



EFFECT OF BOARD STRUCTURE ON CORPORATE SOCIAL AND ENVIRONMENTAL SUSTAINABILITY PERFORMANCE OF LISTED NIGERIAN OIL AND GAS FIRMS

Motunrayo Elizabeth OMOLEHIN¹ and Folashade Olufunke OBAJE²

^{1&2} Prince Abubakar Audu University, Anyigba, Kogi State

Omolehin.m@ksu.edu.ng 08165693835

folashade.oo@ksu.edu.ng 08065796236

Abstract

Empirical review has established a paucity of research around board structure and sustainability performance, especially in Nigeria. This study, therefore, explored grey areas in the literature regarding board structure and sustainability performance. The panel data generalized least squares (random effect) method was used to analyse data sourced from annual reports, sustainability reports of selected oil and gas firms listed on the floor of the Nigeria Exchange from 2012 to 2022 and CSRHub database. The results revealed that board independence and board gender diversity positively but insignificantly affect social performance; meanwhile, board sustainability committee and board nationality diversity positively and significantly affect social performance. Also, the study found that Board independence positively and insignificantly affect environmental performance; meanwhile, board gender diversity, board nationality diversity and board sustainability committee positively and significantly affect environmental performance. This study recommends that oil and gas firms adopt the principles of increasing independence, increasing gender and nationality diversity, and incorporating sustainability committees to improve social and environmental sustainability performance.

Keywords: Board structure, social sustainability performance, environmental sustainability performance, sustainable development

JEL Classification Code: C33, M41, Q01, Q56

INTRODUCTION

Sustainable performance can be understood as a firm's ability to remain productive and profitable in the long term. It is a concept that measures performance, not only based on economic outcome, but also on non-economic factors, to move towards the goal of sustainability, which is sine qua non to sustainable development. Conventionally, organizations try to ensure that shareholders get adequate returns on their investments (i.e., financial or economic outcomes), but in contemporary times, a broader scope of stakeholders' expectations is demanding attention than ever before. Investors and other stakeholders are increasingly urging companies to become more responsible for the impact of their operations on society and the environment (Manning et al. 2019). The current reality is that a firm does not exist in isolation but is a subject of relationship with diverse stakeholders, and as such, business should be carried out in a manner that considers a wider range of stakeholders such as employees, host community, customers, government, and regulatory



bodies. Therefore, there is increased pressure from stakeholders on entities for reports on which the former can assess the latter's interaction with the business, society, and environment.

Considering the foregoing, sustainability reports have become instruments for satisfying stakeholders' pressing needs. Stakeholders have a broader perspective of reporting, as they present information relating to organizations' financial, social, and environmental performance. This development provides a competitive advantage, which is essential for the long-term prosperity of firms and nations, helps to reduce information asymmetry, agency costs, and reputation (Akintoye et al., 2020; Ibrahim & Hanefah, 2016). Another reality, therefore, is that entities are now being appraised or considered not only from a financial perspective but also from both environmental and social perspectives. For investors, social and environmental performance has become a crucial yardstick for performance appraisal and investment decisions. Especially because they know that it is very risky to invest in firms that are not socially and environmentally responsible, particularly in the oil and gas sector. As such, measuring companies' performance on sustainability indicators has become a new paradigm, and understanding how to improve performance in this respect is a new challenge.

The board of directors (BoD) is the central mechanism in corporate governance and is responsible for protecting the interests of stakeholders through the provision of direction in the decision-making process and determination of corporate policies. The board of directors is empowered to make the most important corporate decisions (firm's policy objectives and overall direction, bylaws, appointments, and compensation dividends), to oversee and monitor the activities of the firm, and to ensure that these activities are consistent with stakeholders' expectations (Bhagat & Bolton, as cited in Muincillo, 2019; Gardazi et al., 2020; Hussain et al., 2018). The board of directors is responsible for determining whether to invest in sustainability performance (Rao and Tilt, 2016).

Prior studies suggest that independent directors monitor corporate operations more effectively and restrict the opportunistic behaviour of the top management assumed by agency theory than a director who is connected to the corporation through business or family (Boateng et al., 2017; Fuzi et al., 2016). A higher number of independent directors can convince corporations to follow the best practices of environmental and social sustainability, while maintaining shareholders' interests (Jo and Harjoto, 2011; Nguyen and Nguyen, 2020).

