A LEGACY OF LEADERSHIP: A SPECIAL ISSUE HONOURING THE TENURE OF OUR VICE CHANCELLOR, PROFESSOR ARMAYA'U HAMISU BICHI, *OON, FASN, FFS, FNSAP*

FUDMA Journal of Humanities, Social Science and Creative Arts

PRINT ISSN: 3092-815X
E-ISSN: 3092-8168
DOI: https://doi.org/10.70882/fujohssaca.2025.v1(AHBSI).12
Homepage: https://fujohssaca.esrgngr.org

Corporate Boards and Sustainability Reporting: Evidence from Environmentally Sensitive Firms in Nigeria

***John Echobu, Emmanuel A. Kighir and Mohammed A.Yusuf**

Department of Accounting, Faculty of Management Sciences, Federal University Dutsin-Ma, Katsina State, Nigeria.
*Corresponding Author's email: johnechobu2@gmail.com

KEYWORDS:
Directors' Remuneration,
Stakeholder Engagements,
Board Sustainability Committees,
Sustainability Reporting.

ABSTRACT
The study examined the impact of board attributes on sustainability reporting of some environmentally sensitive firms in Nigeria. Motivated by the gap in the literature, especially in the Nigerian context about the impact of board of directors' remuneration and board-stakeholder engagements on sustainability reporting, a sample of 11 (out of a total population of 14) firms from the Agriculture and Oil and Gas Sectors in the Nigerian Exchange Group were studied for the period from 2019-2023. Data were sourced from annual reports and financial statements of the firms, and the analysis of data was based on results from statistical inferences and regression models. The study found that both directors' remuneration and stakeholder engagement have a positive and significant impact on sustainability reporting. The study also reveals that board sustainability committees have a positive and significant impact on sustainability reporting, board gender diversity has a negative and significant impact on sustainability reporting, and board size has a negative but insignificant impact on sustainability reporting. The study recommends that board sustainability committees be given a prominent place by recognizing them as statutory committees, in order to support the global commitment to sustainable business practices, including sustainability reporting. The study also recommends that strong company ethics and values be put in place to recognize and respect the culture of equal opportunity for both male and female employees to allow women to freely exert their positive influence on business policies and practices.

CITATION
Echobu, J., Kighir, E. A., & Yusuf, M. A. (2025). Corporate Boards and Sustainability Reporting: Evidence from Environmentally Sensitive Firms in Nigeria. *FUDMA Journal of Humanities, Social Science and Creative Arts*, *1*(AHBSI), 97-110. https://doi.org/10.70882/fujohssaca.2025.v1(AHBSI).12

INTRODUCTION

The subject of sustainability has gained prominence globally and its applicability is seen in virtually all spheres of human endeavors including the business world. Stakeholders in the business community and environment are much more awakened by the need for social and environmental sustainability and are putting more pressure on corporations to engage in disclosing the social and environmental impact of their operations in addition to reporting the financial position of the business. This growing interest in sustainability reporting has further initiated research aiming to investigate factors that support the extent of reporting sustainability information by corporations.

Sustainability reporting extends the provision of accounting information beyond financial reporting to also report how business activities impact the economic, social, and environmental ecosystem of the business.

Hence, sustainability reporting stands on three tripods namely, economic, social, and environmental disclosures. Social sustainability reporting is a recognition of the social well-being of the people who provide their skills and professional expertise to be used by the business, and the disclosure of such recognition by providing information relating to employee human and labour rights, wages and compensations, and general working conditions. Environmental sustainability reporting focuses on providing information on business activities that promote or undermine ecological safety and conservation. According to Janggu, et al., (2014), environmental sustainability discloses information on the impacts of business processes, products, and services on air, water, biodiversity, and human health. Economic sustainability is the ability of an organization to continue to exist on a strong financial footing (Elaine & Byrne, 2018). Therefore, economic sustainability reporting is the disclosure of the overall financial health of a business, revealing metrics and indicators of economic and financial performance.

In Nigeria, as in other developing countries, corporate social and environmental sustainability disclosures have remained largely voluntary. This has affected the quantum of disclosures of sustainability reports because corporations are at the discretion of reporting or not. There is therefore the problem of low disclosures of sustainability reporting. For instance, between 2009 and 2019, the level of sustainability disclosure was only 9.3% on average in the quoted industrial goods sector in Nigeria (Aimuyedo, et al, 2023). Also, the extent of environmental sustainability disclosure in the manufacturing sector in Nigeria averaged only 27% in the period from 2002-2019 (Selven, et al., 2022). Furthermore, on average, only about half of the non-financial firms in Nigeria provided sustainability disclosures from 2012 to 2021 (Tijjani & Yahaya, 2023).

Sustainability reporting practices have become a major issue that is decided by boards of directors as the supreme governing body in the decision-making process of companies (Pasko et al., 2021; Tibiletti et al., 2020). The link between the governance structure and sustainability reporting policies is fundamental to shaping the companies' strategic vision (Sokil et al., 2020; Tibiletti et al., 2020). This relationship is of paramount importance in terms of further development of sustainability reporting and sustainability-related stances companies take. According to Pasko et al., (2021), board attributes play a key role in the development of sustainability reporting.

The effectiveness of sustainability reporting is influenced by various board attributes, including the presence of a sustainability committee, gender and nationality diversity, risk management practices, director shareholding, and remuneration structures. A dedicated sustainability committee enhances policy implementation and disclosure (Elmaghrabi, 2021; López-Arceiz, et al., 2022), while gender-diverse boards, especially with female representation, reflect social responsibility and support sustainable practices (Chebbi et al., 2020; Zaid et al., 2020). According to Deloitte (2019), risk management committees help integrate sustainability priorities into business models. Additionally, foreign board members bring diverse networks that improve stakeholder engagement (Abdelkader & Gao, 2023). Director ownership and sustainability-linked incentives in remuneration further encourage robust reporting. Stakeholder engagement also plays a crucial role in shaping sustainable corporate strategies and operations Stocker, et al. (2020).

Previous studies have been conducted to examine the effect of board attributes on sustainability reporting. However, there is very limited empirical evidence on the impact of board of directors' remuneration and stakeholder engagements on sustainability reporting in Nigeria. The study, therefore, seeks to explore the impact of board attributes on sustainability reporting of selected environmentally sensitive firms in Nigeria.

Subsequent sections of the study are as follows: section two outlines the literature review and hypotheses development, followed by an account of the methodology adopted for the study in section three. Furthermore, section four presents and analyzes the data for the study, and lastly, the summary, conclusion, recommendations, and policy implications of the study are presented in section five.

LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

Board sustainability committees often consist of internal members involved in a firm's management and external members, such as leaders from different disciplines. The committee members' skills, experience, and knowledge ensure that different sustainability perspectives are embedded in the reporting process (Liao, et al., 2015). In many cases, the committee is chaired by a member of the firm's board (Eberhardt-Toth 2017) and plays a key role in overseeing sustainability matters and engaging with stakeholders on related issues (Peters & Romi, 2015). Their presence reflects the company's dedication to sustainability and assigns clear responsibility for these concerns. Moreover, sustainability committees have become essential tools for ensuring accountability and are increasingly tasked with overseeing reporting practices at the board level (Michelon & Parbonetti, 2012).

Empirical studies of Usman 2024 and Omolehin and Obaje (2023) which were done in Nigeria; Michelon and Parbonetti (2012) which were carried out among firms in the USA and Europe reported a positive impact of board sustainability committees on sustainability reporting. However, the study of Orshi et al., (2023) which used a sample of banks in Nigeria and South Africa documented a negative relationship between sustainability committees and sustainability reporting. Subsequently, this study hypothesizes that:

H_1: Board sustainability committees have a positive and significant impact on sustainability reporting of environmentally sensitive firms in Nigeria.

Gender diversity refers to the proportion or number of women serving on a company's board relative to the total board membership. This form of diversity can present both advantages and challenges for organizations (Gabriel-Odom et al., 2024). Increasingly, gender diversity at the board level is seen as a key element influencing corporate strategies (Correa-Garcia et al., 2020), particularly in the context of sustainability reporting (Zampone et al., 2022). Female board members are often associated with qualities such as empathy, openness, generosity, and strong interpersonal skills, which heighten their awareness of social and environmental concerns and thereby enhance sustainability disclosures (Zaid et al., 2020). Mahmood et al. (2018) further suggest that women on boards tend to prioritize long-term societal impact over short-term personal gain, making them more effective in driving sustainable reporting practices.

Previous empirical studies on the relationship between board gender diversity and sustainability reporting produced varying outcomes. For instance, the study of firms in Anglophone Sub-Saharan Africa by Lewa, et al, (2024) reported a positive and significant relationship; Gabriel-Odom, et al., (2024) studied firms in Nigeria and reported a positive and insignificant relationship; also, Odum (2023) investigated this relationship for firms in Nigeria and reported a negative and insignificant relationship; while the study of Wahyuningrum, et al., (2022) of Indonesian firms revealed a negative and significant relationship. Hence, the study hypothesizes that:

H_2: Board gender diversity has no significant impact on sustainability reporting of environmentally sensitive firms in Nigeria.

The risk management committee is a governance support mechanism (Ngu & Amran, 2020) that establishes risk strategies, reviews risk reports, and provides enterprise risk management advice to board members (KPMG, 2001). According to Yanto and Hajawiyah (2022), the risk management committee is responsible for measuring and resolving the risks at a certain level of tolerance and is expected to increase disclosure, including through sustainability reporting.

Again, past empirical studies revealed mixed results on the impact of board risk management committees and sustainability reporting. In Nigeria, Aliyu (2022) found that risk management committee has a positive but insignificant relationship with sustainability reporting. Yanto and Hajawiyah (2022) studied firms in Indonesia and reported a positive and significant impact of board risk management committee on sustainability reporting. Also, De villiers, et al., (2022) conducted a study of Australian firms and documented that board sustainability committee exerts a positive and significant effect on sustainability reporting. Thus, the study hypothesizes that:

H_3: Board risk management committee has no significant impact on sustainability reporting of environmentally sensitive firms in Nigeria.

Board nationality refers to the presence of foreign nationals on a company's board and is recognized as a key factor influencing corporate social responsibility reporting (Odum, 2023). The national backgrounds of board members contribute to board diversity. Oxelheim and Randøy (2003) argue that appointing foreign directors to boards is a response to the demands of globalization. According to Samara and Yousef (2023), foreign directors bring valuable and varied expertise that domestic directors might lack due to their different cultural and professional experiences. These directors' diverse attributes enable boards to address complex challenges more effectively, leading to better outcomes than boards that are more homogeneous (Adams et al., 2015). As a result, foreign directors enhance the board's ability to make informed decisions about sustainability reporting strategies. This aligns with the perspective of Adams et al. (2015), who suggest that foreign directors are more capable of driving sustainability efforts and ensuring local companies align with international sustainability standards.

Empirical investigations on the relationship between board nationality and sustainability reporting reveal varying outcomes. The studies of Uwaifo and Okoh (2024) and Oyerogba, et al., (2024) were both conducted in Nigeria. While the former study documents a positive and significant relationship between board nationality and sustainability reporting, the later revealed that board nationality has a negative and significant relationship with sustainability reporting. Furthermore, a study of firms in Sub-Saharan Africa by Kwarteng, et al., (2023), showed that board nationality had a negative but insignificant effect on sustainability reporting. Therefore, the study hypothesizes that:

H_4: Board nationality has a significant impact on sustainability reporting of environmentally sensitive firms in Nigeria.

Patton and Baker (1987) define board ownership as the concentration of equity held by certain directors, which enables them to assess the organization's performance more objectively by influencing the company's decisions. Directors' ownership refers to the percentage of a company's shares owned by its directors, and this ownership stake motivates them to make sound decisions aimed at improving the company's performance (Doffour et al., 2023). According to Mishra and Suar (2010), when the interests of shareholders and directors align, directors are more inclined to make decisions that improve the company's performance, including sustainability efforts. This suggests that the company's performance tends to improve in direct relation to the level of ownership held by the directors.

The study of Tanui (2022) in Kenyan and Modozie and Amahalu (2022) in Nigeria reported that board ownership has a negative and significant relationship with sustainability reporting. However, Tasnim and Khan (2022) a study of firms in Dhaka, Bangladesh, reported a positive and significant impact of board ownership and sustainability reporting. In Indonesia, Hidayat, et al., (2024) studied firms in the Industrial Goods Sector and reported a positive and insignificant relationship between board ownership and sustainability reporting. similarly, a study of firms in Nigeria also concluded that board ownership has a positive and insignificant relationship with sustainability reporting. On this relationship, this study hypothesizes that:

H_5: Board ownership has no significant impact on sustainability reporting of environmentally sensitive firms in Nigeria.

Directors' remuneration refers to the compensation received by board members for their services, which may include fees, salaries, or use of company assets, as per the agreement with the company (Ab Razak, 2014). Ab Razak also suggests that remuneration should be competitive to attract and retain directors, with a portion linked to both corporate and individual performance. By tying directors' compensation to financial performance, particularly profitability, it incentivizes them to support decisions that enhance company profits, while discouraging activities that could increase the cost of sustainability reporting.

Directors' remuneration typically includes cash and share-based incentives, which are connected to both short-term and long-term performance (Md Zain et al., 2019). This compensation is an important motivator for directors, influencing strategic decisions that affect firm performance and profitability (Mohd Razali et al., 2018). However, excessive remuneration can lead to conflicts of interest, particularly when it causes a decline in wealth for other stakeholders, who may also see reduced investment in social and environmental sustainability (Merino et al., 2020).

