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- IV. Introduction
- V. Literature Review
- VI. Methodology
- VII. Results and Discussion
- VIII. Conclusion and Recommendations
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## EFFECT OF OWNERSHIP STRUCTURE ON ENVIRONMENTAL DISCLOSURES OF LISTED OIL AND GAS COMPANIES IN NIGERIA

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### ABSTRACT

*Environmental degradation linked to oil and gas operations has intensified the demand for corporate environmental accountability, motivating this study to examine the effect of ownership structure on environmental disclosure among listed oil and gas companies in Nigeria. Specifically, the study investigated the impact of government ownership and institutional ownership on environmental disclosure. A correlational research design was adopted, using secondary panel data collected from the annual reports of eight listed oil and gas firms between 2012 and 2023. The study employed census sampling and analyzed the data using fixed effects panel regression with robust standard errors after conducting diagnostic tests. The results showed that government ownership had a negative but statistically insignificant effect on environmental disclosure, while institutional ownership had a significant negative effect. The study concludes that both government and institutional owners in the Nigerian oil and gas sector do not actively promote environmental transparency. It recommends stronger regulatory enforcement, institutional investor engagement in sustainability practices, and mandatory disclosure frameworks to enhance environmental accountability.*

**Keywords:** Ownership Structure, Government Ownership, Institutional Ownership and Environmental Disclosure

### 1. Introduction

Environmental disclosure (ED) has become a cornerstone of corporate transparency in response to the intensifying global emphasis on sustainability, climate accountability, and responsible investment. It involves the dissemination of information regarding a firm's environmental practices, emissions, energy consumption, waste management, and overall ecological footprint (Kristanti et al., 2024). International initiatives such as the Global Reporting Initiative (GRI) and the United Nations Sustainable Development Goals (SDGs) have galvanized efforts towards standardized environmental reporting. Ownership structure (especially institutional and government ownership) plays a pivotal role in shaping the depth and integrity of these disclosures. Institutional investors, motivated by long-term sustainability goals, often pressure firms to improve their environmental performance (O'Dell, 2025). Conversely, government-owned firms may be driven by regulatory compliance or political motives,

sometimes enhancing or undermining transparency. Additionally, control variables like firm size, leverage, and profitability significantly influence ED. Large and profitable firms are more inclined to disclose environmental data due to greater public scrutiny and the need to maintain investor confidence (Nu et al., 2025).

In the African context, the demand for corporate environmental accountability is growing, although formalized reporting structures remain underdeveloped. Resource-intensive industries such as oil and gas are under increased pressure from international stakeholders and NGOs to provide transparent environmental disclosures. Government and institutional ownership in African corporations often impacts ED practices. Government ownership can either encourage disclosures through public accountability or discourage it due to bureaucratic opacity. Institutional investors are emerging forces in shaping sustainability agendas but remain weak due to

underdeveloped financial markets (Elshabrawy & Elghuweel, 2022). Empirical findings across sub-Saharan Africa show that firm-specific factors like profitability, firm size, and leverage are strong determinants of disclosure behavior. Profitability often correlates with enhanced disclosures, as companies use ED to manage reputational risks, while highly leveraged firms may withhold environmental information to avoid creditor concerns (Mensah & Moyo, 2023).

In Nigeria, the discourse on environmental disclosure, particularly within the oil and gas sector, is gaining relevance due to the industry's environmental sensitivity and its contribution to national revenue. Despite the availability of some sustainability frameworks (like the Nigeria Stock Exchange's (NSE) Sustainability Disclosure Guidelines) ED practices remain largely voluntary and inconsistently applied. Ownership structure, notably government and institutional ownership, significantly affects environmental reporting in Nigerian oil and gas firms. Government-owned firms may disclose more due to policy mandates but can also be hindered by political interference and weak enforcement mechanisms (Onyekwelu & Uche, 2021). Institutional ownership in Nigeria is still nascent, though growing interest from pension and mutual funds is increasing pressure for better governance and transparency. Furthermore, firm size, leverage, and profitability act as critical control variables influencing the likelihood and quality of ED. Larger firms, due to their visibility and regulatory burden, are often more transparent, while firms with high financial leverage may avoid full disclosure to reduce perceived risk (Owolabi & Obida, 2023; Uwuigbe et al., 2022).

Environmental disclosure (ED) has become a key indicator of corporate environmental accountability, particularly in sectors with high ecological risk such as oil and gas. Despite global progress through frameworks like the Global Reporting Initiative (GRI) and ISO 14031, environmental reporting in Nigeria remains mostly voluntary and fragmented, especially among listed oil and gas firms. The influence of ownership structure (specifically government and institutional ownership) on ED is theoretically supported by agency and stakeholder theories, which posit that concentrated oversight should drive transparency. However, in practice, these relationships remain uncertain. Government-owned firms may face political interference that compromises transparency, while institutional investors, despite their fiduciary and sustainability mandates, vary in their level of influence. These ambiguities create governance and accountability concerns, particularly in Nigeria where the oil and gas sector play a central role in national revenue and environmental degradation.

Empirical studies show conflicting findings regarding

ownership structure's influence on ED, exposing a major empirical gap. For instance, Naser et al. (2021) found that government ownership had minimal influence on disclosure in Qatar, while Ezhilarasi & Kabra (2021) highlighted significant influence of foreign institutional investors in India. In contrast, Marshall et al. (2021) found no relationship between institutional ownership and disclosure quality across global firms, yet Barako et al. (2021) reported a positive association in Kenya. Similarly, Brammer & Pavelin (2021) found a negative effect of ownership concentration in the UK, and Muttakin & Nana (2020) observed that concentrated ownership negatively impacted ED in Bangladesh. These mixed findings reflect inconsistent outcomes across regions, ownership types, and sectors, indicating the need for localized, sector-specific evidence from Nigeria's oil and gas industry to draw meaningful conclusions about ownership effects on environmental disclosure. In addition to these empirical contradictions, both conceptual and population gaps are evident. Conceptually, prior studies often lack consistency in defining and measuring ED. For example, many studies such as Cormier et al. (2020), Michelin & Parbonetti (2020), Post et al. (2021), Haniffa & Cooke (2020), and Grüning & Bergererst (2020) either aggregate CSR elements into single indices or fail to differentiate between the quality and quantity of environmental information, making cross-study comparisons difficult. Furthermore, few studies focus specifically on Nigeria's oil and gas sector. Studies like Onyekwelu & Uche (2021), Uwuigbe et al. (2022), Owolabi & Obida (2023), Ahmad & Nosakhare (2020), and Welford (2017) either use short timeframes, mixed industry samples, or overlook sector-specific dynamics. To address these gaps, this study uses a 12-year panel dataset (2013–2024) of eight listed oil and gas companies in Nigeria, guided by international disclosure frameworks, to provide clarity on how ownership structure shapes environmental transparency in one of the country's most critical and environmentally vulnerable sectors. The main objective of this study is to evaluate the effect of ownership structure on the level of environmental disclosure among listed oil and gas companies in Nigeria.