Board diversity is a mixture of qualities, attributes, demography, and expertise of individual board members that can influence corporate environmental policy (Rao and Tilt, Gardazi et al., 2020). Research has shown that diversity in terms of gender, nationality, age, and higher education improves corporate decision-making quality, especially in relation to environmental and social activities, leading to improved sustainability performance. Diverse boards are more likely to share broader experiences and opinions, and represent a discrete group of stakeholders, as assumed by stakeholder theory (Ibrahim & Hanefah, 2016; DeBoskey et al., 2018; Ibrahim & Hanefah (2016). (Chams and Garcia- Blandon, 2019; Rao and Tilt, 2016b). Previous research shows that having



female members on the board of directors positively influences corporate sustainability performance (Emmanuel et al. 2018; Margaretha and Isnaini 2014). Females generally contribute more to social intelligence and collaborative decision making than their male counterparts (Bart and Mcqueen, 2013; Harjoto et al., 2015). Nationality diversity reflects the existence of foreign directors of different nationalities in the boardroom. Nationality diversity reflects the existence of foreign directors from different nationalities on the boardroom. Studies have argued that a higher percentage of multinational board members bring diverse ideas and perspectives because of their international market engagement, different professional backgrounds, religions, languages, life experiences, knowledge, and culture. This, in turn, leads to improved decision-making processes and quality, more creative actions, and engagement in sustainability strategies (Gardazi et al., 2020; A. A. Zaid et al., 2020).

In addition, the growing trend arising from the struggle with environmental challenges is that many organizations now have a committee on social responsibility (CSR committee). This committee assists the board in implementing corporate sustainability programs. The committee is generally responsible for environmental and social information reporting procedures, as well as for reviewing policies and performance with respect to social responsibility and sustainability issues. Accordingly, creating a CSR committee is seen as a corporate governance mechanism for a company (Awodiran, 2019).

The world over, stakeholders have raised concerns on the environmental damage caused by the corporation's business operations, especially in energy sectors due to fossil fuel burning, which negatively impacts global warming and climate change-related health risks. However, firms in the oil and gas sector, especially in a country like Nigeria who generates most of her revenue from the sector, are prone to attract more attention from stakeholders such as shareholders, investors, employees, host communities, financial institutions, governments, and even non-governmental organizations. More so, oil and gas firms are capital-intensive, that is, large capital investment is required for their operations. Therefore, oil and gas firms are prone to attract stakeholders with substantial capital investments, and ultimately, such companies are exposed to higher risk. Therefore, ignoring the environmental and social impacts arising from business operations is likely to expose them to higher risk. It has therefore become critical to appraise performance not only in the financial perspective but also in the social and environmental perspectives. That on one hand, and the second, establishing the effect of board structure on these three perspectives of performance is required. But despite the importance and relevance of this research, there is lack of comprehensive and up-to-date scholarly sources available.

The limited existing research in the area of sustainability has been widely based on reporting, whereby studies have measured sustainability performance using disclosure index, being listed on a particular index or scores. For example the studies of ; Hussain et al., 2018; Aksoy et al., 2020; Tjahjadi et al., 2021 ; Lourenço & Branco, 2013). To the best of the researcher's knowledge, there exists a lacuna in the area of measuring sustainability performance as existing measures especially for studies conducted in Nigeria have used subjective measures (of developing sustainability

scores). The need is identified to measure sustainability from a more objective point of view. This study aims to fill this lacuna by conducting a thorough analysis in order to contribute valuable insights to the existing body of knowledge. The motivation of this study is that sustainability aligns with sustainable development goals, yet there is a dearth of available literature.

Hypothesis of the study

The following null hypothesis is formulated for the purpose of this study, and which will be subjected to statistical testing upon which conclusion shall be drawn.

Ho1a: Board independence has no significant effect on social sustainability performance of listed oil and gas firms in Nigeria;

Ho1b: Board independence has no significant effect on environmental sustainability performance of listed oil and gas firms in Nigeria;

Ho2a: Board gender diversity has no significant effect on social sustainability performance of listed oil and gas firms in Nigeria;

Ho2b: Board gender diversity has no significant effect on environmental sustainability performance of listed oil and gas firms in Nigeria;

Ho3a: Board nationality diversity has no significant effect on social sustainability performance of listed oil and gas firms in Nigeria;

Ho3b: Board nationality diversity has no significant effect on environmental sustainability performance of listed oil and gas firms in Nigeria;

Ho4a: the presence of sustainability committee has no significant effect on social sustainability performance of listed oil and gas firms in Nigeria;

Ho4b: the presence of sustainability committee has no significant effect on environmental sustainability performance of listed oil and gas firms in Nigeria.

LITERATURE REVIEW**Conceptual Review****Board structure**

The board of any entity is the main organ in charge of strengthening good corporate governance and maintaining the trust and interests of stakeholders by supervising and directing managers to make appropriate decisions (Naciti 2019). The way a board is configured in terms of its structure is a key determinant of what the board members can do. The responsibility of the board is to align a firm's behaviour with the pressure from all stakeholders driving the company toward sustainable development processes (Aguilera et al., 2006; Jo & Harjoto, 2011). Therefore, the composition of BoDs plays a fundamental role in determining socially responsible behaviours and strategic decision-making (Forbes & Milliken, 1999; Michelon & Parbonetti, 2012; Cuadrado-Ballesteros et al., 2017). Previous research has indicated that the structure of BODs is a key catalyst for social and ecological achievements (Chams & García-Blandón, 2019). Board diversity has the potential to increase board effectiveness and performance (Cucari et al., 2018). Typically, the BoDs is responsible for determining whether to invest or not, in sustainability performance (Rao & Tilt, in Gardazi et al., 2020). The modern paradigm of acknowledging and adopting social responsibilities has diversified the duties of BODs into a wider spectrum of charges, accommodating broader



demands and satisfying the different interests of various business agents. Directors on the board endorse ethical behaviours, foster transparent disclosure, and adopt performance accountability. Previous studies indicate that the BOD structure is a key catalyst to social and ecological achievements (Chams & García-Blandón, 2019)

