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Corporate Governance Mechanism and Sustainability Reporting Disclosure of Listed Oil and Gas Companies in Nigeria

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ABSTRACT

The study focused on corporate governance mechanisms and sustainability reporting disclosure of listed oil and gas firms in Nigeria. Corporate governance mechanism was measured using board size, board independence, audit committee independence and ownership structure. However, sustainability reporting disclosure was measured using global reporting indicator (GRI). To achieve the objective of this study ex-post facto research design was adopted. The population of the study is made up of nine listed oil and gas companies in Nigeria. Census sampling technique was adopted; this implies that all the nine listed oil and gas companies were used as the sample of the study. The data collected were analyzed using Auto-Regressive Distributed Lag (ARDL). The findings revealed that board size, board independence, audit committee independence and ownership structure have significant effect on sustainability reporting disclosure of listed oil and gas companies in Nigeria. Therefore, the study concludes that corporate governance mechanisms significantly affect sustainability reporting disclosure of oil and gas companies in Nigeria. The study recommends amongst others that companies should maintain an optimal board size (typically 7–11 members, depending on firm complexity) that allows for effective decision-making without becoming too large and unwieldy. Avoid excessively small boards that may lack diverse expertise or excessively large ones that may suffer from coordination challenges. The study also recommends increase in the proportion of independent non-executive directors on the board. Independent directors should constitute at least 50% of the board to enhance objective oversight of sustainability issues and reduce managerial entrenchment.

Keywords: Corporate governance mechanisms, board size, board independence, audit committee independence, ownership structure, sustainability reporting disclosure, oil and gas firms.

Introduction

Corporate governance refers to the system of rules, practices, and processes by which a company is directed and controlled. It involves balancing the interests of a company's many stakeholders, such as shareholders, management, customers, suppliers, financiers, government, and the community. Effective corporate governance provides a framework that, among other things, aims to ensure transparency, fairness, and accountability in a company's relationship with all its stakeholders. The ultimate goal is to foster a corporate culture of integrity, ethical behaviour, and respect for the broader societal impact of business activities (Janggu, et al., 2024).

Corporate governance mechanisms include a set of processes, customs, policies, laws, and institutions that affect how a corporation is directed, administered, or controlled. These mechanisms are particularly important in developing countries where regulatory environments might be less stringent, and the risk of corporate malfeasance could be higher. Key corporate governance mechanisms include board structure and composition; ownership structure; audit committee and external auditing. The effectiveness of the board of directors in overseeing company management is crucial. A diverse and independent board is more likely to enhance decision-making processes and ensure that the company's strategic direction aligns with sustainability goals (Oriaifoh & Lodikero, 2025). Ownership concentration and the presence of large shareholders can influence a firm's commitment to sustainability practices. Large shareholders may have the power to press for sustainability initiatives (Shleifer &Vishny, 2017). The existence of a robust audit committee and the use of reputable external auditors can ensure the integrity of financial and non-financial reporting, including sustainability reporting (DeZoort et al., 2022).

In Nigeria, regulatory frameworks set by bodies like the Nigerian Securities and Exchange Commission (SEC) and the Nigerian Exchange Group (NGX) play a critical role in guiding corporate governance and sustainability reporting practices. These frameworks often mandate certain levels of disclosure and may promote transparency and accountability in how firms report their sustainability activities (Amaeshi et al., 2016). However, the effectiveness of these regulations in promoting comprehensive sustainability reporting can vary, depending on their enforcement and the willingness of firms to go beyond compliance.

Engaging with stakeholders is crucial for firms in understanding the sustainability issues that are most relevant and material to their operations and reporting on them effectively. Nigerian firms that actively engage with stakeholders, including investors, customers, and communities, are likely to produce sustainability reports that are more responsive to stakeholder concerns and expectations (Adams, 2020). This engagement can also help firms in identifying areas for improvement in their sustainability practices.

The relationship between corporate governance and sustainability reporting is increasingly acknowledged as crucial for long-term corporate success and risk management. Good corporate governance practices are seen as a foundation for credible sustainability reporting. This is because governance structures and processes shape the decision-making that ultimately drives a company's sustainability performance. Moreover, sustainability reporting, when integrated into corporate governance frameworks, enhances transparency and accountability, helping boards of directors and management teams to monitor performance, manage risks, and make informed strategic decisions that align with sustainable development goals. Much more, the integration of corporate governance mechanisms with sustainability reporting is critical for the development of sustainable business practices. Effective corporate governance can ensure that sustainability is embedded in the strategic decision-making process of the firm, leading to more comprehensive and meaningful sustainability reporting (Aguilera et al., 2016).

Nigeria's regulatory landscape has evolved to promote better governance and sustainability practices. The Nigerian Code of Corporate Governance (2018), Companies and Allied Matters Act (CAMA, 2020), Petroleum Industry Act (2021), and Climate Change Act (2021) emphasize board-level responsibility for sustainability and environmental issues. However, compliance and enforcement remain weak, particularly in an industry characterized by powerful multinational influences, state-owned entities like the Nigerian National Petroleum Company Limited (NNPCL), and significant political interference. Many listed oil and gas firms engage in voluntary or minimal sustainability reporting, often lacking depth, comparability, and assurance, which undermines their credibility.

