporting. Third, CEOs with foreign exposure showed more interest in activities that enhance sustainable and environmental performance than

those without such exposure. Last, young CEOs tended to take actions that reduced both sustainable and environmental performance compared to their older counterparts.

3. METHODOLOGY

Ex-post facto research design, also referred to as causal-comparative research design is employed in conducting this study. By employing this type of research design the researcher do not have control over the independent variable(s) which is often a pre-existing characteristic or condition but analyse their effects on the dependent variable(s). The population of this study consists of all the available listed consumer goods firms during the period 2011 - 2020. As of December 2020, twenty (20) consumer goods firms were listed on the floor of the Nigerian Exchange Group (NGX). The study employs purposive sampling technique which require certain criteria to be met by the sampled companies. These criteria were based on accessibility of annual financial reports of the sampled firms for the entire selected period of study and the need for each sample firm to have joined the Nigerian Exchange Group before year 2011. Most importantly, all relevant information needed for the analyses must be available in the selected

annual reports of the sampled firms. Thus, the final sample size of 16 consumer goods firms was employed for the analyses. In examining the relationship between corporate governance and environmental sustainability of listed consumer goods firms, binary logistic regression analyses technique was employed and the model of [82] was modified to suit the purpose of this study expressed econometrically as:

3.1 Environmental Sustainability Disclosure Model Specification

$$ESD_{it} = \beta_0 + \beta_1 CEON_{it} + \beta_2 BOGD_{it} + RETA_{it} + e_{it}$$

Where:

ESD	=	Environmental Sustainability Disclosure
CEON	=	Chief Executive Officer Nationality Diversity
BOGD	=	Board Gender Diversity
RETA	=	Return on Total Asset
β_0	=	Constant Term
β_1 - β_2	=	Slope Coefficient
e	=	Error term
i	=	i th firm
t	=	time-period

Table 1. Operationalization of study variables

Variable	Acronym	Definition	Source
Environmental Sustainability Disclosure	ESD	Computed as Dummy (1,0) "1" for companies that disclose content on environmental sustainability information and "0" otherwise	Ong and Djajadikerta (2018)
Chief Executive Officer Nationality Diversity	CEON	Computed as Dummy (1,0) "1" for companies that have foreign CEOs and "0" otherwise	Ezhilarasi and Kabra (2017)
Board Gender Diversity	BOGD	Computed as the ratio of female directors to total board size	Arayssi, Dah, & Jizzi, (2016)
Return on Total Asset	RETA	Computed as profit after tax divided total asset	

Authors' Compilation

4. RESULTS AND DISCUSSION OF FINDINGS

In order to examine how board diversity relates to environmental sustainability reporting among Nigerian consumer goods companies listed on the stock exchange, analysis of descriptive statistics was conducted. This analysis describes the characteristics of the data obtained from the sample firms used in this study. The results of this analysis are presented below.

Table 2. Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Esd	160	0.1875	0.3915378	0	1
Ceon	159	0.51572	0.5013317	0	1
Bgdv	160	13.99069	10.43371	0	40
reta	160	6.9595	8.7485880	-19.66	46.67

Authors' Computation

Table 3. Binary logistic regression analysis estimates

Variables	CEO Nationality	Board Gender	Profitability
Environmental Sustainability Reporting Model			
Coef.	0.333	0.002	0.014
z_ Stat	(4.81)	(0.95)	(4.53)
Prob._ z stat	{0.000} ***	{0.345}	{0.000} ***

Obs = 159

Prob. > chi2 = 0.0000

R-Square (Pseudo)= 0.3342

Pearson Prob > chi2 = 0.9394

Linktest = 0.883

Where: *** represents 1% level of statistical significance

Source: Authors' Computation

From the table shown above, it was observed that on average, 17% of the company's sample disclose information related to environmental sustainability practices during the period under investigation. This also implies that about 83% of the firms in our sample did not disclose information regarding environmental sustainability practices. We also find that 52% of the firms in our sample engaged the services of foreign CEOs. For the variable of board gender diversity, the table reveals that on average it is 13.99 with a standard deviation of 10.43 and a minimum/maximum values of 0 and 40 respectively. The control variable show a mean value of 6.96 with a standard deviation of 8.75.

Table 3 displays the outcome of the binary logistic regression analysis model used to examine how the diversity in corporate boards impacts on environmental sustainability reporting. The results demonstrate that the independent and control variables employed in the model clarify roughly 33% of the changes in the dependent variable, as indicated by the Pseudo R² value of 0.33. Additionally, the likelihood ratio of 51.47 and the corresponding probability value of 0.0000 demonstrate a statistically significant level of 1%. Further, the test for model adequacy reveals that the model is adequately specified, with hatsq = 0.013 and Prob_hatsq = 0.883 while the Pearson chi² value of 0.9394 indicates that the entire

model is suitable for discussion and policy recommendation. Also, the Table 3 indicates that out of 20 cases, 12 cases belonging to eco-friendly firms were accurately predicted with a sensitivity accuracy of 40%. Similarly, out of 141 cases, 123 cases that belonged to non-environmentally friendly firms were accurately predicted with a specificity accuracy of 95.35%. Although the overall accuracy rate is 84.91%, it suggests that the model is unbiased and can be utilized for policy recommendations and interpretation.

Clearly, from the regression analyses, the possibility that an indigenous CEO will initiate policies that will improve environmental sustainability practices and its associated disclosure is positive and statistically significant at 1%. The result implies that hiring a foreign CEOs will increase the chances that the firm will select environmentally friendly policies and consequently disclose the information. This result is consistent with prior related outcome of [65] who note that CEO nationality is one essential driver of social and environmental responsibility [68] supports the hypothesis that the level of corporate environmental disclosure is greater for firms with foreign managers. For the variable of board gender diversity, the outcome suggests that the probability of board gender diversity to determine environmental sustainability is insignificant.

5. CONCLUSION AND RECOMMENDATION

The relationship between having a diverse board of directors and reporting on a company's environmental sustainability is becoming more common. This is due to a growing understanding that sustainability issues can have a significant impact on a company's success, as well as an increased demand for transparency and disclosure from stakeholders. Additionally, corporations and the business community in general need to address sustainable development issues. This study explores the effect of corporate board diversity on environmental sustainability disclosure of listed consumer goods firms in Nigeria. The result from this study showcases the inherent benefits (in terms of environmental sustainability practices & its associated disclosure) derivable from hiring foreign CEOs. Therefore, the study carefully recommend that environmentally conscious firms should initiate policies that will accommodate hiring CEOs from different nationality. Such policies when implemented will give support to environmentally friendly discussions and deliberations which can be translated to improved value for the firm.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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