Sustainability Performance

The notion of sustainable development, which gained widespread acceptance during the world's first Earth Summit in Rio de Janeiro in 1992, is the source of the concept of sustainability. According to Nwobu et al. (2021) sustainable development is defined as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" in the Brundtland Report for the World Commission on Environment and Development (1992). According to what is widely understood, sustainable development prioritizes the creation of wealth and prosperity while considering the genuine significance of social and environmental factors. It enables businesses and government agencies to meet the triple bottom line in sustainable management (Mohammad et al., 2013; Norhasimah et al., cited in Oshiole et al., 2020). According to Kocmanová et al., (2011), Corporate sustainability is a business strategy that integrates the opportunities and risks that arise from sustainable development (economic, environmental, and social) with the goal of creating value for the owners over the long term. Awodiran (2019) in line with the World Business Council for Sustainable Development's 2002, defines corporate sustainability as "business's commitment to work with employees, their families, the local community, and society at large to improve their quality of life and to contribute to sustainable economic development"

According to Tjahjadi et al. (2021) CSP is the performance that is anticipated to endure over time through the execution of company operations that uphold the social, economic, and environmental well-being of society. Sustainability performance measurement involves the measurement of the outcome of management of the interaction between business, society and the environment (Schaltegger and Wagner 2006). According to the part E (principle twenty six) of the Nigerian Code of corporate Governance 2018, Paying adequate attention to sustainability issues including environment, social, occupational and community health and safety ensures successful long term business performance and projects the Company as a responsible corporate citizen contributing to economic development. Sustainability from its perspective contributes to clarify the three guiding concepts of sustainable development; Environmental integrity; Social justice; and, economic prosperity over time (Gatti & Seele, 2014). The focus of this study is on social and environmental performance as economic (or financial) has received much attention in the academic literature.

Environmental Sustainability Performance

The environmental pillar focuses on environmental improvement and preventing the depletion of the finite natural resources (Kocmanová et al., 2011). The environmental sustainability dimension involves organizational practices in minimising the operational negative impacts on the ecosystem (Akintoye et al., 2020). The Environmental factors refer to corporate environmental policies on energy efficiency, greenhouse gas (GHG) gas emissions, environmental litigation risk, and

renewable energy where applicable (Shrivastava & Addas, 2014). The basic principles of sustainability from the environment perspective concern the effective management of physical resources so that they are conserved for the future (Dembo, 2017).

Social Sustainability Performance

The social pillar involves people as individuals as well as the community (Kocmanová et al., 2011). Social policies relates to employee turnover rates, employee training, workforce satisfaction, and community engagement (Shrivastava & Addas, 2014)

Board independence

An independent director is a person appointed to the board who is not taking part in the internal management of the corporation and has no family and business relationship with the corporation (Gardazi et al., 2020). According to the part A (principle seven) of the Nigerian Code of corporate Governance 2018, Independent Non-Executive Directors bring a high degree of objectivity to the Board for sustaining stakeholder trust and confidence. Independent directors bring strength to the board and ensure that investors and stakeholders interests are protected (Awodiran, 2019, Fama & Jensen, 1983). They help to balance management and stakeholders' interests. Furthermore, a higher number of independent directors on the board has a positive relationship with social and environmental performance (Hussain et al., 2018). The independence of the board acts favourably on the implementation of sustainable initiatives. Strengthening independent directors on the board within improves sustainability performance of the energy industry. (Gardazi et al., 2020). Because they are inherently long-term focused, independent board members are more willing to suffer short-term losses in exchange for long-term advantages. Hussain and et. al, 2018). Moreover, independent directors represent increased transparency, which raises long-term value (Jizi et al. 2014). According to the stakeholder theory framework, a higher degree of SP is supposed to be positively correlated with the independence of the board because external directors are less vulnerable to pressure from shareholders and management than internal directors.