Conversely, some research reveals mixed findings, the first strand of literature found a positive relationship between corporate governance and sustainability disclosure (for instance, Okudo & Ndubuisi, 2021; Uddin, et al., 2021; Alsurayyi, & Alsughayer, 2021). The second strand of literature found a negative relationship between corporate governance and sustainability disclosure (Otero-Gonzalez, et al., 2021). Yet some other studies found no link between corporate governance and sustainability disclosure (Dunay, et al., 2021; Koji, et al, 2020). The inconsistencies in the findings of these studies created a gap in knowledge which this study sought to fill. Therefore, the main objective of this study is to examine the extent to which corporate governance mechanisms affect sustainability reporting disclosure of listed oil and gas firms in Nigeria.

The specific objectives are to:

(i) Examine the effect of board size on sustainability reporting disclosure of listed oil and gas firms in Nigeria.
(ii) Assess the effect of board independence on sustainability reporting disclosure of listed oil and gas firms in Nigeria.
(iii) Determine the effect of audit committee independence on sustainability reporting disclosure of listed oil and gas firms in Nigeria.
(iv) Ascertain the effect of ownership structure on sustainability reporting disclosure of listed oil and gas firms in Nigeria.

REVIEW OF RELATED LITERATURE

Concept of corporate governance

Corporate governance refers to the quality, transparency, and dependability of the relationships between the shareholders, board of directors, management, and employees (Kaya & Turegun, 2024). It defines the authority and responsibility of each in delivering sustainable value to all the stakeholders in order to attract financial and human capital to the corporation and to ensure sustainability of value creation; the governance mechanisms should ensure to gain the trust of all stakeholders (Arguden, 2020). Corporate governance studies emphasize the fact that no single corporate governance model is valid for every country. However, the concepts of equality, transparency, accountability and responsibility appear to be the central concepts in all plausible international corporate governance approaches. Corporate governance affects sustainability development through access to external financing by firms, lowering of the cost of capital and associated higher firm valuation, better operational performance through better allocation of resources and better management, reduced risk of financial crises and better relationships with all stakeholders (Karayel, et al., 2019).

The primary goal of development is to satisfy human needs and aspirations. It involves the actualization of human potential. It also involves proper understanding and management of the environment and its resources for sustainable human well-being. Sustainable development is in accord with continual enhancement of quality of human life both for now and the future (Anyaehie & Areji, 2015). Stewardship of a business under this model is expected to take cognizance financial capital as well as manufactured, human, intellectual, natural, and social capital as well as their interdependencies (Kaya & Turegun, 2024). According to the International Federation of Accountants (IFAC), sustainability is about promoting ethical responsibility and sound corporate governance practices. It also involves the provision of a safe working environment in which the health of employees is protected, and their opportunities for self-development are enhanced. Also included in the notion is promoting cultural diversity and equity in the workplace and minimizing adverse environmental impacts and providing opportunities for social and economic development within the communities they operate. Thus, sustainability is a strategy of the process of sustainable development (Kocmanová, et al., 2021). Some authors consider it as part of sustainable development (Idowu, et al., 2016)

In its primitive form, agency theory relates to a situation in which one individual (the agent) is engaged by another individual (the principal) to act on his/her behalf for consideration (Anyaehie & Areji, 2015). Since both individuals are assumed to be utility maximizers and motivated by pecuniary and non-pecuniary items, incentive problems may arise primarily in situations of information asymmetry and conditions of uncertainty (Namazi 2023). A simple agency model suggests that since principals lack reasons to trust their agents, they seek to resolve these concerns by putting in place mechanisms to align the interests of agents with that of the principals and to reduce the scope for information asymmetry and opportunistic behavior (ICAEW, 2005). In the case of corporate bodies, the principal is the shareholder, and the agent is the board of directors.

Increasingly, the modern corporation is viewed as owing a duty not only to shareholders but also to other stakeholder groups like employees, the host communities, and even the government. This notion has given rise to the stakeholder theory. The theory emphasizes the fact that there are several other interest groups aside from shareholders that are interested in a firm's activities and decisions. Since firms have several stakeholders who compete for organizational resources, they need to identify strategies for managing them (Olajide, 2024).

The Nigerian Security and Exchange Commission (SEC) code of 2011 provided, among others, for a minimum board size of 5 and a maximum size that will not be unwieldy. Non-executive directors were to be more than 50% of each board independence and frequency of board meetings of at least once in a quarter. There should be at least an “independent” director in the board of a company.

Apart from board effectiveness, other factors that contribute to good corporate governance which makes for sustainable development include the presence of an active audit committee; the presence of an active shareholder group; the existence of an independent external audit function; the presence of an effective internal audit. Others are a policy of fair treatment of all employees; the existence of a reporting format that discloses the economic, social, and environmental performance of the organization; the presence of a whistleblowing policy and the presence of a mechanism for the management of conflict of interest.