Remuneration is also seen as a tool for aligning firm activities with sustainability goals, especially when financial incentives are tied to achieving social and environmental objectives (Donaldson & Preston, 1995; Jones & Wicks, 1999). In this context, the structure of director compensation can help improve both economic and socio-environmental performance, with increasing emphasis on integrated disclosures (Lai & Stazzecchini, 2021; Almici, 2023). The idea is to structure remuneration packages that acknowledge the costs associated with sustainability reporting, motivating managers to prioritize greater sustainability disclosures despite potential financial costs.

A study of Italian firms by Almici (2023) documented a positive and significant relationship between board of directors' remuneration and sustainability reporting. In Nigeria, Onuorah, et al., (2018) also reported a significant relationship between board of directors' remuneration and sustainability reporting. A study of German firms by Gerwing, et al., (2022) showed that director remuneration is positively associated with mandatory sustainability reporting quality. The study therefore hypothesizes that:

H_6: Directors' remuneration has a significant positive impact on sustainability reporting of environmentally sensitive firms in Nigeria.

Stakeholder engagement refers to a company's ability to build collaborative relationships with a diverse range of stakeholders (Rueda-Manzanares et al., 2008; Zwikael et al., 2012). This involves a series of initiatives designed to actively involve stakeholders in the organization's activities (Greenwood, 2007) and can drive essential changes in core operations that benefit both society and the environment (Sulkowski et al., 2018). According to Ardiana (2023), the GRI reporting framework encourages companies to identify their stakeholders, engage with them within the context of sustainability, and report this engagement in their sustainability disclosures.

Engaging various stakeholders—such as investors, employees, customers, suppliers, and local communities—can boost the credibility, relevance, and legitimacy of sustainability reports, thereby fostering trust and accountability (Pauna et al., 2023). Additionally, stakeholder engagement offers organizations valuable insights into emerging sustainability trends, regulatory demands, and stakeholder expectations, helping them align their sustainability strategies with market needs (Heikkinen et al., 2023).

A review of the literature on the relationship between stakeholder engagement and sustainability reporting in Nigeria revealed little or no evidence of empirical studies that depict this relationship. This study therefore bridges this literature gap. However, other studies like that of Ramadhan, et al., (2023), done in Indonesia and Henriques, et al., (2022), conducted in the Iberian Peninsula showed that stakeholder engagement exerts a significant and positive effect on sustainability reporting. Another Indonesian study by Dewi, et al., (2023) reported that an increased engagement of stakeholders results in lower sustainability reporting, though the relationship is not significant. On this relationship, this study hypothesizes that:

H_7: Board-stakeholder engagement has a significant positive impact on sustainability reporting of environmentally sensitive firms in Nigeria.

THEORETICAL REVIEW

This study is grounded in stakeholder, legitimacy, and agency theories, which collectively provide a comprehensive understanding of corporate sustainability practices. Stakeholder theory emphasizes the importance of addressing the interests of all individuals or groups impacted by a company's actions (Freeman 1984). It advocates for transparency and accountability across financial, social, environmental, and governance domains, driven by the pressure and expectations of diverse stakeholders (Erin et al., 2022). When companies recognize and integrate stakeholder concerns into their operations, they build stronger relationships and improve long-term sustainability. Similarly, legitimacy theory suggests that organizations strive to align with societal norms and values to gain public approval (Premavari & Utami, 2020). Through transparent sustainability disclosures, even when superficial, companies aim to maintain credibility and justify their operations to the broader society (Erin et al., 2022).

Agency theory, meanwhile, explores the challenges that arise when shareholders (principals) delegate authority to managers or boards (agents). It highlights the potential for conflicts of interest, particularly when executives act in self-interest rather than in alignment with shareholder goals (Jensen & Meckling, 1976). This theory is especially relevant in examining how executive compensation structures influence sustainability efforts (Deckop et al., 2006). A key concern is that managers may over-invest in corporate social responsibility (CSR), a crucial part of sustainability to enhance their public image as socially conscious leaders, even if such actions do not benefit shareholders (Hillman & Keim, 2001; Jo & Harjoto, 2011). When managers receive rewards for engaging in sustainability efforts, they may over-allocate resources to such initiatives. However, without such incentives, managers might prefer less sustainable practices, leading to lower sustainability costs and disclosures but higher profits and personal earnings. The theory also underscores the board's role in balancing stakeholder interests and promoting governance efficiency. Larger boards, with more diverse expertise, are often seen as more capable of mitigating agency conflicts and enhancing oversight, contributing to improved sustainability performance (Uwuigbe et al. 2011).

METHODOLOGY

The procedures employed in the studies are discussed in the following subsections.

Research Design

The study employed a correlational research design. Data on the variables of the study were obtained from the published annual reports of the firms from 2019 to 2023. The data for the three components of sustainability reporting (economic, social, and environmental) are both quantitative and qualitative and were identified through content analysis based on the GRI-G4 framework (see appendix for details). The GRI framework was used for this study because it is the most widely accepted and used database for sustainability reporting (Hoang et al. 2016; Masud et al. 2018). Specifically, the GRI-G4 framework was adopted in this study because the G4 guidelines are more precise, generalized, and stronger in data presentation than other GRI guidelines. In addition, the GRI-G4 environmental guidelines are the robust disclosing guidelines of environmental information linked with the preparation of integrated reporting (Hoang et al. 2016), and consider the differences in the numbers of economic social, and environmental indicators between the G3 and G4 guidelines (Masud et al. 2018).

Population and Sampling of the Study

The population of the study is the entire 14 listed environmentally sensitive firms in the agriculture (5 firms) and oil and gas (9 firms) sectors based on the classification of companies in the Nigerian Exchange Group as at December 2023. Using a purposive sampling method, a sample of 11 firms was selected based on complete data for the study variables throughout the study's period. Table 1 shows the sample of the study.

Table 1: Sample of the Study

S/N	Firms	Sector	Date of Incorporation
1	Ellah Lakes Plc.	Agriculture	July 2, 1980
2	FTN Cocoa Processors Plc	Agriculture	August 26, 1991
3	Livestock Feeds Plc.	Agriculture	March 20, 1963
4	Okomu Oil Palm Plc.	Agriculture	December 3, 1979
5	Presco Plc	Agriculture	September 24, 1991
6	Conoil Plc	Oil And Gas	June 30, 1970
7	Eterna Plc.	Oil And Gas	January 13, 1989
8	Japaul Gold & Ventures Plc	Oil And Gas	June 29, 1994
9	Mrs Oil Nigeria Plc.	Oil And Gas	August 12, 1969

10	Seplat Energy Plc	Oil And Gas	June 17, 2009
11	Total Energies Marketing Nigeria Plc	Oil And Gas	January 6, 1956

Source: Nigerian Exchange Group (NGX), 2024

Method of Data Collection and Analysis

The study made use of the secondary method of data collection, sourced from the published annual reports and accounts of the firms. Data was analyzed using regression tools. Specifically, the study utilized the regression model to estimate the impact of the relationships between the explanatory variables and sustainability reporting quality. The general features of the data were presented in the form of descriptive statistics; correlation; and diagnostic analysis which determined the fitness of the model of the study.