Board Gender Diversity

Research to date shows that diversity in terms of gender, nationality, age, and higher education enhances the quality of corporate decision-making, particularly when it comes to social and environmental activities. This, in turn, improves sustainability performance (Chams and Garcia-Blandon, 2019). Scholars have specifically contended that the presence of women on boards of directors has improved the sustainability performance of companies (Naciti, 2019; Emmanuel et al., 2018; Margaretha & Isnaini, 2014). Compared to their male counterparts, women typically make more contributions to social intelligence and collaborative decision-making (Bart and Mcqueen, 2013; Harjoto *et al.*, 2015). As such, their inclination towards moral obligations, affection, sympathy, and welfare makes them better capable of addressing social concerns and the demands of stakeholders. (Harjoto *et al.*, 2015; Hussain *et al.*, 2018; Tahir *et al.*, 2020; A. A. Zaid et al., 2020). Therefore, the presence of women on the board can enhance the effectiveness of stakeholder management. Existing studies suggest a positive relationship between gender diversity and social performance because women directors encourage companies to adopt a more socially responsible approach (Post et al., 2011; Ferrero-Ferrero et al., 2015). Research generally indicates



MALETE JOURNAL OF ACCOUNTING AND FINANCE

A Publication of the Department of Accounting and Finance, Faculty of Management and Social Sciences, Kwara State University, Malete

Vol. 4 No. 1, December, 2023

ISSN: 2735-9603

that companies with a higher percentage of women on their boards behave more responsibly toward society than companies with a lower or no percentage of women. (Cucari et al., 2018). The work of Moses et al. (2020), provides evidence that Female directors are more sensitive to issues concerning sustainability, more magnanimous in terms of community matters, and are more stakeholder-driven as they pay attention to employees, the environment, and communities, and have different leadership style. Also, women are known for supporting effective decisions that could enhance the firms' sustainability strategies.

Board nationality diversity

Nationality diversity reflects the presence of foreign directors from different nationalities on the board. Foreign directors seem more focused on social and environmental performance than on short-term financial aims. (Gardazi et al., 2020). Ferrero-Ferrero et al. in Zaid et al., (2020) claimed that a greater proportion of multinational board members contribute a variety of ideas and viewpoints due to their involvement in foreign markets, varied professional backgrounds, and differences in religion, language, life experiences, knowledge, and culture. All these factors, it was said, help the decision-making process. Therefore, having a more diverse board of directors has a good effect on the company's participation in corporate sustainability initiatives. Similarly, Ruigrok et al. (2007) stated that there are more opportunities for creative activity and a wider range of thoughts and viewpoints on a given topic the more multinational the board of directors is. As a result, the diversity of board members' nationalities encourages considerably more realistic and correct methods of approaching the problems at hand, which results in higher-quality judgments. According to agency theory, a board with a high proportion of foreign members represents a higher degree of independence, which improves the tasks of controlling and monitoring.

Board sustainability committee

Part E (principle twenty-six) of the Nigerian Code of Corporate Governance (2018) recommends that the Board keep an eye on how sustainability policies are being implemented and report on how well they are being followed. To help the board fulfil its strategic duty for corporate sustainability, several firms have decided it is appropriate to establish a committee on social responsibilities, or CSR committee. In general, the committee oversees social and environmental information reporting protocols, policy evaluation, and performance in relation to social responsibility and sustainability issues (Awodiran, 2019). A board structure that has a committee or other specific body focused on CSR matters indicates the company's intent to mold its goal and strategy toward social responsibility. According to Hussain et al. (2018), the presence of a CSR committee represents the board's stance on and dedication to sustainable development. A board can, in fact, through a CSR committee, plan and implement sustainable projects, enhancing the awareness and involvement of the stakeholders in the company's ethical culture and ensuring the quality of the reporting process to the stakeholders (Cucari et al., 2018).

Theoretical Framework **Stakeholder Theory**



Freeman's (1984) Stakeholder Theory forms the fundamental basis for corporate sustainability performance, serving to establish and fortify trustworthy relationships with various stakeholders. The necessity for transparency and efficiency is emphasized by stakeholders, seeking to enhance their benefits and ensure the enduring sustainability of the firm. Aksoy et al. (2020) assert that stakeholders insist on the integration of environmental and social policies into corporate performance. According to Ugwueze et al. (2021), the core concept of the theory revolves around achieving success, contingent upon a company's ability to effectively manage and sustain relationships with a diverse array of stakeholders, including shareholders, employees, suppliers, consumers, government entities, media, creditors, interest groups, and the public. In alignment with the theory, firms are urged to proactively address and mitigate their adverse externalities on stakeholders (Israel et al., 2020). This aspect underscores the relevance of the Stakeholder Theory for oil and gas companies, which often contend with numerous negative environmental and social impacts.

Empirical Review

Hussain et al. (2018) conducted a study on corporate governance and sustainability performance, employing agency theory and stakeholder theory. The study spanned 100 US companies from the high-performance Global Fortune 2013 list over five years (2007 to 2011). Panel data regression, utilizing fixed effects for economic and environmental dimensions and random effects for the social dimension, indicated that board size positively impacted economic, social, and environmental performance. Board independence had a negative impact on economic performance but a positive impact on social and environmental performance. CEO duality positively impacted economic and social performance but negatively impacted environmental performance. Women on board negatively impacted economic and environmental performance but positively impacted social performance. Board meetings had a negative impact on economic and environmental performance but a positive impact on social performance. The existence of a sustainability committee had a negative impact on economic performance but a positive impact on environmental and social performance.