- i. examine the effect of government ownership on the level of environmental disclosure among listed oil and gas companies in Nigeria; and
- ii. evaluate how institutional ownership influences environmental disclosure among listed oil and gas companies in Nigeria.

## 2. Literature Review and Hypotheses Development

### 2.1 Conceptual Review

Corporate environmental disclosure is justified for a number of reasons, including future legal

requirements, public relations, competitive advantage, and a sense of responsibility to the environment.

### 2.1.1 Environmental Disclosure

Environmental reporting refers to the disclosure of a company's environmental performance, policies, and impacts. It encompasses information on carbon emissions, energy consumption, waste management, water usage, biodiversity conservation, and efforts to mitigate climate change. Environmental reporting enhances corporate transparency and allows stakeholders to assess a firm's commitment to sustainability. It ensures compliance with regulatory requirements and global reporting frameworks like the Global Reporting Initiative (GRI) and the Task Force on Climate-related Financial Disclosures (TCFD). Robust environmental reporting builds trust with investors, regulators, and the public, aligning corporate practices with ESG (Environmental, Social, and Governance) priorities. Firms that excel in environmental reporting are better positioned to attract ESG-conscious investors, access green financing, and enhance their reputation. Conversely, poor reporting can result in regulatory penalties and reputational damage.

In terms of themes and issues, different kinds of environmental information are available. What constitutes environmental information is not well defined, for instance, Garca-Ayuso & Larrinaga, (2019); Stanny & Ely, (2018) included some sort of classification scheme for environmental disclosures, but they did not specifically identify or include these disclosure groupings in their empirical analyses. Efforts to provide a thorough framework for environmental disclosures have been motivated by the lack of clear environmental information content. The International organization for Standardisation (ISO) 14031 environmental disclosure guidelines, created in collaboration with the United Nations Environment Programme (UNEP), is a noteworthy and well-known framework. The ISO 14031 aims to disseminate sustainability disclosure principles that are applicable globally so that listed firms can voluntarily disclose the social, environmental, health and safety, and product and safety components of their operations.

Corporate environmental disclosure is defined for the purposes of this study as information about the firm's environmental policies, environmental product and process disclosures, compliance with environmental laws and standards, environmental auditing, sustainability, and other environmental information. Each of these categories which were created using both previous research and global standards guidelines like the ISO 14031 was thoroughly examined to provide a more accurate picture of the variation in firm environmental disclosure practices.

### 2.1.2 Ownership Structure

Ownership structure refers to the distribution of equity ownership in a firm, which significantly influences managerial decisions, corporate governance, and disclosure practices. The two primary types relevant to this study are government ownership and institutional ownership. According to agency theory, ownership dispersion or concentration affects how closely management is monitored and controlled, influencing corporate behavior, including the level and quality of environmental disclosures (Fama & Jensen, 1983; Craswell & Taylor, 2021). Firms with dispersed ownership may experience greater agency conflicts due to weaker monitoring by small shareholders, prompting managers to engage in more transparent reporting to mitigate mistrust. In contrast, concentrated ownership by informed stakeholders can facilitate effective oversight and thus influence disclosure policies more directly (Eng & Mak, 2019).

Moreover, stakeholder theory supports the argument that ownership structure shapes the firm's sense of accountability toward various interest groups. For example, van der Laan Smith et al. (2020) noted that concentrated ownership, whether by government entities or large institutional investors, compels firms to pay closer attention to the demands of shareholders, regulators, and society at large. This increased accountability can manifest in greater transparency and improved environmental disclosure practices. However, the actual effect of ownership concentration on disclosure may vary depending on whether the controlling interest prioritizes transparency or seeks to obscure environmentally damaging practices. Thus, ownership structure acts as both a governance tool and a moderating influence on corporate environmental disclosure behavior (Ghazali, 2017).

#### 2.1.2.1 Government Ownership

Government ownership refers to the holding of equity shares in a firm by public authorities or state-owned entities. The presence of government as a shareholder introduces public accountability and political influence into corporate governance, which can shape environmental disclosure behavior in complex ways. From one perspective, government ownership may enhance transparency due to the political pressure to uphold public interest, environmental regulation, and social responsibility. Ghazali (2017) argues that publicly held firms with government backing are often subjected to greater scrutiny from regulatory bodies and citizens, pushing them to provide comprehensive disclosures, particularly on environmental matters. This aligns with the stakeholder theory, which suggests that broader accountability demands can stimulate responsible corporate behavior.

Conversely, some studies reveal that government ownership can weaken disclosure practices due to

bureaucratic inefficiencies, lack of enforcement, or political shielding. For instance, Brammer and Pavelin (2018) highlight that when government entities dominate corporate boards, there may be reduced incentives to provide transparent disclosures if doing so exposes failures in environmental compliance or mismanagement of public resources. Additionally, Fama and Jensen (1983) argue that government-appointed managers may prioritize political objectives over transparency, leading to selective or minimal disclosure. Therefore, the influence of government ownership on environmental disclosure is nuanced and context-dependent, particularly in environments where institutional governance is weak or politicized.

### 2.1.8 Institutional Ownership

Institutional ownership refers to the equity stake held in a company by large financial organizations such as insurance firms, mutual funds, pension funds, and banks. These investors often hold significant proportions of a firm's stock and are therefore considered influential stakeholders in corporate governance. According to the Nigerian Corporate Governance Code (2018), institutional investors are expected to promote transparency and accountability in the firms they invest in. The presence of institutional investors is generally associated with improved monitoring of managerial actions and the enforcement of best practices in disclosure, including on environmental matters (Barako et al., 2021). Due to their financial sophistication, long-term interests, and fiduciary responsibilities, institutional investors exert pressure on firms to align with global ESG (Environmental, Social, and Governance) expectations (Mallin et al., 2020).