Variable Measurements

Table 2 presents the measurements for each of the variables of the study. This is necessary to appreciate how the data for each of the variables was quantitatively generated.

Table 2: Measurement of Variables

S/N	Variable Name	Variable Type	Measurements	Source
1	Sustainability Reporting (SREP)	Dependent	The average of the ratio of all disclosable items and actual disclosures for economic, environmental, and social sustainability disclosures	(Iliemena, et al., 2023; Anyigbah, et al., 2023)
2	Board Sustainability Committee (BSCO)	Independent	A binary measure of 1 for the existence of a board sustainability/CSR committee and 0 for non-existence.	(Usman, 2024; Omolehin & Obaje, 2023; Almici, 2023; Qaderi, et al., 2022; Michelon & Parbonetti (2012)
3	Board Gender Diversity (BGED)	Independent	The ratio of women directors on the board to the total number of directors on the board	(Lewa, et al., 2024; Razaq, et al., 2023)
4	Board Risk Management Committee (BRCO)	Independent	A binary measure of 1 for the existence of a board risk management committee and 0 for non-existence.	(Yanto & Hajawiyah, 2022; Rimin, et al., 2020)
5	Board Nationality (BNAT)	Independent	The ratio of foreign directors to the total number of directors	(Uwaifo and Okoh, 2024)
6	Board Ownership (BOWN)	Independent	The ratio of directors' shares to total issued and paid-up shares.	(Modozie and Amahalu, 2022)
7	Directors' Remuneration (DREM)	Independent	Log of annual directors' remuneration	(Onuorah, et al., 2018; Ab Razak, 2014; Md Zain, et al., 2019; Premavari & Utami, 2020)
8	Stakeholder Engagement (SENG)	Independent/ Moderator	Stakeholders were broadly categorized into three (economic, social, and environmental stakeholders). A score of 3/3 for evidence of engagement with all categories; 2/3 for evidence of engagement with any 2 categories; 1/3 for evidence of engagement with only 1 of the stakeholder groups and 0/3 with no evidence of engagement, yearly.	Galeotti, et al., (2023) with modification

9	Firm Age (FAGE)	Control	Age of incorporation of firms	(Galeotti, et al., 2023; Iliemena, et al., 2023; Anyigbah, et al., 2023)).

Model Specifications

The model is specified thus:

SREP= f (BSCO, BGED, BRCO, BNAT, BOWN, DREM, SENG, FAGE)

$SREP_{it} = \beta_{0it} + \beta_1 BSCO_{it} + \beta_2 BGED_{it} + \beta_3 BRCO_{it} + \beta_4 BNAT_{it} + \beta_5 BOWN_{it} + \beta_6 DREM_{it} + \beta_7 SENG_{it} + \beta_8 FAGE_{it} + \epsilon it$

Where:

β_0 is the Intercept; $\beta_{1\text{-}6}$ are the Coefficients of the independent variables; ϵ is the error term; i is firm and t is year.

SREP is Sustainability Reporting

BSCO is Board Sustainability Committee

BGED is Board Gender Diversity

BRCO is Board Risk Management Committee

BNAT is Board Nationality

BOWN is Board Ownership

DREM is the Directors' Remuneration

SENG is Stakeholder Engagement

FAGE is Firm Age

Descriptive Statistics

The general features of the variables of the study are shown in Table 3.

Table 3: Descriptive Statistics

Variable	OBS	Mean	Std. Dev.	Min	Max
SREP	55	.4780749	.0650856	.2941177	.6470588
BSCO	55	.0909091	.2901294	0	1
BRCO	55	.6	.4944132	0	1
BNAT	55	.2148755	.2446986	0	.7272727
BGED	55	.1695822	.113445	0	.4444444
BOWN	55	.14346	.213941	0	.6837848
DREM	55	4.790652	1.117988	0	6.659821
SENG	55	.6909091	.466378	0	1
FAGE	55	40	15.08617	10	67

There are a total of 55 observations, which is a product of the number of firms studied (11) and the number of years covered by the study (5). The dependent variable of sustainability reporting (SREP) has a mean value of 0.4780, indicating that 47.8% of the total economic, social, and environmental disclosures are reported by the firms in the Agriculture and Oil and Gas Sectors in Nigeria. The standard deviation of 0.065 shows a wide variation in the sustainability disclosure practices of the firms. Furthermore, the minimum disclosure level in percentage of sustainability reporting was 29.4% while the maximum disclosure level of sustainability reporting was 64.7%. Board sustainability committee (BSCO) has a mean value of 0.090, signifying that only 9% of the firms have an existing board sustainability committee. This low representation of the BSCO is further corroborated by the minimum value of 0 which indicates that one or more firms studied did not have a BSCO as part of the board committees. The board risk management committee (BRCO) has a mean value of 0.60, indicating that 60% of firms in the agriculture and oil and gas firms has established a risk management committee. However, the minimum value of 0 reveals that some of the companies do not have a board risk management committee. Additionally, BNAT (board nationality) has a mean value of 0.214, meaning that 21.4% of all board members are foreign nationals. Even though some of the companies do not have any foreign members on the board, a company has up to 72.7% of board members as foreign directors. Similarly, the board gender diversity (BGED) has a mean figure of 0.169, suggesting that only 16.9% of board members are women. This small representation of the BGED is further substantiated by the minimum value of 0 which shows that one or more firms studied did not have a woman on the board of directors. Nevertheless, the maximum value of 0.444 suggests that the total of women on the board of directors of one or more of the firms is up to 44.4% of the total board members.

Furthermore, board ownership (BOWN) shows a mean value of 0.143, meaning that on average, board members of agriculture and oil and gas firms in Nigeria own 14.3% of the issued and paid-up shares. A standard deviation of 0.213 indicates a slight variation in the number of shares owned by directors across the firms. The maximum value of 0.683 reveals that directors of one of the firms possess 68.3% of paid-up equity during the period of the study. The mean of directors' remuneration (DREM) of 4.790652 and the standard deviation of 1.117988 show a slight variation in the amounts paid as directors' remuneration among the firms. The minimum value of 0 is indicative of non-payment of remuneration for directors by one or more of the firms during the study period. The mean value of stakeholder engagement (SENG) is 0.690. This means that the level of engagement on economic, social, and environmental issues is 69% in the agriculture and oil and gas firms in Nigeria. The standard deviation of 0.466 suggests varying levels of stakeholder engagement among the firms studied. The minimum value of 0 indicates that one or more of the firms did not engage with stakeholders during the period, while the maximum value of 1 reveal that one or more of the firms studied engaged with all categories of stakeholders during the period. Lastly, the age of the firms (FAGE) is reported to have a mean value of 40, meaning that the average years of operations from the date of incorporation for the firms is 40 years. The standard deviation of 15.08 shows a dispersion between the years of the firms studied, while the minimum and maximum values of 10 and 67 reveal the years of the youngest and oldest firm, respectively.