Concept of Sustainability Reporting Disclosure

Sustainability reporting disclosure is an accounting performance measurement designed to go beyond the report on financial information and brings about report on the impact of the organization’s activities on the planet and the people that dwell in it. This solves the problem of giving partial attention to business activities. Sustainability reporting is voluntarily practiced by multinational firms in Nigeria. The reporting was different as companies were not guided by any legislation on what to report. Sustainability reports are important because it enhance corporate issues and reports. It comprises of economic, social and environmental. Sustainability reporting is the process of disclosing the performance of firms as regards the practice of sustainable development to both internal and external stakeholders (Enof, et al., 2023). Likewise, Onoh, et al.(2021), opined that sustainability reporting is the disclosure of an integral approach to sustainable issues which is driven by stakeholders’ pressure, legislative and ethical reasons. According to Hassan and Musa (2022), sustainability reporting is the practice that encompasses a company’s value, governance model and its approach towards creating a sustainable global economy. In the same vein, Ratanacharoenchai et al., (2017) explained that sustainability reporting is the reporting system that enhances transparency, the reputation of the firm and meeting the interests of the stakeholders. Therefore, sustainability reporting refers to the disclosure of non-financial information following four main aspects of economic, environmental, social and governance sustainability in a strategic manner.

The current state of sustainability reporting can be divided into two parts: namely voluntary and mandatory sustainability reporting. Voluntary sustainability reporting occurs when managers’ according to their discretion decide what, how and when to disclose sustainability information, even, when on the other hand there are no mandatory requirements to do so. Mandatory sustainability reporting is one that is demanded by the national government or its delegated regulatory authority, such as Securities and Exchange Commission that oversees the activities of business organizations quoted on the stock market. According to GRI (2011), economic sustainability is the long-term accomplishment of a positive and responsible balance via the effective use of the resources that are now accessible. It could discuss the reporting company's financial performance as well as the ways in which it influences the local, national, and global economic systems in which it operates as well as the financial positions of its stakeholders (Asaolu et al., 2021). The indicators are listed in Table 1 based on data from GRI.

To promote openness, businesses are asked to report all important social sustainability measures. Concerns about human rights, business ethics, anti-corruption behavior, political donations, if any, lobbying and advocacy, employment practices, including non-discrimination policy, labor and industrial relations, employees' safety and training, as well as local employment opportunities, particularly for host communities, are among them, according to GRI (2011). Other issues, such social ties, investments, and security, are related to the community and society.

These problems were broken down into eight indicators in accordance with the GRI framework from 2011, and it is envisaged that they would be included in a corporation's sustainability reporting system.

Table 1: Sustainability reporting indicators

Environmental	**Social**	**Economic**
Energy	Community involvement	Economic performance
Water	Anti-corruption behavior	Market presence
Carbon emission	Human right	Indirect economic impact
Waste management	Employee health and safety	Value and supply chain
Compliance	Labour and industrial relation	Risk management
Product and service stewardship	Training and development	
Biodiversity	Philanthropy	
Transportation	Diversity and equal opportunity	

Source: Global Reporting Initiatives, (GRI) 2011.

Corporate Governance and Sustainability reporting disclosure

Corporate governance refers to how companies are governed and how managers are held accountable to the companies' stakeholders (Chiu & Wang, 2025). Boiral and Henri (2017), suggest that governance takes account of all the interests that affect an enterprise's viability, competence, and moral character. Moreover, the corporate governance system results from a series of interrelated attributes, all of which are relevant to ensure sound governance. Based on the idea that corporate governance refers to a series of overlapping mechanisms, corporate governance structure influences sustainability disclosure.

Aras and Crowther (2018), argue that both corporate governance and sustainability is essential for the continuous operation for any corporation and that therefore much attention should be paid to these concepts and their applications. They also pointed out that the concept of sustainability is less clear than the concept of corporate governance, which is well established. They call for empirical research that explores the relationship between these two concepts. According to them, these two concepts are fundamentally related to each other. Good corporate governance is generally expected to have a positive impact on the sustainability performance and disclosure (Gul, et al., 2017). It has been observed that corporations now put corporate governance and corporate sustainability into business practice in order to achieve competitive advantage over competitors (Mitra, et al., 2018)

The need for good corporate governance mechanism that guarantees discharging of board duties effectively and efficiently in a way that transforms to effective firm triple bottom line (TBL) performance. Attributes of corporate governance mechanism stem from the characteristics of the board in terms of its size, independence, diversity, and constitution of CSR committee. As said earlier, an efficient and effective board size is a critical need for robust company performance. An ideal board that is larger in size can obtain resources at low cost and lead to better performance. Decisions made at board level play vital role in determining the level of sustainability disclosures. A board that is larger offers diverse expertise and knowledge and brings different perspectives into the company in a way that seems to reduce agency problem (Said, et al., 2019). According to Janggu, Darus, Zain and Sawani (2024), large boards of directors have more influence on sustainability matters. In the same vein, Shamil, et al. (2024), reported that most large corporations with large board size are always willing to improve on their sustainability reporting. A weak association was found between board size and sustainability reporting (Said, et al., 2009) while Htay, et al. (2022), reported a negative relationship between board size and sustainability reporting. The existing literature appears to be scanty and inconclusive about the effect of board on sustainability disclosures. It was said that most of the previous studies outside the shore of Nigeria established a positive association between them (Esa, et al, 2022).