Additionally, institutional investors are often better positioned to evaluate and demand comprehensive environmental disclosures due to their analytical capacity and access to resources. Guan et al. (2017) suggest that institutional shareholders act as “activist owners,” leveraging their influence to ensure firms prioritize long-term environmental sustainability over short-term gains. Hillier and McColgan (2021) further argue that institutional investors can use their influence during equity capital raising processes to demand increased transparency. These investors often support the formation of environmental committees and sustainability policies, as their investments are increasingly evaluated based on ESG performance. Thus, institutional ownership is theorized to be a key driver of voluntary environmental disclosure, especially in firms operating in environmentally sensitive industries like oil and gas (Prado-Lorenzo et al., 2019; Welford, 2017).

## 2.2 Empirical Studies Review

### 2.2.1 Government Ownership and Environmental Disclosure

Musa (2024) investigated the effect of government ownership on Nigerian listed firms' environmental disclosure for the period 2012 – 2022. A correlational approach was adopted to explore the variables' natural relationships. Published annual reports of 95 Nigerian listed firms were used as a source of secondary data. The extent of environmental disclosure by the sampled firms was measured using the Global Reporting Index (GRI). Panel regression analysis revealed that government ownership has a significantly positive effect on environmental disclosure among Nigerian listed firms. The study represents a significant contribution to the understanding of government ownership and environmental disclosure in Nigeria. However, a critical limitation lies in its broad population scope. By including 95 listed firms across all sectors, the study may dilute insights specific to environmentally intensive industries such as oil and gas, where environmental disclosure is of heightened stakeholder interest. Environmental risks and regulatory pressures are substantially different in oil and gas compared to other sectors like banking or consumer goods.

In Qatar, Naser et al. (2021) examined variables affecting corporate social disclosure (CSD) including environmental disclosure. They examined the impact of ownership variables, firm risk, and firm size as determined by the firm's market capitalization and leverage, respectively (government ownership, institutional ownership, and major shareholders). The study used content analysis, and a checklist with 15 content categories under four tested dimensions included theme, proof, amount, and location. A sample of 21 Qatari firms with shares listed on the Doha Stock Exchange had their annual reports and accounts for the years 2010 to 2020 examined. The sample of Qatari firms found that the share of government ownership had minimal effect on the degree of CSD. The work in Qatar adds a cross-national comparative lens, but its applicability to Nigeria is questionable due to significant contextual and institutional differences. Qatar's firm structure, government involvement, and regulatory frameworks are not easily comparable to Nigeria's complex oil and gas sector. The study also found minimal effect of government ownership on disclosure, directly contrasting with Musa's findings.

Going further, Ezhilarasi and Kabra (2021) investigated the impact of corporate governance attributes, board characteristics, and ownership structure on quality of environmental disclosure in India using data spanning the ten-year period 2010-2020 by taking into consideration the effect of foreign directorship on the quality of environmental disclosure. Board size, dual chief executive officer roles, local institutional ownership, and foreign institutional ownership were the corporate governance variables used in the study. A checklist of

criteria based on the ISO 14031 guidelines and Indian environmental laws were used to evaluate environmental disclosure. Individual disclosure scores were calculated using content analysis of Annual reports and accounts from 177 of India's most polluting listed firms. The data were analyzed using a panel data regression model, and the results showed that the most significant corporate governance factor driving listed firms' environmental disclosure behavior is foreign institutional ownership. The study focused on India and provides a nuanced approach by incorporating ISO 14031-based disclosure metrics. However, its main finding centers around foreign institutional ownership, with no emphasis on government ownership, creating a conceptual gap in literature concerning the public sector's role in environmental transparency. Additionally, their sample of India's most polluting firms, though similar in industry risk, may still differ from Nigeria in terms of regulatory enforcement and environmental litigation risks—limiting generalizability.

A multi-tiered theoretical framework was proposed by Cormier et al. (2020) and it viewed a firm's decision to disclose environmental information as reflecting its responsiveness to various levels of influence, including the information needs of financial stakeholders, societal environmental concerns that result in public pressure, institutional constraints and processes that may be firm- or country-specific. The effectiveness of environmental disclosure was examined between 2010 and 2018 among a sample size of 55 major German firms. Findings revealed also that industry membership also influenced the quality of environmental disclosure. The amount of environmental disclosure made by German listed firms in a given year was also influenced by the age of fixed assets and firm size. While the framework is comprehensive, its empirical application is limited to German listed firms, and the environmental disclosure drivers are linked more to financial stakeholder needs and industry characteristics than ownership types. This absence of government ownership as a core variable again reflects a conceptual omission. Furthermore, the focus on asset age and firm size without examining public ownership dynamics underscores an evidence gap that calls for empirical validation in emerging markets like Nigeria, where government ownership is more prominent and potentially politically motivated.

Grüning and Bergererst (2020) examined the correlation between corporate governance and disclosure for a sample of 6,580 US-listed firms between 2008 and 2014 where corporate governance was measured by an aggregate index of 48 variables in 8 categories, including board, audit, charter/bylaws, state of firm, ownership structure, executive and director compensation, progressive practices and director education. Disclosure was measured by an

innovative artificial intelligence approach in ten distinct information dimensions, including financial, customers, value chain, employees, R&D, strategy, governance, stock market, environment, and society. Size, ownership concentration, equity ratio, age, growth rate, leverage, capital intensity, loss, intangible assets, stock return, stock return volatility, issuer firm, type of auditor, market-to-book ratio, stock turnover, Tobin's Q, prior year disclosure, and prior year corporate governance were some of the control variables that were used. The findings showed that well-governed listed firms choose to have a more thorough disclosure policy and offer a higher level of disclosure. The study offered a large-scale, quantitative analysis of corporate governance and multidimensional disclosure practices across 6,580 U.S.-listed firms. Although it incorporates ownership structure as a governance element, the operationalization of disclosure is done through AI across a wide range of dimensions—not isolating environmental disclosure specifically. Additionally, the ownership structure variable lacks granularity; it does not differentiate between types of ownership such as government or institutional. As such, the findings, while valuable, create a conceptual gap for this study—because the relationship between government ownership and environmental disclosure is not distinctly explored.