Naciti (2019) explored the effect of board composition on firm sustainability performance using agency theory and stakeholder theory. Independent variables included board diversity (gender and nationality), board independence (proportion of independent directors), and CEO duality, while the dependent variable was the Sustainalytics rating. Control variables comprised firm risk (debt/asset ratio), firm size (log of number of employees), and firm profitability (ROA). The study included 362 large industrial firms from the 2013-2016 Fortune Global 500 list, employing a system generalized method of moment two-step estimator with data from Sustainalytics and Compustat databases. Results indicated that board diversity and CEO duality were significantly positively correlated with sustainability performance, while board independence had a significant negative correlation.

Chams & García-Blandón (2019) based their study on stakeholder theory, investigating board attributes that promote sustainable performance and assessing differences between European (EU)



and non-European (non-EU) firms. The study included 478 multinational firms from 11 industries in 28 countries, selected from the Dow Jones Sustainability Index (DJSI) and Standard and Poor's Global Broad Market index (S&P Global BMI) in September 2017. Attributes considered were board size, composition, directors' age, gender diversity, educational background, CEO duality, and number of committees. Sustainable performance was measured dichotomously, based on inclusion in the DJSI report. Controlled variables included return on assets, price to book value, leverage, firm's beta, research & development expenditure, number of business segments, analyst coverage, and fixed effects like region, country, and industry. Logistic regression analysis revealed a significant and positive relationship between sustainability and board size, gender diversity, average age of directors, and the number of committees. Cross-nationally, dissimilarities in board characteristics were observed between European and non-European firms regarding sustainable performance.

Aksoy et al. (2020) investigated the drivers of corporate social performance (CSP) within non-financial Turkish companies listed in the Borsa Istanbul Sustainability Index, drawing on stakeholder and agency theories. Hypotheses linking CSP with ownership structure, board diversity, and firm-specific characteristics were formulated. The empirical results, based on logit and probit models, confirmed the positive influence of foreign and institutional ownerships on CSP and indicated positive associations between CSP and board size and the proportion of independent board members.

Zaid et al. (2020) explored the effects of board diversity (nationality and gender diversity) on corporate sustainability performance in Palestine from 2013 to 2018, employing a two-step GMM analysis. Proxies for nationality and gender diversity, along with control variables (board size, board independence, firm age, leverage, firm size, profitability, audit quality, year effects, and industry dummy), were used. Sustainability performance was proxied by a disclosure score derived from content analysis. The results showed positive and insignificant relationships between nationality and gender diversity and corporate sustainability-related actions.

Gardazi et al. (2020) conducted a conceptual investigation into the relationship between board attributes and sustainability performance in the energy sector. The study identified board size, board diversity (gender, age, nationality, and education), board independence, and CEO duality as crucial attributes positively associated with the commitment to reduce the carbon footprint. The study proposed a conceptual framework measuring the influence of board attributes on corporate environmental and social sustainability performance, acknowledging limitations, such as the absence of sustainability expertise.

Galletta et al. (2022) analysed the impact of gender diversity on sustainability performance in the banking industry, focusing on female directors and managers. Using Return on Assets to measure financial performance and dummy variables for stakeholder engagement and emission reduction policies, the study sampled 880 bank-year observations from 48 countries over 2011–2019. OLS and probit regressions on panel data revealed that increasing the proportion of female directors

improved financial and environmental performance, while female managers were more inclined toward the social dimension and stakeholder engagement.

METHODOLOGY.

The oil and gas sector is studied because the sector's operations are highly environmentally sensitive. (Nwobu, et al., 2021). The environmentally sensitive nature of oil and gas operations has necessitated serious consideration of their performance in social and environmental terms. This study covers four (4) independent variables: board independence, board gender diversity, board nationality diversity, and the presence of a sustainability committee and three (3) Dependent variables: economic sustainability performance, social sustainability performance, and environmental sustainability performance. Firm size is use as a control variable in line with previous studies (Zaid et al., 2020; Vig & Datta, 2021). The study coverS a study period of nine (11) years ranging from 2012-2022. The choice of this period was based on the availability of data. This is the period after the Nigerian Securities and Exchange Commission mandated certain social and environmental disclosure in its Code of Corporate Governance issued in 2011 and according to Omesì and Berenbo (2018), data on sustainability became composite in 2012 and data is available up till 2022.