Many studies have established a positive link between board independence and sustainability reporting. For instance, Haniffa and Cooke (2015), opined that independent directors can exert pressure on company's management on sustainability disclosures. They have a higher possibility to encourage companies to publish a comprehensive set of information on non-financials. On the contrary, studies by Said, et al. (2019), found a negative association between board independence and sustainability reporting. Hence, the existing literature on this appears to be conflicting and inconclusive.

Literature on disclosure has observed female directors on a board, Terjesen, Sealy and Sigh (2019) reported that organizations with females on the board are more socially responsible. Women are inclined to responding to social needs and that the presence of female directors on a board enhances corporate reputation and social responsibility ratings (Bear, et al., 2020). In the Same Vein, Nadeem, et al (2017), revealed a significant direct association between women's representation on a board and corporate sustainability practices. However, Khan (2020) could not establish an association between female director and CSR disclosure. Findings in this regard are equally mixed and inconclusive.

Theoretical Framework

This study is anchored on stakeholder theory.

Stakeholder Theory

Stakeholder theory was propounded by R. Edward Freeman in 1984. The theory posits that organizations are not solely accountable to shareholders but must consider and balance the interests of a broader array of stakeholders, including employees, customers, suppliers, communities, governments, and environmental groups. It emphasizes that long-term firm success depends on creating value for all these groups, rather than maximizing short-term profits for owners alone. This approach shifts management focus from narrow financial metrics to ethical, social, and environmental responsibilities, viewing stakeholders as integral to the firm's ecosystem.

In relation to the study, stakeholder theory explains why effective corporate governance mechanisms can improve sustainability reporting disclosure. For instance, a larger board size or higher board independence allows for diverse stakeholder perspectives to be integrated into decision-making, ensuring that environmental (e.g., pollution control), social (e.g., community welfare), and economic (e.g., resource efficiency) reporting addresses the concerns of various groups, such as local communities in Nigeria's oil-rich regions or international investors. Audit committee independence further strengthens this by providing objective oversight, reducing agency conflicts, and promoting transparent disclosures that build trust and value across stakeholders. One of the major methods to environmental, social, economic and sustainability management research is through the Stakeholders' theory. Stakeholders are groups and individuals that can affect or be affected by the activities connected to trade and value creation. Individuals and groups who rely on the firm in trying to achieve their personal goals depend on the firm for its survival. Stakeholder theory has contributed to considering stakeholders' impacts on organizations' actions and how organizations respond to these impacts. In Nigeria's oil and gas sector, where stakeholder pressures from environmental activists and regulators are intense, governance mechanisms grounded in this theory can lead to higher-quality reporting that mitigates conflicts and enhances firm sustainability.

This study is anchored on stakeholder theory because the stakeholder theory's position is to meet stakeholders' needs and expectations and manage the conflicting interests of the various stakeholders.

Empirical Review

Oriaifoh and Lodikero (2025) examined the impact of corporate governance mechanisms on firms' sustainability reporting within the context of a developing country. Focusing on four key dimensions of corporate governance board director independence, board diversity, ownership structure, and board size this research aims to elucidate how these factors influence firms' commitments to sustainability reporting. The paper employed a qualitative and desk top approach to explore extant literature on the subject matter. The findings obtained from the various literature examined indicate that board director independence and board diversity are associated with enhanced sustainability reporting, indicating that these governance mechanisms play a pivotal role in fostering transparency and accountability in environmental, social, and governance (ESG) matters. The results for ownership structure and board size show a more mixed outcome, showing that governance factors affect sustainability practices in more complicated ways for listed firms in a developing country.

Bamwa, et al. (2025) investigated the effect of corporate governance mechanisms on environmental reporting of listed oil and gas firms in Nigeria. Corporate governance (independent variable) was proxied by board size, board composition, and audit committee independence, while environmental reporting (dependent variable) was measured using the cost incurred on environmental activities. The regression results showed that board size had a negative and insignificant effect ($p = 0.1668$), board composition also had a negative and insignificant effect ($p = 0.7810$), while audit committee independence had a positive but insignificant effect ($p = 0.1373$) on environmental reporting. The findings imply that current corporate governance structures may not significantly influence environmental reporting practices in the sector. Musa, et al. (2025) examined the moderating effect of board risk management committee on corporate governance attributes and sustainability reporting of listed non-financial firms in Nigeria. With a sample size of population of 48 non-financial firm covering the period from 2019 to 2023, secondary source of data was collected from the audited annual financial statement of the selected firms. Generalized Least Square Technique (Fixed Effect) was adopted and the findings of the study revealed that managerial ownership, foreign ownership, board diversity have significant and positive effect on sustainability reporting of listed non-financial firms in Nigeria. Also, audit committee meetings and audit committee independence was found to have negative but significant effect on sustainability reporting of firms before moderation. After Moderation with board risk committee, foreign ownership, board diversity, board composition, audit committee independence were found to positively impact on sustainability reporting of firms, meanwhile, managerial ownership and audit committee meetings were found to exact positive but insignificant effect on sustainability reporting of firms.