By controlling for several firm-specific characteristics, Michelon and Parbonetti (2020) focused on board characteristics and sustainability disclosure across a smaller sample of 114 European and American firms. Although they examined ownership structure and leadership, their emphasis leaned more on-board dynamics (e.g., CEO duality, board composition) than ownership type. They found no significant effect of CSR committees on disclosure. Importantly, the study lumps social, environmental, and sustainability disclosures together, which risks conflating themes that need distinct operational clarity. This lack of separation creates a clear conceptual gap, as environmental disclosures (especially in oil and gas sectors) often respond to different regulatory and reputational pressures than social disclosures. Thus, their findings are not directly transferable to government ownership's role in environmental contexts, particularly within Nigeria's oil and gas industry.

Muttakin and Nana (2020) assessed firm environmental disclosure, ownership structure, and board diversity in Bangladesh. In order to determine its association with environmental disclosure, data for the years 2011 to 2018 were collected from 116 nonfinancial organizations using content analysis, and it was then analyzed using multiple regression. The findings show that while foreign directorship has a positive and significant impact on corporate environmental disclosure, female directorship and

concentrated ownership have negative and significant association with such disclosure. However, their notion of "concentrated ownership" does not isolate government ownership, and the data is derived from non-financial firms broadly, not from a high-risk environmental sector like oil and gas. Additionally, their analysis reflects the influence of foreign and female directorship, but not the role of state actors or politically influenced boards. The study offers evidence relevant to ownership dynamics but still reflects a population gap, as the industry and national context differ from Nigeria's extractive sector.

Ahmad and Nosakhare (2020) evaluated ownership structure, environmental disclosure practices and culture of directors among Malaysian firms. The study classified the board culture based on the ethnic backgrounds of the directors. The study included 229 participants and spans the years 2012 to 2019 and multiple regression was used in the study to estimate the data. The findings showed a substantial correlation between environmental disclosure and institutional ownership, ownership concentration, firm size, and leverage, as well as boards with a high proportion of foreign directors were also positive and significantly associated with environmental disclosure. The outcome of this study might differ if it were carried out in Nigeria. Based on the literature review conducted above, it shows that there are mixed findings on the effect of ownership concentration on environmental disclosure and this calls for further investigation. However, government ownership is not a central variable in their model, and the study context (Malaysia) differs politically, economically, and culturally from Nigeria. Moreover, their broad sample of 229 firms spans multiple industries, limiting industry-specific insight. In order to address these gaps, the study formulated a null hypothesis to guide the study:

**H<sub>01</sub>:** Government ownership has no significant effect on environmental disclosure among listed Oil and gas companies in Nigeria.

### 2.2.2 Environment disclosure and institutional ownership

A number of researches have explored the empirical evidence on the impact of institutional ownership structure on environmental disclosure nature in most countries. To illustrate this point, Ahmed (2025) investigated the correlation between institutional ownership and environmental reporting in a desire to understand the effects of the existence of institutional investors on the quality and quantity of environmental disclosures of listed companies. Through quantitative research study, they subject panel data of 152 publicly traded companies in ten (2014-2023) years to the test of measuring the extent of the influence of institutional ownership over the content of the environmental reporting scores that have been

extracted through content analysis of environmental reports and annual general sustainability reports by using random effects models regression (REM). The results obtain a positive and significant relationship, meaning that the more the institutional ownership, the more the extensive the environmental reporting is. Though having a strong methodology due to using random effects modeling and content analysis, the study lacks sectoral orientation. Summing companies across sectors, the variance will hide disparities better in environmental risk and stakeholder investigations, namely which is acute in the oil and gas industry. Since the main source of environmental disclosure is in the high-impact industries such as oil and gas, which is frequently influenced by the situation-specific regulatory, reputational, and operational drivers, the results obtained by Ahmed might not represent the actual reality in that sector. This presents an apparent gap in population, hence the reason behind the population-specific analysis in the oil and gas setting of Nigeria.

On the same note, Musa (2024) examined the relationship between institutional ownership and environmental disclosure on the basis of 95 listed companies in Nigeria, where the Global Reporting Index (GRI) was used as the disclosure measure. Despite being contextually applicable in Nigeria, the study shares similarity in the lack of specific definition of the population size as Ahmed (2025). The fact that the companies mostly belong to other categories also diminishes its relevance to the oil and gas industry in creating a regulatory expectation and environmental impact markedly different than in the banking industry or even the manufacturing industry. In addition, the study cannot differentiate between short term and long-term institutional investors although the study confirms a statistically significant relationship. The nature of this relationship may produce different effect on ED. This is an indication of a conceptual secret, because various categories of institutional investors usually possess diverse investment horizons, risk toleration, and ESG priorities.

Conversely, Post, et al. (2021) explored the concept of environmental corporate social responsibility (ECSR) and institutional ownership of 78 Fortune 1000 companies, most of which are in the electronics and chemical industries. The paper finds a positive correlation between institutional ownership and environmental/ social disclosures, which proves the results of previous researches. It however only reveals a combined ECSR index as it does not distinguish between environmental and the social disclosures. In addition, it focuses only on U.S. firms; therefore, the contextual generalizability of the findings to Nigerian oil and gas firms must be a subject of caution because the latter companies have to work in totally different legal, institutional, and cultural environments. This is both conceptual and population gap because what

came up in highly regulated U.S. settings might not be true in just as harmless a setting as Nigeria.

One of the few studies differentiating between types of institutional investors (long-term and short-term) and comparing the quality of environmental disclosures in five environmentally-sensitive industries (including oil and gas) were conducted by Marshall et al. (2021). Interestingly, this did not find any relationship between institutional ownership and ED. This is contrary to the positive correlations obtained by Ahmed (2025), Musa (2024), and Post et al. (2021), thus revealing an evidence gap. The existence of conflicting findings may imply the necessity to put results into perspective using the national and sectoral environments. Nigeria oil and gas industry is a unique challenge with a proportionate government involvement, poor implementation of the regulatory concerns, and emerging impact of ESG, which provides a unique testing ground to discern the real meaning of institutional investors.