The ex-post facto research design was employed for the purpose of the study. The population of the study comprise of nine (9) oil and gas firms listed on the floor of the Nigerian exchange group as of 30th September, 2023. Six (6) of the firms are rated by CSRHub, however, four firms which have complete information available forms the sample of the study. Data were sourced from the secondary sources and the data instruments were the annual reports, sustainability reports of the selected companies and CSRHub database. The technique of data analysis was the generalized least squares (random effect) for panel data. The variables and their measurement in the context of this study is as presented in table 1 below:

Table 1: Variable Measurement

Variable	Type	Acronym	Measurement	Justification
Environment sustainability performance	Dependent	ENVSP	CSRHub Environment Category Score in percent	CSRHub Database, Lin et al., 2019; Volkova & Kuznetsova, 2022
Social sustainability performance	Dependent	SOCSP	Log of CSR expenditure	Israel et al., 2020; GRI-G4-SO6 2013; (Vig & Datta, 2021)Vig & Datta, 2021; (Dembo, 2017)Dembo, 2017
Board independence	Independent	BOIND	Ratio of independent directors to total directors	Cancela et al., 2020

Board diversity	gender	Independent	BOGD	Ratio of female directors to total directors	Cancela et al., 2020
Board diversity	nationality	Independent	BOND	Ratio of foreign directors to total directors	Zaid et al., 2020
Board sustainability committee		Independent	BOSUSCO	a dummy variable: if the respective firm has a sustainability committee or a CSR expert, and 0 otherwise	(Cucari et al., 2018)(Manning et al., 2019) Manning et al., 2019) Hussain et al., 2018; Cancela et al., 2020; Biswas et al., 2018
Firm size		Control	FSIZE	Log of total assets	Zaid et al., 2020, (Vig & Datta, 2021)

Source: Authors' compilation, 2023

Model Specification

The model for this study adapted from Tjahjadi et al. (2021) is as stated below.

Model 1: Effect of the characteristics of the Board of commissioners and total management team on environmental sustainability performance

$$\text{EnvSP}_{it} = \alpha + \beta_1 \text{ComSize}_{it} + \beta_2 \text{PComEdit}_{it} + \beta_3 \text{DirSize}_{it} + \beta_4 \text{PdirEdit}_{it} + \gamma \text{Control}_{it} + e$$

Model 2: Effect of the characteristics of the BoC and TMT on social sustainability performance

$$\text{SocSP}_{it} = \alpha + \beta_1 \text{ComSize}_{it} + \beta_2 \text{PcomEdit}_{it} + \beta_3 \text{DirSize}_{it} + \beta_4 \text{PdirEdit}_{it} + \gamma \text{Control}_{it} + e$$

Where ComSize is total number of commissioners, ComEd is education of president, DirSize is total number of management team and DirEd is CEO education.

In line with the above model of Tjahjadi et al. (2021), the following model is specified for this study

Model 1: Effect of board structure on environmental sustainability performance

$$\text{EnvSP}_{it} = \alpha + \beta_1 \text{BOIND}_{it} + \beta_2 \text{BOGD}_{it} + \beta_3 \text{BOND}_{it} + \beta_4 \text{BOSUSCO}_{it} + \beta_5 \text{FSIZE}_{it} + e$$

Model 2: Effect of board structure on social sustainability performance

$$\text{SocSP}_{it} = \alpha + \beta_1 \text{BOIND}_{it} + \beta_2 \text{BOGD}_{it} + \beta_3 \text{BOND}_{it} + \beta_4 \text{BOSUSCO}_{it} + \beta_5 \text{FSIZE}_{it} + e$$

Where;

α is the constant

$\beta_1 - \beta_5$ are the coefficients

BOIND is Board independence

BOGD is Board gender diversity

BOND is Board Nationality Diversity

BOSUSCO is Board for sustainability committee

FSIZE is Firm size

EnvSP is Environmental sustainability performance, SocSP is Social sustainability performance

RESULTS AND DISCUSSION
Table 2: Descriptive statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
EnvSP	44	0.6157	0.1060	0.45	0.81
SocSP	44	7.0168	0.9692	4.9	8.37
BOIND	44	0.1056	0.1441	0	0.5
BOGD	44	0.2008	0.0988	0	0.4
BOND	44	0.2010	0.2295	0	0.6364
BOSUSCO	44	0.2727	0.4505	0	1
FSIZE	44	10.8594	0.2708	10.2613	11.5

Source: Stata v.13

Table 3: Correlation matrix (Board structure and environmental sustainability performance)

	EnvSP	BIND	BGEN	BOND	BOSUSCO	FSIZE
SocSP	1.0000					
BIND	0.1648	1.000				
BGEN	0.4451	0.3914	1.0000			
BOND	0.7612	-0.0902	0.0921	1.0000		
BOSUSCO	0.2250	0.2916	0.4079	-0.0988	1.0000	
FSIZE	0.5550	0.2043	0.0899	0.05620	-0.0222	1.0000

Source: Stata v.13

Table 4: Correlation matrix (Board structure and social sustainability performance)