Nwankwo et al., (2025) explored the impact of corporate governance mechanisms on economic and environmental sustainability reporting among listed oil and gas companies in Nigeria, the study addressed a significant gap in existing literature concerning governance and sustainability practices in developing economies. Balanced panel dataset of nine listed oil and gas companies from 2017 to 2024 were employed. Findings indicate that board independence has a significant positive effect on economic sustainability reporting, with a coefficient of 2.05 ($p < 0.05$). Although a positive relationship was also observed between board independence and environmental sustainability reporting, the association was less statistically significant.

Nsiah, et al. (2025) investigated the impact of corporate governance on sustainability reporting among State-Owned Entities (SOEs) using survey approach. The findings indicate that the extent of sustainability reporting among SOEs in Ghana is low. The results also show that SOEs in Ghana report more sustainability dimensional information but not total sustainability reporting. Similarly, the board size, CSR committee, and audit committee size have a positive and statistically significant impact on the extent of total sustainability reporting. The study comprised a sample of SOEs in Ghana and hence the results are generalizable only to such unique hybrid organizations in the Ghanaian context. Nonetheless, the findings imply that sustainability reporting is low among SOEs in Ghana.

Abdallah (2025) analyzing the impact of three board characteristics (board size, board independence, and board activity) on how well integrated reporting corresponds to the integrated reporting framework. The data collection involves secondary data. The data were collected from annual report and account of selected firms. The data collected were analyzed using multiple regression analysis. The results show that board independence and size have a positive and significant effect on how well reports conform to the integrated reporting framework. On the other hand, participation by board activity has no discernible impact on the degree of compliance to the integrated reporting system. Oyerogba et al., (2024) ascertained whether a composite corporate governance (CCG) index is related to sustainability reporting quality of listed banks in Nigeria. The results showed that corporate governance mechanism have a statistically significant influence on the quality of sustainability.

Hassan et al., (2022) investigates the determinant of corporate sustainability reporting decision. Findings reveal that firms with more gender diverse boards, large audit committee and higher institutional ownership were more likely to issue sustainability reports providing policy direction for Pakistan's' policy makers. In the same vein, Oyekale, et al., (2022) looked at the impact of corporate governance on environmental sustainability disclosure of non-financial companies quoted in Nigeria. Findings reveal that corporate governance had significant effect on environmental sustainability disclosure. Mahmood, et al., (2018) reviewed the impact of corporate governance on economic, social and environmental disclosures. The study ascertained that corporate governance elements enhance sustainability disclosures.

METHODOLOGY

This study adopted ex-post facto research design a non-experimental research design that investigates the possible relationship between variables after the event or condition being studied have already occurred. This gives the researcher no room for manipulations of the data set. Panel data was used for analysis which involved the collection of data across firms on same key characteristics over specific time for the purpose of identifying a common trend of behavior amongst the firms.

The population of the study is made up of all the nine (9) Oil and gas firms listed in Nigeria exchange group from 2015-2024. The listed oil and gas firms include Ardova Plc, Conoil Plc, Eternal Plc, Japual Gold and Ventures Plc, MRS Oil Nigeria Plc, Oando Plc, Rak Unit Petroleum Plc, Seplat Energy Plc and Total Energies Nigeria Plc. The study is a census study. It enlists all members in the population in the study. Specifically, the total population of the current study is Nine (9). It comprises all the nine listed oil and gas in Nigeria with data.

The source of data for this study is secondary data. The study collected secondary data from the audited annual reports of the sampled oil and gas firms under review which include reports on board size, board independence, audit committee independence, ownership structure, and sustainability reporting disclosure. These data were collected for a period of ten (10) years for each oil and gas company ranging from 2015-2024.

The GRI index displayed in table 1 served as the checklist for investigating sustainability reporting of the 9 oil and gas companies in Nigeria. The study focused on three aspects of sustainability as reflected in the table which includes social, environmental and economic. For each indicator content analysis was used to ascertain the overall score for each firm. Where the indicators were reported a score of 1 was allotted and where otherwise such indicator was scored 0.

Levin, Lin & Chu test (LLC) unit root test was employed to ascertain the level of stationarity of the variables under study. The Panel Auto-Regressive distributed lag (ARDL) was applied in estimating the relationship

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subsisting among the variables of this study. The ARDL was used because of the mixed order of integration on variables. Some variables are integrated at level {1(0)}, while some are integrated at first difference {I (1)}.

The study adapted the model of Bamwa, et al. (2025) with little modification to suit the objectives of the present study.