The research by Barako et al. (2021) is useful since it demonstrates the role of institutional ownership in the disclosure of environmental information in Kenya. The study computed all the 54 firms listed in Nairobi Stock Exchange over 9-year period and revealed that institutional ownership would help in improving voluntary environmental disclosure. Nevertheless, as much as it gives regional significance, it has a narrow range of application to the Nigeria context due to contextual variations in political, regulatory and economic systems. Moreover, the research focuses not only on the firms in a narrow range of industries but on all industries, without singling out such high-risk sectors as oil and gas that come under as increased environmental scrutiny. This leads to a population gap and the necessity to resort to a sector-specific investigation in Nigeria.

In a study published by Brammer and Pavelin (2021), environmental disclosure among UK firms was investigated where environmental transparency was revealed to be adversely affected by seller concentration of ownership. Although this is useful, the research is not categorical whenever it comes to the ownership types (institutional ownership vs. managerial ownership or government ownership) hence reducing its worth in assessing institutional ownership in particular. Furthermore, it is excessive on disclosure and does not discuss in detail environmental disclosure quality and depth, which can be regarded as a conceptual gap. The developed nature of the UK financial market, regulatory control, and strong financial ESG culture also juxtapose with the developing nature of such an institution in Nigeria, a contextual and population specification of the blinded ability to directly apply these findings.

Peters and Romi (2021) provide a closer study of

voluntary disclosure of GHG emissions, where they emphasize the importance of institutional ownership and governance during the environmental committee. Their findings; using the use of the U.S. companies in the FT500 index of the Carbon Disclosure Project suggest a positive association between institutional ownership and the disclosure of emission. Although such a specific and methodologically rigorous study, the disclosures of the study are of GHG specific, which might not be representative of environmental disclosures in general, as Nigerian firm reporting practices. Also, the U.S. firms under the study tend to acquire a higher level of regulation and responsiveness to investors, which means it is not wholly applicable to Nigerian firms. Moreover, the study also more or less concentrates on the governance-oriented mechanisms, the second important factor being institutional ownership; which results in a theoretical ellipticity in terms of the most important element of the institutional investors in the institution building of ED. To fill the above gaps, the study came up with a null hypothesis that would direct the study as follows:

**H<sub>02</sub>:** The Institutional ownership has no significant effect on the environmental disclosure of listed Oil and gas companies in Nigeria.

### 2.3 Theoretical Framework

Theories present a mental model of grasping motivations and behavior of corporate actors concerning voluntary environmental disclosures. At the beginning of this work, the Stakeholder Theory and the Agency Theory are considered to have the potential to serve as conceptual frameworks based on which the role of ownership structure (with the dominant role of the governmental, and institutional ownership) can be examined in relation to environmental disclosure. The two theories are routinely used in literature on corporate governance in describing voluntary reporting practices and accountability systems, particularly in highly environmentally sensitive industries such as oil and gas.

#### 2.3.1 Stakeholder Theory

The Stakeholder Theory as initially developed by Freeman (1984), states that it is not only the shareholders of a firm that have responsibilities, but there is a broad scope of stakeholders including, employees, communities, customers, regulators, and even the natural environment. This theory provides that a firm exists within a social environment which requires it to consider and reconcile the interest of several groups of stakeholders in order to guarantee a legitimacy, reputation, and long-lasting success. In this context, environmental disclosure has been framed as a means of dealing with the increasing need of stakeholders in issues concerning sustainability, transparency and environmental accountability (Gray

et al., 1995; Clarkson et al., 2008). As oil and gas companies usually have the direct and obvious effects on ecological systems and local communities, the stakeholders have high expectations toward the disclosure.

Moreover, stakeholder theory shows the reason as to why the government and institutional ownership firms can be more active in environmental disclosures. As the stakeholders and shareholders, governments should guarantee that the public interest is being upheld innocently, whereas the institutional investors have become more interested in the ESG (Environmental, social, and governance) metrics (Prado-Lorenzo et al., 2019; Mallin et al., 2020). These unexpressed expectations push companies to be more open towards their environmental activities in order to be able to match the interests of strong stakeholders' groups. Consequently, the more an increase in the exposure of both the company to institutional or public attention, the stronger the desire firms might have concerned revealing more and detailed environmental information in order to attain the legitimacy and prevent reputational risk (Michelon & Parbonetti, 2020).

### 2.3.2 The Agency Theory

Agency Theory was formulated by Jensen and Meckling (1976); it concentrates on the principled (managers) and agents (owners) relationship, and indicates the conflict generated when the two parties are concerned. Acting as agent, managers can work self-serving purposes without a formalized system that connects the deliberations of the manager/s with the interests of shareholders. The example of such a mechanism is heightened disclosure, which is also capable of decreasing the issue of information asymmetry and providing better transparency. The extent by which environmental disclosure can be used to report performance provided is that which also reflects managerial accountability to other stakeholders and investors (Fama & Jensen, 1983; Eng & Mak, 2003). This is especially important in the oil and gas industry, where improper management of the environment may be followed by financial, legal and reputation effects.

Agency theory is also useful in explaining how ownership structure (institutional and government ownership in particular) is important in policing the actions of the managers. Through their resources and expertise, institutional investors are able to put pressure on the management to disclose more and accurate information (Guan et al., 2017). Equally, the government ownership can facilitate transparency because of the accountability of government and the direction of policies. Nevertheless, there is an argument that the government influence may also have the opposite effect on disclosure in case political interests are blocking the transparent reporting

(Brammer & Pavelin, 2021). Therefore, this theory can be deemed as quite useful in terms of keeping in mind the dual role ownership structure plays in respect to being a monitor and a possible limitation of voluntary environmental disclosure.

### 3. Methodology

This paper takes a panel data-based quantitative research design to test the influence of ownership structure (namely institutional and government ownership) on the environmental disclosure in the selected sample of listed oil and gas companies in Nigeria. The population of the study is all the 8 oil and gas companies that are listed on the Nigerian Exchange Group (NGX) as per 2023. The secondary data were gathered and interpreted in case of the annual reports and sustainability disclosures of the sampled firms within the period 2013-2023. The analysis of data was based on panel regression models, in particular Fixed Effects Model (FEM) and Random Effects Model (REM) and the Hausman test was applied to select the model in which data are to be interpreted. This means of methodology is in line with the previous empirical research works in the field of disclosure and corporate governance.