Correlational Analysis

The association between the dependent variable and all the explanatory variables is depicted in Table 4. The correlation between the independent variables themselves is also shown in the table.

Table 4: Correlation analysis

	SREP	BSCO	BRCO	BNAT	BGED	BOWN	DREM	SENG	FAGE
SREP	1.0000								
BSCO	0.3671	1.0000							
BRCO	0.1963	0.2582	1.0000						
BNAT	0.0504	0.1684	0.5343	1.0000					
BGED	-0.0588	0.1082	0.1758	0.2561	1.0000				
BOWN	-0.1324	-0.0509	-0.2064	-0.2394	0.0994	1.0000			
DREM	0.4229	0.4540	0.2734	0.4419	0.0892	-0.1815	1.0000		
SENG	0.2212	0.2115	0.4176	0.5464	0.2536	0.1271	0.3959	1.0000	
FAGE	-0.0677	-0.5923	0.2557	0.1728	0.3803	-0.0950	-0.1950	-0.0342	1.0000

The correlation between BSCO, BRCO, BNAT, DREM, SENG, and SREP is positive at 36.71%, 19.63%, and 5.04%, 42.29%, and 22.12%, respectively. However, BGED, BOWN, and FAGE show a negative association with SREP at 5.88%, 13.24% and 6.77% respectively. None of the independent variables has a very strong or perfect correlation with each other, corroborating the VIF results that multicollinearity is not a problem among the variables of the study.

Multiple Regression Results

The results from which this study draws inferences, interpretations, and conclusions are presented in Table 5.

Table 5: Regression Results (Panel Corrected Standard Errors)

Variables	Coefficient	z-value	Prob.> z	VIF
BSCO	.1351587	2.24	0.025	3.14
BGED	-.1898083	-1.82	0.069	1.75
BRC	-.0130973	-0.80	0.426	2.10
BNAT	-.0935904	-2.96	0.003	2.05
BOWN	-.0302959	-1.08	0.282	1.63
DREM	.0192217	2.24	0.025	1.28
SENG	.0436551	3.13	0.002	1.91
FAGE	.0024456	3.60	0.000	3.44
CONS.	.3102193	6.47	0.000	-
R-squared = 0.3870	Wald chi2(8) = 62.62	Prob > F = 0.0000		
Hettest (prob>chi2)	0.0567			
Hausman (prob>chi2)	0.0232			
Groupwise heteroskedasticity in fixed effect regression model (prob>chi2)	0.0000			

The Panel Corrected Standard Errors (PCSE) Regression model as shown in Table 6 was the basis of the conclusions made in the study about the statistical inferences, the relationship between each of the corporate board attributes and sustainability reporting, and the overall impact of the explanatory variables collectively on sustainability reporting in the agriculture and oil and gas sectors in Nigeria. The PCSE model was selected as the suitable model for the study following further robustness tests of fixed and random effects and the Hausman specification test to determine which regression between the fixed and random effects is suitable for the study. The result of the Hausman test with a probability value of 0.0232 was significant, suggesting that the fixed effects model is suitable. However, the groupwise heteroskedasticity in fixed effect regression was also carried out to prove further the validation of the use of the fixed effects model. The probability value 0.000 for the groupwise heteroskedasticity in fixed effect regression provided evidence to reject the hypothesis of no heteroskedasticity in the fixed effect model; confirming the appropriateness of the PCSE regression model for the study.

From the PCSE regression results, BSCO, DREM and SENG have a positive and significant relationship with sustainability reporting. While BGED and BNAT have a significant but negative relationship with sustainability reporting, BRCO and BOWN both have a negative relationship with sustainability reporting but the relationship is not significant. This means that BSCO, DREM, SENG, BNAT, and BGED are important board attributes that impact the extent of sustainability reporting in the listed environmentally sensitive firms of agriculture and oil and gas businesses in Nigeria. The Prob > F value of 0.0000 shows the fitness of the model and the R-squared value of 0.3870 reveals that the combined impact of the explanatory variables is able to cause variation in sustainability reporting to the tune of 38.70% in the firms studied. Additionally, the Variance Inflation Factor (VIF) results show that all values for the explanatory variables are within acceptable limits, indicating the absence of multicollinearity.

Test of Hypotheses

Each of the hypotheses of the study was tested based on the results of the OLS regression in Table 5.

H_1: Board sustainability committees have a positive and significant impact on sustainability reporting of environmentally sensitive firms in Nigeria.

From the PCSE results, BSCO has a z-value of 2.24 and a probability value of 0.025, which is significant at 5%. This provides evidence to accept the hypothesis that board sustainability committees have a positive and significant impact on sustainability reporting of environmentally sensitive firms in Nigeria.

H_2: Board gender diversity has no significant impact on sustainability reporting of environmentally sensitive firms in Nigeria.

The results of BGED show that it has a significant and negative relationship with sustainability reporting, with a z-value of -1.82 and p-value of 0.069, which is significant at 10%. The second hypothesis of the study (H_2) is therefore not accepted.

H_3: Board risk management committee has no significant impact on sustainability reporting of environmentally sensitive firms in Nigeria.

BRCO has an insignificant and negative relationship with sustainability reporting with a z-value of -0.80 and a p-value of 0.426. Therefore, the hypothesis is supported and accepted.

H_4: Board nationality has a significant impact on sustainability reporting of environmentally sensitive firms in Nigeria.

BNAT has a negative but significant impact on sustainability reporting with a z-value of -2.96 and a p-value of 0.003. Thus, the hypothesis is accepted.

H_5: Board ownership has no significant impact on sustainability reporting of environmentally sensitive firms in Nigeria.

The PCSE results also showed that BOWN has a negative and insignificant impact on sustainability reporting with a z-value of -1.02 and p-value of 2.82. The study therefore accepts the hypothesis.

H_6: Directors' remuneration has a significant positive impact on sustainability reporting of environmentally sensitive firms in Nigeria.

Furthermore, the results of the relationship between DREM and SREP reveal a significant and positive relationship with a z-value of 2.33 and p-value of 0.023 which is significant at 5%. Consequently, the fourth hypothesis (H_4) is accepted.

H_7: Board-stakeholder engagement has a significant positive impact on sustainability reporting of environmentally sensitive firms in Nigeria.

Finally, the results also show a positive and significant relationship between stakeholder engagement and sustainability reporting, with a z-value of 3.02 and a p-value of 0.004, which is significant at 1%. Thus, the hypothesis was accepted.