$ENVR= \beta_0 + \beta_1 BSIZE + \beta_2 BIND+ \beta_3 ACI + \varepsilon$ (1)

Taking into account the underlying objectives of the study, the model for this study is specified as;

$SRD_{it} = \alpha 0 + \Sigma\alpha_1 BODSIZE_{it} + \Sigma\alpha_2 BODIND_{it} + \Sigma\alpha_3 ACI_{it} + \Sigma\alpha_4 OWNS_{it} + \mu$

The ARDL model is thus stated as:

$SRD_{it} = \alpha_0 + \Sigma\alpha_1 SRD_{it} + \Sigma\alpha_2 BODSIZE_{it} + \Sigma\alpha_3 BODIND_{it} + \Sigma\alpha_4 ACI_{it} + \Sigma\alpha_5 OWNS_{it} + \upsilon$ (2)

Where;

SRD = Sustainability reporting disclosure

BODSIZE = Board Size

BODIND = Board Independence

ACI = Audit Committee Independence

OWNS = Ownership Structure

$U_t and V_t =$ stochastic error terms

$T =$ time series trend for the firm

i = Period

$b_0 =$ contant terms

$b_1 =$ coefficient parameters

By a prior, $b_0 > 0, b_1 > 0$

4.0 Results and Discussions

Stationarity/unit root tests

To avoid running a spurious regression, unit root test is carried out to ensure that the variables employed in this study are mean reverting i.e. stationary. For this purpose, the Levin, Lin & Chu test is employed to test for stationary of data. The result of the test is presented in the table below.

Table 2: Unit Root Test Table

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Variable	P-value	Difference	Order
BODSIZE	0.0000	1st difference	1(1)
BODIND	0.0211	Level	1(0)
ACI	0.0199	Level	1(0)
OWNS	0.0390	Level	1(0)
SRD	0.0000	Level	1(0)

Source: Authors computation with E-views

The table 2 showed the result of the first test required to know the common and individual stationarity of the variables. For the common stationarity test, the Levin Lin Chu (LLC) test for common stationarity was used which considers lags in data series. A variable is stationary if the p-value is less than or equal to 0.05 level of significance. The result from the table shows that BODIND, ACI, OWNS and SRD are stationary at level. However, BODSIZE, is stationary at first difference. Since there is mixed order of integration (1(0) and 1(1)), ARDL is the most suitable analytical tool for study.

Data Analysis for Estimation and Post-Estimation Test.

Long Run Cointegration (Bound Test)

Table 3: Bound test.

Test Statistic	Value	K
F-statistic	5.379229	7
Critical Value Bounds		
Significance	I(0) Bound	I(1) Bound
10%	2.20	3.09
5%	2.56	3.49
2.5%	2.88	3.87
1%	3.29	4.37

Source: Authors computation with E-views extracted from Appendix 3C

The ARDL bond test is a cointegration test that is used to test for long run relationship between variables. The test considers all variables as one without specifying their individual relationship. Therefore, the test is interested in knowing how the independent variables (put together) relate to the dependent variable in a long run. The long-term cointegration of the study's variables was assessed using the ARDL Bound test (Table 3). Since the F-statistic value of 5.379229 was higher than the upper bound value of 3.49 at the 5% level, the variables showed long-term cointegration.

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Short-run Error correction model (ECM)

Table 4: Short Run-ECM Result

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
D(SRD(-1))	-0.326171	0.108810	-2.997610	0.0037
D(SRD(-2))	-0.139273	0.089970	-1.547994	0.1261
D(BODSIZE)	1.799915	1.810434	0.994190	0.3235
D(BODSIZE(-1))	7.604703	2.181368	3.486208	0.0008
D(BODIND)	4.422255	2.153333	2.053679	0.0437
D(BODIND (-1))	5.621296	1.915079	2.935282	0.0045
D(ACI)	13.69123	3.868425	3.539225	0.0007
D(OWNS)	2.814677	1.479143	1.902911	0.0611
D(OWNS(-1))	3.765522	1.395482	2.698366	0.0087
CointEq(-1)*	-0.713828	0.121445	-5.877779	0.0000
R-squared	0.623958			
Adjusted R-squared	0.579427			
S.E. of regression	1.692675			
Sum squared resid	217.7513			
Log likelihood	-161.9760			
Durbin-Watson stat	2.122746			

Source: E-view Output 2026

The Error Correction Model (ECM) result explains the relationship between corporate governance mechanisms and sustainability reporting disclosure (SRD) of oil and gas firms in Nigeria, as well as the speed at which deviations from long-run equilibrium are corrected.

The estimated ARDL-ECM model shows that the explanatory variables jointly explain changes in sustainability reporting disclosure. The adjusted of 0.579 indicates that approximately 57.9% of the variations in SRD are explained by board size, board independence, audit committee independence, and ownership structure within the model. The Durbin-Watson statistic of 2.12 suggests the absence of serious autocorrelation problem in the model.