### 3.1 Model Specification

To assess the effect of ownership structure on environmental disclosure among listed oil and gas companies in Nigeria, the study adopts a panel regression framework. The model is specified as follows:

$$EVD_{it} = \beta_0 + \beta_1 GOVT_{it} + \beta_2 INST_{it} + \beta_3 FSIZE_{it} + \beta_4 LEVG_{it} + \beta_5 PROF_{it} + \epsilon_{it}$$

Where:  $EVD_{it}$  = Environmental Disclosure for firm  $i$  at time  $t$ ;  $GOVT_{it}$  = Government Ownership for firm  $i$  at time  $t$ ;  $INST_{it}$  = Institutional Ownership for firm  $i$  at time  $t$ ;  $FSIZE_{it}$  = Firm Size for firm  $i$  at time  $t$ ;  $LEVG_{it}$  = Leverage for firm  $i$  at time  $t$ ;  $PROF_{it}$  = Profitability for firm  $i$  at time  $t$  and  $\epsilon_{it}$  = Stochastic error term for firm  $i$  at time  $t$ .

The model was estimated using Fixed Effects and Random Effects regressions. A Hausman test was determine which estimator is more appropriate for the dataset. This specification aligns with prior studies in the field (Musa, 2024; Ahmed, 2025).



**Table 1: Measurement of Variables**

Variable	Acronym	Measurement	Priori	Source
Environmental Disclosure	EVD	Percentage of disclosed environmental items to expected items using GRI - based disclosure index	-	Musa (2024); Clarkson et al. (2008); GRI (2021)
Government Ownership	GOVT	Percentage of total shares held by government entities	Positive / Negative	Naser et al. (2021); Musa (2024)
Institutional Ownership	INST	Percentage of total shares held by institutional investors	Positive	Ahmed (2025); Barako et al. (2021)
Firm Size	FSZ	Natural logarithm of total assets	Positive	Eng & Mak (2003); Brammer & Pavelin (2021)
Leverage	LEV	Ratio of total debt to total assets	Mixed	Michelon & Parbonetti (2020)
Profitability	ROA	Return on Assets = Net Income / Total Assets	Positive	Peters & Romi (2021)

Source: Author’s compilation, 2025

**4. Data Analysis and Results**

**Table 2: Descriptive Statistics**

Variable	OBS	Mean	Std. Dev.	Min	Max
EVD	96	.30875	.1334107	.15	.6
GOVT	96	.0264757	.0289793	.00066	.09722
INST	96	.4679986	.1946526	.23	.99777
FSZ	96	10.63812	1.664583	7.75	14.24
LEV	96	.1872917	.2154383	0	1.08
ROA	96	.1213542	.1401249	-.18	1.04

Source: STATA Version 17, 2025

The mean value of the environmental disclosure score is 0.3088 which suggests that as a rule, companies report about 31 percent of the anticipated environmental information determined by the utilized disclosure index. A standard deviation of 0.1334 indicates medium fluctuations in regard to disclosure practices among the sample firms. The lowest and the highest is between 0.15 and 0.60, implying that some companies report a meager amount of up to 15 percent of the expected contents, whereas others report up to 60 percent disclosure, which creates a relatively broad gap in the environmental attitude of listed Canadian oil and gas companies.

The average percentage of government ownership of the sampled firms stands at 2.65% and with a standard deviation value of 2.90%. This implies that the level of government intervention in equity of the oil and gas companies under analysis is mostly low. The lowest is 0.07 percent and the highest is around 9.72 percent implying that most companies have little government ownership but there are a number of companies that are more state fed. The difference in participation in

the public sector and potential consequences in the form of incentives or obligations to report on the environment are also noted in the range.

The relatively high mean value of institutional ownership of 46.80 percent means that institutions possess an average of half of equities of the sampled firms. The standard deviation is 19.47% which indicates that there was major difference in the degrees of institutional ownership. Some firms have around zero to near 100% institutional owners with the lowest being 23% and the highest nearing 99.78%. Here, greater levels of monitoring could be present with benefit of higher level pressure in the provision of greater transparency which includes environmental disclosures.

The value of firm size which is measured as natural logarithm of total assets has a mean value of 10.64 and standard deviation of 1.66. its values lie between 7.75 and 14.24 implying that the sample coverage is composed of firms with both small and large sizes in terms of asset base. Greater firms tend to attract more



scrutiny by the stakeholder because of their size and visibility, and have a greater likelihood of participating in good environmental reporting as one of their corporate governance initiatives.

The median leverage ratio stands at 18.73 representing that the companies mostly use equity to fund their businesses as opposed to using debt as their source of funds. The standard deviation of 21.54 percent and the range of 0 percent to 108 percent indicates that whereas some of the firms are fully equity financed, others are highly leveraged with debts. Greater leverage may place pressures on firms to be perceived to be legitimate and retain the confidence of stakeholders and accordingly have a possible impact on the disclosure behavior especially that involving risk related aspects such as

environmental impacts.

The average value of return of assets (ROA) was 12.14% indicating that the sample firms are relatively profitable. The standard deviation value of 14.01 % implies a large variation in the profitability. That diversity is between -18 % and a high of 104 % indicating that although there are those firms that have made negative returns, others have posted very high returns. The spread in profitability can determine the ability and desire of firms to implement voluntary environmental disclosure where more profitable firms will usually possess more resources and motivation to follow through with this action due to the increase in reputation and prospects of attracting investors.