DISCUSSION OF FINDINGS

The study found that board sustainability committees have a positive and significant impact on sustainability reporting of the agriculture and oil and gas firms in Nigeria. This means that the committee members perform their major duty of ensuring that different sustainability issues are recognized and treated appropriately in the business. Board sustainability committees in these firms are able to influence the board's decisions to report more sustainability disclosures. This result is in consonance with the studies of Usman (2024), Omolehin and Obaje

(2023) and Michelon and Parbonetti (2012). However, the study reported a different result from Orshi et al., (2023) which reported a negative and significant relationship between the size of the board sustainability committee and sustainability reporting.

Board gender diversity was found to exert a negative but significant impact on sustainability reporting. This is an indication that an increased number of women on the board negatively influences sustainability reporting by reducing the level of disclosures. This suggests that though women on the board are capable of influencing the extent of sustainability reporting, their influence may be suppressed by the male-dominating members of the board, who may be aided by cultural and environmental values that place the male gender over their female counterparts. This result is similar with the results of Wahyuningrum, et al., (2022) and contrary to the outcome of the studies of Gabriel-Odom, et al., (2024) and Odum (2023).

Findings from the study also show that the risk management committee of the board has a negative and insignificant impact on sustainability reporting. This suggests that the existence of the committee does not support increased sustainability reporting among agriculture and oil and gas firms in Nigeria. It could be that the committee prioritizes the mitigation of immediate financial risks over risks associated with social and environmental sustainability. The result of this study on the relationship between risk management committee and sustainability reporting is different from the result of Aliyu (2022) and Yanto and Hajawiyah (2022).

Furthermore, findings on the relationship between board nationality and sustainability reporting reveals an inverse but significant relationship. This suggests that an increase in the number of foreign directors can have diminishing effect on the level of sustainability reporting. Our study's result on the relationship between board nationality and sustainability reporting agrees with the result of Oyerogba, et al., (2024) but not in agreement with the studies of Uwaifo and Okoh (2024) and Kwarteng, et al., (2023).

Board ownership was found to have a negative and insignificant impact on sustainability reporting. This means that ownership of shares by directors of firms in the agriculture and oil and gas sectors is not a motivation for sustainability reporting. The directors may be motivated to own shares for economic benefit of dividend income and return on investment. This finding is different from the results of the studies of Tanui (2022) and Modozie and Amahalu (2022).

The remuneration of the board of directors was also found to have a positive and significant impact on sustainability reporting. This reveals that a major motivation for an increased disclosure of sustainability reports is a good and fair remuneration package for directors. It could be inferred that the remuneration package in place is not negatively affected by any increase in cost of sustainability reporting, which could incentivize directors to do more sustainability reporting. Our findings in this regard align with the studies of Almici (2023), Onuorah, et al., (2018) and Gerwing, et al., (2022).

Finally, the study also found that engagements with stakeholders have a positive and significant impact on sustainability reporting. This goes to show that directors' engagement with economic, social, and environmental stakeholders in the agriculture and oil and gas firms in Nigeria is productive enough to compel them to report the stakeholders' concerns in their sustainability reports. This means that stakeholders are key in shaping and influencing the boards' sustainability strategies and policies, leading to improved sustainability practices and reporting. This finding agrees with the results of Ramadhan, et at., (2023) and Henriques, et al., (2022) but does not agree with the results of the study by Dewi, et al., (2023).

Policy Implication of Findings

The findings of the study have the potential to shape policies and strategies around sustainability practices in Nigeria. Policies of various institutions that are stakeholders in the sustainability reporting mission could be adjusted or realigned based on the study findings. For instance, board sustainability committees, which were found to have a positive and significant impact on sustainability reporting is a not given a prominent place in the Nigerian Corporate Governance Code, even though sustainability is assuming a place of prominence in business operations globally. This finding may have implications for the recognition of board sustainability committees as one of the statutory board committees such as the audit committee, considering the need to align with the global sustainability drive and more so that the committee supports increased sustainability reporting.

Furthermore, the study found that the number of women on the board of directors has a significant inverse relationship with sustainability reporting. An increase in the number of women directors may lead to lower sustainability reporting because of cultural and environmental factors that limit the status of women in society. This has implications for internal company/business policies relating to work ethics and values, employee relations, and equal opportunity among staff of all categories. A very strong internal policy may counter any cultural/environmental limitations, allowing women to exert their positive influence on issues, including sustainability reporting.

It was found that the remuneration of directors on the board is a board attribute that supports more disclosures of sustainability reports. By way of policy implications, both internal (possibly the board remuneration committee) and external framework (by the Securities and

Exchange Commission or other relevant regulatory institutions) may be guided by this finding to ensure that remuneration benefits are good enough to motivate directors to report more on sustainability.

CONCLUSION

The study examined the impact of board attributes on sustainability reporting of some environmentally sensitive firms in Nigeria. Motivated by the gap in the literature, especially in the Nigerian context about the impact of board of directors' remuneration and board-stakeholder engagements on sustainability reporting, a sample of 11 (out of a total population of 14) firms from the Agriculture and Oil and Gas Sectors were studied for the period from 2019-2023. Data were sourced from annual reports and financial statements of the firms and analysis of data were based on results from statistical inferences and regression models. The study found that both directors' remuneration and stakeholder engagements have a positive and significant impact on sustainability reporting. The study also reveals that board sustainability committees have a positive and significant impact on sustainability reporting, board gender diversity has a negative and significant impact on sustainability reporting and board size has a negative but insignificant impact on sustainability reporting. the study concludes that overall, the board attributes impact positively on sustainability reporting. specifically, board sustainability committees, board gender diversity, directors' remuneration, and stakeholder engagements are attributes that cause significant changes in the disclosure of sustainability reporting in environmentally sensitive firms in Nigeria.

RECOMMENDATIONS

The study recommends that board sustainability committees be given a prominent place by recognizing it as a statutory committee such as the audit committee. This is necessary in order to support the global commitment to sustainable business practices including sustainability reporting. The study also recommends that strong company ethics and values be put in place to recognize and respect the culture of equal opportunity for both male and female employees (at both operational and strategic management levels). This will allow women to freely exert their positive influence on business policies and practices. Furthermore, it is recommended that both internal (possibly the board remuneration committee) and external frameworks (by the Securities and Exchange Commission or other relevant regulatory institutions) ensure that directors' remuneration benefits are good enough to motivate them to report more on sustainability.

REFERENCES

Ab Razak, N. H. (2014). Director remuneration, corporate governance and performance: A comparison between government-linked companies VS non-government linked companies. *Corporate Board: Role, Duties & Composition*, *10*(2), 46-63.