The coefficient of the error correction term, represented as:

ECM{t-1} = -0.713828is negative and statistically significant with a probability value of 0.0000. This satisfies the theoretical expectation for an ECM. The coefficient implies that about 71.4% of any short-run disequilibrium in sustainability reporting disclosure is corrected annually toward the long-run equilibrium path. This indicates a strong speed of adjustment from short-run disequilibrium to long-run stability.

Sustainability reporting disclosure Lagged Terms

The first lag of SRD, has a negative and significant coefficient (-0.326171, p = 0.0037). This implies that the previous year's changes in sustainability reporting disclosure negatively influence current changes in SRD in the short run. However, the second lag is statistically insignificant (p = 0.1261), indicating no meaningful short-run effect.

Board Size (BODSIZE)

Current board size has a positive but insignificant coefficient (1.799915, p = 0.3235), suggesting that an increase in board size does not significantly improve sustainability reporting disclosure in the current period.

However, the lagged value of board size is positive and statistically significant (7.604703, p = 0.0008). This indicates that previous increases in board size significantly improve sustainability reporting disclosure in the short run. This suggests that the effect of board size on sustainability reporting disclosure materializes over time rather than immediately.

Board Independence (BODIND)

Board independence has a positive and significant relationship with sustainability reporting disclosure in both the current and lagged periods. The current coefficient (4.422255, p = 0.0437) implies that increased board independence significantly enhances sustainability reporting disclosure. Similarly, the lagged coefficient (5.621296, p = 0.0045) also indicates that prior improvements in board independence continue to positively influence sustainability reporting disclosure. This suggests that independent directors strengthen transparency and disclosure practices in oil and gas firms.

Audit Committee Independence (ACI)

Audit committee independence has a positive and statistically significant coefficient (13.69123, p = 0.0007). This indicates that greater independence of the audit committee significantly improves sustainability reporting disclosure. The result implies that independent audit committees enhance monitoring effectiveness, accountability, and compliance with sustainability disclosure standards.

Ownership Structure (OWNS)

Ownership structure shows a positive but insignificant contemporaneous effect on sustainability reporting disclosure (2.814677, p = 0.0611), since the p-value is slightly above the 5% significance level. However, the lagged ownership structure variable is positive and statistically significant (3.765522, p = 0.0087). This suggests that ownership structure contributes positively to sustainability reporting disclosure over time.

Therefore, the ECM findings reveal that corporate governance mechanisms significantly influence sustainability reporting disclosure of oil and gas firms in Nigeria, particularly through board independence, audit committee independence, and lagged ownership structure and board size. The significant and negative ECM coefficient confirms the existence of a stable long-run relationship among the variables and indicates a high speed of adjustment toward equilibrium whenever short-run disequilibrium occurs.

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Test of Hypotheses

Hypothesis one

HO1: Board size has no significant effect on sustainability reporting disclosure of listed oil and gas firms in Nigeria.

HA1: Board size has a significant effect on sustainability reporting disclosure of listed oil and gas firms in Nigeria.

Based on the ECM result (table 4), the lag of BODSIZE has T-statistic of 3.486208 with a probability value of 0.0008% significant level. Since the probability value is less than the significance level of 0.05, therefore the study rejects the null hypothesis (H_0) and accepts alternative hypothesis (H_A) which states that board size has a significant effect on sustainability reporting disclosure of listed oil and gas firms in Nigeria.

Hypothesis two

HO2: Board independence has no significant effect on sustainability reporting disclosure of listed oil and gas firms in Nigeria.

HA2: Board independence has a significant effect on sustainability reporting disclosure of listed oil and gas firms in Nigeria.

Based on the ECM result (table 4), the lag of BODIND has T-statistic of 2.935282 with a probability value of 0.0045% significant level. Since the probability value is less than the significance level of 0.05, therefore the study rejects the null hypothesis (H_0) and accepts alternative hypothesis (H_A) which states that board independence has a significant effect on sustainability reporting disclosure of listed oil and gas firms in Nigeria.

Hypothesis three

HO3: Audit committee independence has no significant effect on sustainability reporting disclosure of listed oil and gas firms in Nigeria.

HA3: Audit committee independence has a significant effect on sustainability reporting disclosure of listed oil and gas firms in Nigeria.

Based on the ECM result (table 4), the ACI has T-statistic of 3.539225 with a probability value of 0.0007% significant level. Since the probability value is less than the significance level of 0.05, therefore the study rejects the null hypothesis (H_0) and accepts alternative hypothesis (H_A) which states that audit committee independence has a significant effect on sustainability reporting disclosure of listed oil and gas firms in Nigeria.

Hypothesis four

HO4: Ownership structure has no significant effect on sustainability reporting disclosure of listed oil and gas firms in Nigeria.

HA4: Ownership structure has a significant effect on sustainability reporting disclosure of listed oil and gas firms in Nigeria.

Based on the ECM result (table 4), the lag of OWNS has T-statistic of 2.698366 with a probability value of 0.0087% significant level. Since the probability value is less than the significance level of 0.05, therefore the study rejects the null hypothesis (H_0) and accepts alternative hypothesis (H_A) which states that ownership structure has a significant effect on sustainability reporting disclosure of listed oil and gas firms in Nigeria.