	SocSP	BIND	BGEN	BOND	BOSUSCO	FSIZE
SocSP	1.0000					
BIND	0.2110	1.000				
BGEN	0.3981	0.3914	1.0000			
BOND	0.4208	-0.0902	0.0921	1.0000		
BOSUSCO	0.4021	0.2916	0.4079	-0.0988	1.0000	
FSIZE	0.2566	0.2043	0.0899	0.5620	-0.0222	1.0000

Source: Stata v.13

Correlation matrix was generated as the diagnostic test to check for the presence of multicollinearity. All the values revealed were all below the 0.8 rule of thumb which indicates the absence of multi-collinearity. The use of panel data generalized least square will help overcome the issues of data abnormality or heteroscedasticity which may characterize panel data as a result of heterogeneity. Hausman test revealed a prob > chi bar 2 value of 0.49 and 0.38 for the two models which inform the choice of random effects. The results of the panel data generalized least square (random effects) generated from stata v.13 software is presented in tables 2 to 4 below.

Table 5: Board structure and environmental sustainability performance

EnvSP	Coef	Std error	p-values
-------	------	-----------	----------

BOIND	0.0242	0.0677	0.720
BOGD	0.3097	0.0991	0.002
BOND	0.0394	0.0462	0.000
BOSUSCO	0.0393	0.0207	0.058
FSIZE	0.0585	0.0393	0.137
Constant	0.1572	0.4214	0.709
R-Squared	0.77		
Prob>chi2	0.000		

Source: Stata v.13

Table 6: Board structure and social sustainability performance

SocSP	Coef	Std error	p-values
BOIND	0.5780	0.9732	0.553
BOGD	1.7915	1.4252	0.209
BOND	1.9544	0.6653	0.003
BOSUSCO	0.7477	0.2980	0.012
FSIZE	0.1065	0.5657	0.851
Constant	7.1553	6.0616	0.238
R-Squared	0.42		
Prob>chi2	0.0001		

Source: Stata v.13

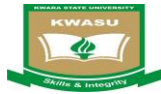
Discussion of results

Board structure and environmental sustainability performance

The results revealed that board independence has positive effect on environmental sustainability performance with the coefficient value of 0.242 but insignificant with a p-value of 0.720; Board gender diversity has significant positive effect on environmental sustainability performance with the coefficient value of 0.3097 and a p-value of 0.002; Board nationality diversity has significant positive effect on environmental sustainability performance with the coefficient value of 0.3093, and a p-value of 0.113; and ; Board sustainability committee has significant positive effect on social sustainability performance with the coefficient value of 0.0393, and a p-value of 0.058. The R-squared is 0.77 which indicates that 77% in environmental sustainability performance is jointly determined by Board independence, board gender diversity, board nationality diversity, the presence of board sustainability committee. The prob>chi2 value of 0.000 depicts the fitness of the model since it is less than 0.05.

Board structure and social sustainability performance

The results revealed that board independence has positive effect on social sustainability performance with the coefficient value of 0.5780 but insignificant with a p-value of 0.553; Board gender diversity has positive effect on social sustainability performance with the coefficient value of 1.7915, and insignificant with a p-value of 0.209; Board nationality diversity has a significant



positive effect on social sustainability performance with the coefficient value of 1.9544, and a p-value of 0.003; and ; Board sustainability committee has significant positive effect on social sustainability performance with the coefficient value of 0.4365, and a p-value of 0.012. The R-squared is 0.42 which indicates that 42% in environmental sustainability performance is jointly determined by Board independence, board gender diversity, board nationality diversity, the presence of board sustainability committee. The prob>chi2 value of 0.0001 depicts the fitness of the model since it is less than 0.05.

CONCLUSION AND RECOMMENDATION

The study aim was to investigate the effect of some board structure variables less researched in the existing body of knowledge on the social and environmental performance of Nigerian listed oil and gas firms. Based on the findings of the study, it concludes that; board independence and board gender diversity positively but insignificantly affect social performance; meanwhile, board sustainability committee and board nationality diversity positively and significantly affect social performance. Also, the study concludes that Board independence positively and insignificantly affect environmental performance; meanwhile, board gender diversity, board nationality diversity and board sustainability committee positively and significantly affect environmental performance. And in the overall, this study provides evidence that board structure positively influences social and environmental performance of listed Nigerian oil and gas firms.

The study hereby recommends that oil and gas firms adopt the principle of increasing independence, increasing gender and nationality diversity and incorporation of sustainability committee in order to improve both their social and environment sustainability performance. Doing this will improve the firm's reputation, competitiveness, attractiveness to investors and the achievement of sustainable development.