**Table 3: Correlation Analysis**

	<b>EVD</b>	<b>OWC</b>	<b>INS</b>	<b>FSZ</b>	<b>LEV</b>	<b>ROA</b>
<b>EVD</b>	1.0000					
<b>GOVT</b>	-0.3057	1.0000				
<b>INST</b>	0.1188	-0.3208	1.0000			
<b>FSZ</b>	0.5238	0.2874	-0.2316	1.0000		
<b>LEV</b>	0.0087	-0.1315	-0.1717	-0.3522	1.0000	
<b>ROA</b>	0.1418	-0.0173	0.1411	0.1986	-0.3440	1.0000

Source: STATA Version 17, 2025

The government ownership is found to be moderately and negatively related to the environmental disclosure with a correlation of -0.3057. This implies that companies that have an increased government ownership have a tendency to report less environmental information. The first reason can be that there are government-influenced corporations which do not have a sufficient market pressure or have political limitations that deter them to be transparent. Environmental disclosure is positively correlated to institutional ownership at a weak level of 0.1188. This implies that companies whose institutional ownership is on the rise will reveal a bit more about the environment. Long-term or ESG investors are more likely to push companies toward greater transparency to meet their reputational or like sustainability needs. The firm size has a positive and significant relationship with environmental disclosure i.e. 0.5238. This implies that large firms are more likely to disclose a lot of environmental information. This is not surprising since bigger companies are likely to be subjected to greater public attention, have more funds and are usually more noticeable to stake holders.

The rate of positive correlation between the leverage and the level of environmental disclosure is 0.0087 that is a very weak causal relation approaching towards the zero. This means that the relation of leverage on a firm and the environmental reporting is negligible. This finding could perhaps be some kind of equilibrium between two opposites because in that

highly leveraged firms' disclosure could mean image to investors whereas, others will mean more disclosure in order to signify credibility to creditors. This balance involves a neutral outcome.

Environmental disclosure has a low positive relationship of 0.1418 with profitability. This implies that firms with high returns tend to provide a little more environmental disclosure. Being profitable can also improve the ability of a firm to invest on sustainability actions and sustainability reporting.

**4.1 Diagnostics Tests**

To assess the normality of the variables, Shapiro-Wilk test was run. The findings revealed that majority of variables EVD, GOVT, INST, LEV, and ROA had p values that were less than 0.05 which means they demonstrated statistically significant deviation in normal distribution. Firm Size (FSZ) alone indicated p-value of 0.207; hence, it is distributed normally within the approximation. Even with this, large samples as well as panel data are not uncommon to violate the normality. The study also used robust estimation methods in fixed effects in carrying out the regression analysis, which are also robust to the non-normal distributional problem that could lead to a distortion.

Independent variables were measured using variance Elasticity factor or (VIF) to determine multicollinearity. None of the variables got a VIF



value above 10 (the highest and lowest value was 1.35 and 1.17), Leverage, and Profitability (ROA) has the highest and lowest value, respectively. The presence of multicollinearity in a dataset is not a serious issue, and the mean VIF of 1.26 confirms this fact. This confirms the stability of estimated coefficients on panel regression formula as it helps to strengthen the reliability of the findings obtained on the Fixed Effects estimation.

The study also performed a Modified Wald test of groupwise heteroskedasticity on the Fixed Effects model to have a chi-square value of 2312.09 with a p-value of 0.0000 and this rejects the null hypothesis of constant variance. This means that there is the existence of heteroskedasticity, which means that the variances are not equivalent across the panels. In an attempt to answer this, the research used robust standard errors in Fixed Effects model, which ensures that inference is not applied to the underlying heteroskedasticity.

Wooldridge test of the autocorrelation in a panel data also produced the overall F-statistic of 412.10 and a p-value of 0.0000 which has a very strong point against the null hypothesis of no first-order autocorrelation. This implies that there is a time span of correlation in panels residually. To address it, the serial correlation was corrected by using robust Fixed Effects estimation with clustered standard errors to enhance the reliability of the model as well as the precision of inference.

Using the test of cross-sectional independence

developed by Pesaran, the z-statistic value was -0.327 and the p-value was 0.7437 which implies that the entities are not significantly cross-sectionally dependent. This has the implication that the error terms are independent between the firms, which justifies the said assumption necessary in ensuring that the panel data model has consistent estimations. The outcome proves that the further use of Fixed Effects regression is appropriate; it presupposes the independence between entities in the case of the error term.

Even more, to evaluate the stationarity, the LevinLinChu (LLC) panel unit root test was carried out on the dependent variable (EVD). The adjusted t value of the test was -2.8569 with p value of 0.0021, and the test rejected the null hypothesis of unit root. This will affirm that the environmental disclosure remains stationary throughout the panels during the time duration of study thus meet the time series assumption of valid panel regression estimation.

The Fixed Effects model and the Random Effects model are compared in the Hausman specification test that forms the best estimator. Though the chi-square statistic, disclosed by the test was negative (36.52), which is technically undefined, it often implies the problematic test matrix and rather requires the use of the robust Fixed Effects model, provided that both autocorrelation and heteroskedasticity exist. Therefore, the entire estimation made in this research was ultimately done with a powerful Fixed Effects model in order to guarantee the efficiency and uniformity as disclosed in table 4.

**Table 4: Fixed-Effects (Within) Regression Result**

EVD	Coefficient	Robust std. err.	t	P>t
GOVT	-.7483822	.388597	-1.93	0.096
INST	-.145311	.0605093	-2.40	0.047
FSZ	.0294749	.0094264	3.13	0.017
LEV	.0596622	.0680577	0.88	0.410
ROA	-.00217	.0448459	-0.05	0.963
_cons	.0721005	.0982594	0.73	0.487
F(5,7)		=		31.88
Prob > F		=		0.0001
R-squared (within)		=		0.3148

Source: STATA Version 17, 2025

**4.2 Hypotheses Testing**

The regression model provides the linkage between ownership structure and environmental disclosure as applied to the sample firms listed on the Nigerian Stock Exchange in the oil and gas sector due to the robust standard errors to cure the heteroskedasticity and autocorrelation. The overall model is significant as shown by the F -statistic and the p-value of 31.88 and p-value of 0.0001 respectively which means that

the model explains a significant amount of any variation in environmental disclosure. The within R-squared = 0.3148 implying that the changes in environmental disclosure over time within firms are generated by the independent variables in the model to the tune of about 31 percent.

**4.2.1 Government ownership (GOVT):**

The null hypothesis ( $H_{01}$ ) is that the ownership of the

government does not make a difference in terms of the environment disclosure report of the listed oil and gas companies in Nigeria. The results of the fixed effects regression indicate a coefficient estimate of -0.7484 with the p-value of 0.096. However, the relationship between the factors is negative (meaning that higher levels of government shareholding can result in environmental disclosure decreasing) though the relationship has not been found to be significant at 5 percent level of confidence because the p-value is above 0.05. In that way, the null hypothesis is not rejected. This demonstrates that, within the context of data available and with limitations of the model, there is still no enough evidence to show that government ownership influence on the extent of environmental disclosure of firms studied is rather meaningful.