Aimuyedo , T. M., Nyor , T., Agbi , S., Mohammed, A. N., & Mustapha, O. L. (2023). Board gender diversity and sustainability reporting: Moderating effect of firm age of Nigerian industrial goods firms. *AJORMS, 3*(1), 1-15. Retrieved from: https://ajormsplasu.ng

Almici, A. (2023). Does sustainability in executive remuneration matter? The moderating effect of Italian firms' corporate governance characteristics. *Meditari Accountancy Research, 31*(7), 49-87. https://doi.org/10.1108/MEDAR-05-2022-1694

Anyigbah , E., Kong, Y., Kofi, B., Ahoto, A. h., & Ahiaku, W. S. (2023). Board characteristics and corporate sustainability reporting: Evidence from Chinese listed companies. *Sustainability,15*(3553), 1-26. https://doi.org/10.3390/su15043553

Ardiana, P. A. (2023). Stakeholder engagement in sustainability reporting by Fortune Global 500 companies: A call for embeddedness. *Meditari Accountancy Research, 31*(2), 344-365. https://doi.org/10.1108/MEDAR-12-2019-0666

Chebbi, K., Aliedan, M. M., & Alsahlawi, A. M. (2020). Women on the board and environmental sustainability reporting: Evidence from France. *International Journal of Innovation, Creativity and Change, 14*(11), 1-14.

Correa-Garcia, J. A., Garcia-Benau, M. A., & Garcia-Meca, E. (2020). Corporate governance and its implications for sustainability reporting quality in Latin American business groups. *J. Clean. Prod., 260*(121142.).

Deckop, J. R., Merriman, K. K., & Gupta, S. (2006). The effects of CEO pay structure on corporate social performance. *Journal of Management, 32*(3), 329-342. https://doi.org/10.1177/0149206305280113

Deloitte. (2019). *Sustainability Risk Management | Powering performance for responsible growth*. Deloitte Southeast Asia Ltd.

Dewi, A.A., Saraswati E., Rahman, A.F. & Atmini, S. (2023) Materiality, stakeholder engagement disclosure, and corporate governance: Critical elements for the quality of sustainability reporting, *Cogent Business & Management, 10*:1, 2175437, https://doi.org/10.1080/23311975.2023.2175437

Donaldson, T., & Preston, L. (1995). The stakeholder theory of the corporation: concepts, evidence and implications. *Academy of Management Review, 20*(1), 65-91.

Eberhardt-Toth E (2017) Who should be on a board corporate social responsibility committee? *J Clean Prod 140*:1926–1935. https://doi.org/10.1016/j.jclepro.2016.08.127

Elaine, C., & Byrne, D. (2018). *Sustainability, the triple bottom line and corporate social responsibility*. In C. Elaine, Contemporary Issues in Accounting (pp. 15-35). USA: Palgrave Macmillan, Cham. https://doi.org/10.1007/978-3-319-91113-7_2

Elmaghrabi, M. E. (2021). CSR committee attributes and CSR performance: UK evidence. *Corp. Gov. Int. J. Bus. Soc.*, 892-919.

Erin, O., Adegboye, A., & Bamigboye, O. A. (2022). Corporate governance and sustainability reporting quality: Evidence from Nigeria. *Sustainability Accounting, Management and Policy Journal, 13*(3), 680-707. https://doi.org/10.1108/SAMPJ-06-2020-0185

Freeman, R. (1984). Strategic Management: A Stakeholder Approach. Boston, MA.: Pitman.

Gabriel-Odom, A. Q., Chukwu, U., & Ikpor, I. M. (2024). Impact of corporate governance on sustainability reporting: A study of deposit money banks in Nigeria (2012-2021). *Journal of Accounting Auditing and Business, 7*(1), 26-38. https://doi.org/10.24198/jaab.v7i1.50796

Gerwing, T., Kajüter, P., & Wirth, M. (2022). The role of sustainable corporate governance in mandatory sustainability reporting quality. Journal of Business Economics, 92, 517–555. https://doi.org/10.1007/s11573-022-01092-x

Greenwood, M. (2007). Stakeholder engagement: Beyond the myth of corporate responsibility. *Journal of Business Ethics, 74*(4), 15-327. https://doi.org/10.1007/s105510079509-y

Heikkinen, A., Kujala, J. and Blomberg, A. (2023). *Outlining stakeholder engagement in a sustainable circular economy, in Stakeholder engagement in a sustainable circular economy: Theoretical and practical perspectives,* Springer International Publishing Cham, 1–15.

Henriques, R.; Gaio, C.; Costa, M. (2022). Sustainability reporting quality and stakeholder engagement assessment: The case of the paper sector at the Iberian level. *Sustainability*, 14, 14404. https://doi.org/10.3390/su142114404

Hillman, A. J., & Keim, G. D. (2001). Shareholder value, stakeholder management, and social issues: What's the bottom line? *Strategic Management Journal, 22*(2), 125–139. https://doi.org/10.1002/1097-0266(200101)22:2<125::AID-SMJ150>3.0.CO;2-H

Hoang TC, Abeysekera I, Ma S (2016). Board diversity and corporate social disclosure: Evidence from Vietnam. *J Bus Ethics :1-20*. https://doi.org/10.1007/s10551-016-3260-1

Ikpor, I. M., Akanu, O. O., Ugwu, J., Udu, G. O., Ulo, F. U., Achilike, N., Oganezi, B. (2024). Influence of board governance characteristics on sustainability accounting and reporting in a developing country: Evidence from Nigeria's large businesses. *Sage open*, 1-14. https://doi.org/10.1177/21582440231224235

Janggu, T., Darus, F., Zain, M. M., & Sawa, Y. (2014). Does good corporate governance lead to better sustainability reporting? an analysis using structural equation modeling. *Procedia Social and Behavioral Sciences,* 145, 138 – 145.

Jensen, M. C., & Meckling, W. (1976). Theory of the firm: Managerial behaviour, agency costs and capital structure. *Journal of Financial Economics*, 3, 305-360.

Jo, H., & Harjoto, M. (2011). Corporate governance and firm value: The impact of corporate social responsibility. *Journal of Business Ethics, 103*(3), 351-383. https://doi.org/10.1007/s10551-011-0869-y

Jones, T., & Wicks, A. (1999). Convergent stakeholder theory. *Academy of Management Review, 24*(2), 208-221.

Lai, A., & Stazzecchini, R. (2021). Organisational and professional challenges amid the evolution of sustainability reporting: a theoretical framework and an agenda for future research. *Meditary Accountancy Research, 29*(3), 405-429.

Lewa, E. E., Gatimbu, K. K., & Kariuki, P. W. (2024). Board attributes and sustainability reporting of selected listed nonfinancial firms in Anglophone Sub-Saharan African countries: A multinomial logistic regression. *Heliyon*, 10, 1-12. Retrieved from https://doi.org/10.1016/j.heliyon.2024.e29824

Liao, L., Luo, L., & Tang, Q. (2015). Gender diversity, board independence, environmental committee and greenhouse gas disclosure. *British Accounting Review*, 47, 409–424. https://doi.org/10.1016/j.bar.2014.01.002

López-Arceiz, F. J., del Rio, C., & Bellostas, A. (2022). The mediating effect of sustainability strategy between sustainability committees and business performance: Can persistent assessment condition this effect? *Sustain. Account. Manag. Policy J.*, 13, 708–739.