REFERENCES

- Awodiran, M. A. (2013). *Corporate governance and sustainability disclosure : evidence from listed industrial goods firms in nigeria*.
- Biswas, P. K., Mansi, M., & Pandey, R. (2018). Board composition, sustainability committee and corporate social and environmental performance in Australia. *Pacific Accounting Review*, 30(4), 517–540. <https://doi.org/10.1108/PAR-12-2017-0107>
- Cancela, B. L., Neves, M. E. D., Rodrigues, L. L., & Gomes Dias, A. C. (2020). The influence of corporate governance on corporate sustainability: new evidence using panel data in the Iberian macroeconomic environment. *International Journal of Accounting and Information Management*, 28(4), 785–806. <https://doi.org/10.1108/IJAIM-05-2020-0068>
- Cucari, N., Esposito De Falco, S., & Orlando, B. (2018). Diversity of Board of Directors and Environmental Social Governance: Evidence from Italian Listed Companies. *Corporate Social Responsibility and Environmental Management*, 25(3), 250–266. <https://doi.org/10.1002/csr.1452>



- Dembo, A. M. (2017). *The Impact of Sustainability Practices on the Financial Performance: Evidence from Listed Oil and Gas Companies in Nigeria*. 215–233.
https://doi.org/10.1007/978-3-319-56182-0_14
- Gardazi, S. S. N., Hassan, A. F. S., & Johari, J. B. (2020). Board of Directors Attributes and Sustainability Performance in the Energy Industry. *Journal of Asian Finance, Economics and Business*, 12(1), 317–328. <https://doi.org/10.13106/JAFEB.2020.VOL7.NO12.317>
- Guterman, A. S. (2020). Corporate Governance and Sustainability. *Sustainability and Corporate Governance*, June, 1–14. <https://doi.org/10.4324/9781003091622-1>
- Hussain, N., Rigoni, U., & Orij, R. P. (2018). Corporate Governance and Sustainability Performance: Analysis of Triple Bottom Line Performance. *Journal of Business Ethics*, 149(2), 411–432. <https://doi.org/10.1007/s10551-016-3099-5>
- Israel, U., Nduka, R., & Emeakponuzo, E. (2020). Environmental and Social Accounting Practices, and Financial Performance of Cement Companies: Empirical Evidence from Nigeria. *European Journal of Business and Management*, 12(20), 60–72.
<https://doi.org/10.7176/ejbm/12-20-07>
- Lourenço, I. C., & Branco, M. C. (2013). Determinants of corporate sustainability performance in emerging markets: The Brazilian case. *Journal of Cleaner Production*, 57, 134–141.
<https://doi.org/10.1016/j.jclepro.2013.06.013>
- Lin *et al.* (2019). Financial performance and corporate social responsibility: Empirical evidence from Taiwan. *Asia Pacific Management Review* 24 (2019) 61-71.
- Manning, B., Braam, G., & Reimsbach, D. (2019). Corporate governance and sustainable business conduct—Effects of board monitoring effectiveness and stakeholder engagement on corporate sustainability performance and disclosure choices. *Corporate Social Responsibility and Environmental Management*, 26(2), 351–366.
<https://doi.org/10.1002/csr.1687>
- Moses, E., Che-Ahmad, A., & Abdulmalik, S. O. (2020). Board governance mechanisms and sustainability reporting quality: A theoretical framework. *Cogent Business and Management*, 7(1). <https://doi.org/10.1080/23311975.2020.1771075>
- Oshiole, S., Elamah, A. F., & Amahalu, N. N. (2020). Effect of Environmental Cost Disclosure on Profitability of Listed Oil and Gas Firms in Nigeria. *International Journal of Academic Research in Accounting, Finance and Management Sciences*, 10(2), 157–170.
<https://doi.org/10.6007/ijarafms/v10-i2/7405>
- Shrivastava, P., & Addas, A. (2014). The impact of corporate governance on sustainability performance. *Journal of Sustainable Finance and Investment*, 4(1), 21–37.
<https://doi.org/10.1080/20430795.2014.887346>
- Tjahjadi, B., Soewarno, N., & Mustikaningtiyas, F. (2021). Good corporate governance and corporate sustainability performance in Indonesia: A triple bottom line approach. *Heliyon*, 7(3), e06453. <https://doi.org/10.1016/j.heliyon.2021.e06453>
- Vig, S., & Datta, M. (2021). The impact of corporate governance on sustainable value creation: A case of selected Indian firms. *Journal of Sustainable Finance and Investment*, 0(0), 1–19.
<https://doi.org/10.1080/20430795.2021.1923337>
- Volkova O. & Kuznetsova (2022). the impact of corporate social responsibility on corporate



MALETE JOURNAL OF ACCOUNTING AND FINANCE

A Publication of the Department of Accounting and Finance, Faculty of Management and Social Sciences, Kwara State University, Malete

Vol. 4 No. 1, December, 2023

ISSN: 2735-9603

financial performance: evidence from Russian and Dutch Companies. *Journal of Corporate Finance Research*, 16(2), 15-31. **DOI:** <https://doi.org/10.17323/j.jcfr.2073-0438.16.2.2022.15-31>

Zaid, M., Wang, M., Adib, M., Sahyouni, A., & T. F. Abuhijleh, S. (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>