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DISCUSSION OF FINDINGS

The first hypothesis investigated whether board size significantly affects sustainability reporting disclosure of listed oil and gas firms in Nigeria. The result provides evidence that board size is an important corporate governance determinant of sustainability reporting disclosure among the sampled Nigerian oil and gas firms. A board with a larger membership may provide the firm with a broader pool of knowledge, experience, professional expertise, networks and external relationships. Sustainability reporting, particularly in the oil and gas industry, requires information extending beyond conventional financial reporting to areas such as environmental impacts, occupational health and safety, community relations, emissions, energy use, climate-related risks, governance and social investment. A larger board may therefore have greater capacity to accommodate directors possessing different competencies and stakeholder connections relevant to sustainability matters. The significance of board size in the present study suggests that the composition and collective capacity of the board may influence the extent to which sustainability issues receive attention at board level. The result is consistent with that of Olayinka (2021), Erin, Adegboye and Bamigboye (2022), on the contrary, Bamwa, et al. (2025) found an inverse relationship. Sustainability issues are complex in oil and gas industry as such the significance of board size will therefore reflect the importance of having sufficient governance capacity to monitor the diverse sustainability consequences of oil and gas operations.

Secondly, findings reveal that board independence significantly affects sustainability reporting. This finding is consistent with the stakeholder theory. Independent directors may be more capable of considering interests beyond those of controlling managers or dominant shareholders. Since sustainability reporting addresses the interests of multiple stakeholder groups, independent directors may strengthen the board's responsiveness to stakeholder demands for transparency. The result is particularly relevant to the oil and gas sector because the sector faces substantial scrutiny from regulators, investors, host communities and civil society. Greater board independence can strengthen the credibility of sustainability disclosures by reducing the perception that sustainability information is controlled entirely by executives whose interests may be closely connected with short-term corporate performance. It also provides empirical support for the monitoring proposition of agency theory in the context of sustainability reporting.

The result for hypothesis three is arguably one of the most important findings because the audit committee occupies a central position in the corporate reporting and internal-control architecture. An independent audit committee can critically evaluate information supplied by management, interact with internal and external auditors, assess reporting controls and challenge weaknesses in corporate disclosure. Although sustainability information traditionally falls outside the boundaries of conventional financial statements, the increasing integration of sustainability-related risks with corporate strategy and financial performance means that audit committees are becoming increasingly relevant to sustainability reporting. From a stakeholder theory perspective, an independent audit committee can enhance confidence among stakeholders that sustainability information is not merely promotional communication.

Ownership structure revealed a significant relationship with sustainability reporting. Ownership structure determines who has the incentives and power to monitor management. Where ownership is dispersed, individual shareholders may lack sufficient incentives to monitor managers, potentially creating greater information asymmetry. From a stakeholder theory perspective, ownership structure can influence the degree to which companies respond to diverse stakeholder expectations. Institutional and foreign investors, for example, may face stronger pressures from international sustainability norms and responsible-investment expectations. Such investors may therefore demand greater transparency concerning environmental and social risks. Conversely, owners whose primary concern is short-term financial returns may have weaker incentives to support extensive sustainability reporting if they perceive such reporting as costly. .

CONCLUSION AND RECOMMENDATIONS

Conclusion

This study investigated the relationship between corporate governance mechanisms and sustainability reporting disclosure of listed oil and gas companies in Nigeria. Corporate governance mechanism was measured using board size (BODSIZE), board independence (BODIND), audit committee independence (ACI) and ownership structure (OWNS). However, sustainability reporting disclosure was measured using global reporting indicator (GRI). The study used of 10 years ranges from 2015 to 2024. The findings revealed that the lag of board size, board independence, audit committee independence and ownership structure have significant effect on sustainability reporting disclosure of listed oil and gas firms in Nigeria. Therefore, the study concludes that corporate governance mechanisms significantly affect sustainability reporting disclosure of listed oil and gas companies in Nigeria.

Recommendations

Based on the findings, the following recommendations were made:

(i) Optimize Board Size: Companies should maintain an optimal board size (typically 7–11 members, depending on firm complexity) that allows for effective decision-making without becoming too large and unwieldy. Avoid excessively small boards that may lack diverse expertise or excessively large ones that may suffer from coordination challenges.

(ii) Strengthen Board Independence: Increase the proportion of independent non-executive directors on the board. Independent directors should constitute at least 50% of the board to enhance objective oversight of sustainability issues and reduce managerial entrenchment.

(iii) Enhance Audit Committee Independence: Ensure the audit committee is composed predominantly (ideally 100%) of independent non-executive directors with relevant financial, accounting, and sustainability expertise. The committee should actively oversee the integrity and completeness of sustainability disclosures.

(iv) Listed oil and gas firms should adopt ownership structures that promote effective oversight and accountability. Companies should encourage ownership arrangements that support active monitoring of management, as this can enhance the quality, credibility, and completeness of sustainability reporting.

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