Mahmood, Z., Louser, R., Ali, W., Ahmad, Z., & Salman, T. (2018). Does corporate governance affect sustainability disclosure? A mixed methods study. *Sustainability,* 10, 1-20.

Masud, M.A.K; Nurunnabi, M.; Bae, S.M. (2018). The effects of corporate governance on environmental sustainability reporting: Empirical evidence from South Asian countries. *Asian Journal of Sustainability and Social Responsibility, 3*(3), 1-26 https://doi.org/10.1186/s41180-018-0019-x

Md Zain, N. N., Ibrahim, N. A., Md. Kassim, A. A., & Tamsir, F. (2019). How does directors' remuneration and board structure impact on firm performance in Malaysian telecommunication industry *EJBMR, European Journal of Business and Management Research*, 4(4), 1-7. http://dx.doi.org/10.24018/ejbmr.2019.4.4.96

Merino, E., Manzaneque-Lizano, M., & Sanchez-Araque, J. (2020). Sustainability and corporate governance: Transparency and excessive directors' remuneration in listed companies during the global financial crisis. *Sustainability, 12*(158), 1-19. https://doi.org/10.3390/su12010158

Michelon, G., & Parbonetti, A. (2012). The effect of corporate governance on sustainability disclosure. *Journal of Management and Governance, 16*(3), 477-509.

Mohd Razali, M. W., Yee, N. S., Hwang, J. Y., Tak, A. H., & Kadri, N. (2018). Directors' remuneration and firm's performance: A study on Malaysian listed firm under consumer product industry. *International Business Research, 11*(5), 102-109.

Odum, G. C. (2023). Corporate board diversity effect on environmental sustainability disclosure evidence from Nigeria. *Asian Journal of Economics, Business and Accounting, 23*(16), 146-156. https://doi.org/10.9734/AJEBA/2023/v23i161034

Omolehin, M.E. & Obaje, F.O. (2023). Effect of board structure on corporate social and environmental sustainability performance of listed Nigerian oil and gas firms. *Malete Journal of Accounting And Finance, 4*(1), 127-142.

Onuorah, O. I., Egbunike, F. h., & Gunardi, A. (2018). The influence of corporate board attributes on voluntary social disclosure of selected quoted manufacturing firms in Nigeria. *Indonesian Journal of Applied Business and Economic Research, 1*(1), 20-33. http://econbiz.org/index.php/ijaber

Pauna, T., Lehtinen, J., Kujala, J and Aaltonen, K. (2023). The role of governmental stakeholder engagement in the sustainability of industrial engineering projects, *Int. J. Manag. Proj. Bus., 16*(8), 77–99.

Pasko, O., Zhang, L., Tuzhyk, K., Proskurina, N., & Gryn, V. (2021). Do sustainability reporting conduct and corporate governance attributes relate? Empirical evidence from China. *Problems and Perspectives in Management, 19*(4), 110-123. https://doi.org/10.21511/ppm.19(4).2021.10

Peters, G. F., & Romi, A. M. (2014). Does the voluntary adoption of corporate governance mechanism improve environmental risk disclosure? Evidence from greenhouse gas emission accounting. *Journal of Business Ethics*, 125, 637-666.

Premavari, Y., & Utami, W. (2020). The effect of company characteristics and corporate governance mechanisms on firm value with sustainability report quality as intervening variable. *SSRG International Journal of Economics and Management Studies, 7*(2), 111-122. https://doi.org/10.14445/23939125/IJEMS-V7I2P117

Ramadhan, I.A., Razal, L.A. & Fuada, N. (2023). Determinants of the quality of sustainability reports in companies included in the Kompas 100 index. *International Journal of Business, Economics and Law, 29*(1), 86-96.

Rueda-Manzanares, A., Aragón-Correa, J. A., & Sharma, S. (2008). The influence of stakeholders on the environmental strategy of service firms: The moderating effects of complexity, uncertainty and munificence. *British Journal of Management, 19*(2), 185-203. https://doi.org/10.1111/j.14678551.2007. 00538.x

Selven, S. J., Terzungwe, N., Samuel, A. E., Samuel, J. G., Ibiamke, A., Lateef, M., & Bako, D. E. (2022). Diversity of board and environmental reporting of listed manufacturing companies in Nigeria: The moderating effect of audit committee. *Journal of Finance and Accounting, 10*(1), 1-18. https://doi.org/10.11648/j.jfa.20221001.11

Sokil, O., Zvezdov, D., Zhuk, V., Kucherkova, S., & Sakhno, I. (2020). Social and environmental costs: the impact of accounting and analytical support on enterprises' sustainable development in Germany and Ukraine. *Economic Annals, 18*(1), 124-136. https://doi.org/10.21003/ea.V181-11

Stocker, F., P. de Arruda, M., de Mascena, K., & Boaventura, J. (2020). Stakeholder engagement in sustainability reporting: A classification model. *Corporate Social Responsibility and Environmental Management*, 27, 2071–2080. https://doi.org/10.1002/csr.1947

Tibiletti, V., Marchini, P. L., Furlotti, K., & Medioli, A. (2020). Does corporate governance matter in corporate social responsibility disclosure? Evidence from Italy in the "era of sustainability. *Corporate Social Responsibility and Environmental Management, 28*(2), 896-907. https://doi.org/10.1002/csr.2097

Tijjani, B., & Yahaya, O. A. (2023). A bibliometric analysis of corporate ownership demographics and sustainability reporting quality in Nigeria. *Int. J. Managerial and Financial Accounting, 15*(3), 393-410. https://doi.org/10.1504/IJMFA.2023.1005418x

Uwuigbe, U. N., Egbide, B., & Ayokunle, A. (2011). The effect of board size and board composition on firms' corporate environmental disclosure: a study of selected firms in Nigeria. *Acta Universitatis Danubius, 7*(5), 164-176.

Wahyuningrum, I.F.S.; Oktavilia, S.; Utami, S. (2022). The effect of company characteristics and gender diversity on disclosures related to sustainable development goals. *Sustainability*, 14, 13301. https://doi.org/10.3390/su142013301

Zaid, M. A., Wang, M., Adib, M., Sahyouni, A., & Abuhijleh, S. F. (2020). Boardroom nationality and gender diversity: Implications for corporate sustainability performance. *Journal of Cleaner Production*, 251(119652.). https://doi.org/10.1016/j.jclepro.2019.119652

Zampone, G., Nicolo, G., Sannino, G., & De Iorio, S. (2022). Gender diversity and SDG disclosure: the mediating role of the sustainability committee. *Journal of Applied Accounting Research, 25*(1), 171–193.

Zwikael, O., Elias, A. A., & Ahn, M. J. (2012). Stakeholder collaboration and engagement in virtual projects. *International Journal of Networking and Virtual Organisations*, 10(2), 117-136. https://doi.org/10.1504/ijnvo.2012.045730