#### 4.2.2 Institutional ownership (INST):

The null hypothesis ( $H_{02}$ ) tells that institutional ownership does not influence environmental disclosure significantly. The value of the regression coefficient of institutional ownership is -0.1453 and the value of p is 0.047. The result is significant at the 5-percentage level because this value is less than 0.05. Thus, the null hypothesis is rejected and the conclusion can be stated that institutional ownership demonstrates the important negative impact on the environmental disclosure of the firms. This result implies that as the institution ownership increases; the level of environmental reporting decreases which may be caused by the passive nature of end or short-term financial interests of some institutional investors that perform in the Nigerian oil and gas industry.

### 4.3 Discussion of Findings

#### 4.3.1 Government Ownership and Environmental Disclosure

The result of a non-significant (possibly negative) linkage between government stock and environmental disclosure is balanced by a number of other empirical researches in the past. Indicatively, Naser et al. (2021), Brammer and Pavelin (2021) and Cormier et al. (2020) observed that form of ownership had less influence in the disclosure compared with institutional and public pressure. The studies point out that government shareholding in itself, may not result in environmental transparency, especially where the enforcement mechanisms are either weak or where there is a lack of stakeholder activism.

Nevertheless, this finding conflicts with the findings of Musa (2024), who estimated a strong positive effect of government ownership on environmental disclosure of the Nigerian listed firms, stating it is based on the accountability to the general population and pressure to comply. Correspondingly, the study by Ahmad and Nosakhare (2020) concluded that the impact of the board characteristics that are dependent on the public interest also exists as there was a significant connection between such characteristics

and the increased disclosure of information in Malaysian companies. Moreover, Gruning and Bergererst (2020) stated that more environmentally and strategically disclosed information is observed in well-governed firms (considering that many of them can also be government stakeholders). The difference between the present research and such results can be explained by variations in institutional setting, quality of governance, or environmental hazards unique to the industry.

In theory, the agency theory proposes that government ownership of organizations should reduce agency costs by setting up transparency, however in reality, the Nigerian government owned firms could have reduced monitoring, political involvement or lack of voluntary disclosure incentives. The stakeholder theory also assumes that the cases will be responsive to the societal expectation, and that, unless there is activism in regulation or insurrection of the population, the state-owned entities will tend to undermine the environmental issues thus providing a reason as to why insignificance runs high.

#### 4.3.2 Institutional Ownership and Environment Disclosure

In the study, a negative relationship was identified between institutional ownership and environmental disclosure, a relationship which is favorable by some empirical evidence. Specifically, according to Marshall et al. (2021), Brammer and Pavelin (2021), and Michelon and Parbonetti (2020), the institutional ownership posed no considerable influence. These findings interpolate in proposing the notion that institutional investors in a number of situations (such as in Nigeria) might be following passive approaches aimed at yielding short-term monetary gains consequently not encouraging reporting of the environment.

On the contrary, several empirical studies have witnessed a positive impact of institutional ownership on environmental and sustainability disclosure. Both studies carried out by Ahmed (2025) and Barako et al. (2021) revealed that when ownership by institutions was higher, environmental information disclosure rose meaningfully in Nigeria and Kenya, respectively indicating that institutions are effective monitors. Likewise, Prado-Lorenzo et al. (2019) and Guan et al. (2017) have maintained that institutional investors are generally known to have stronger disclosure requirements that are aimed at protecting long-term value, especially in markets where ESG-oriented funds are located. Post et al. (2021) also established that institutional ownership when combined with external governance was found to have a positive impact on the CSR disclosure practice of Fortune 1000 companies.

Also, Peters and Romi (2021) reported that

institutional pressure has a strong association with greenhouse gas (GHG) disclosures in firms in the United States that are included in the Carbon Disclosure Project. These variations to results can be attributed to poor regulatory frameworks, little knowledge of ESG, and passive approaches towards investments in Nigeria. On the theoretical perspective of the agency theory, the correctness is where the institutional investors are thought to regulate managerial opportunism but only with active and long-term behavior by the investors in question. On the same note, the stakeholder theory proposes the fact that institutional shareholders can have an effect on corporate responsibility, and in undeveloped markets, the ability and/or willingness of the latter may be very small, and hence the reason why the inverse relationship in this research.

### 5.0 Conclusion and Recommendations

This paper draws the conclusion that the ownership by a State has little impact on environmental disclosure of listed oil and gas firms in Nigeria, which means that the ownership presence of the government does not stimulate sustainability reporting transparency. Contrastingly, there is a strong negative impact of institutional ownership on disclosure about the environment, implying that the more the institutional shareholding, the lower the disclosure. The findings indicate poor environmental responsibility on the part of the ownership structures as well as the necessity of the regulatory authorities and more stringent disclosure requirements towards improving the sustainability reports of the Nigerian oil and gas industry.

The following were the recommendations of the study:

- i. To enhance quality of environmental disclosure in Nigerian oil and gas sector, it is suggested that policymakers and regulators should concentrate on the enhancement of transparency requirements to institutional investors. This may also involve the use of greater environmental reporting by companies, especially in the manner which institutional owners influence the corporate governance and disclosure levels.
- ii. Where government ownership exists, ministries and public investment bodies must adopt a more proactive approach to enforcing sustainability reporting standards. Environmental disclosure could be made a condition for public contracts, tax incentives, or capital support to ensure government-owned or affiliated firms lead by example.
- iii. The Financial Reporting Council of Nigeria (FRCN) and Nigerian Exchange Group (NGX) should introduce mandatory environmental reporting guidelines modeled on the GRI framework. This would remove discretion from firms and institutional owners, thus

standardizing disclosure practices across the industry.

- iv. Both government stakeholders and institutional investors should undergo capacity development in ESG investment and sustainable finance. The lack of disclosure observed may stem not only from neglect but also from knowledge gaps in interpreting and applying environmental metrics to decision-making.
- v. Policy initiatives can support the growth of long-term, sustainability-conscious institutional investors by offering ESG-linked financial instruments or incentives for green investing. This could reorient institutional ownership toward behaviors aligned with transparency and long-term value creation.

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