



Effect of Audit Committee Characteristics on Environmental Disclosure of Oil and Gas Companies in Nigeria

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Abstract

This study analysed the effect of Audit committee characteristics on the environmental disclosure of oil and gas companies in Nigeria. The study's population includes all the oil and gas firms registered on the Nigerian Exchange Group (NGX), Employing purposive sampling methods, the research selected twenty oil and gas companies that provided data for the study from 2015 to 2024. The research utilized the fixed generalized least squares (FGLS) panel regression method. The findings showed that the size of the audit committee characteristics, the gender diversity within it, and the frequency of meetings had a substantial positive effect on the environment disclosure of listed oil and gas companies in Nigeria, while the effect of audit committee independence was minimal. It is also demonstrating that the size of the firm has a positive and significant impact on environmental disclosure. The research found that audit committee characteristics significantly impact the environmental disclosure of oil and gas companies in Nigeria. A greater representation of female and independent members on the audit committee is therefore recommended to enhance environmental disclosure.

KEYWORDS: Environmental disclosure, Audit Committee Characteristics, Audit size, Audit committee independence, Audit committee meeting, Audit committee gender diversity, Firm size

INTRODUCTION

Environmentally responsible companies are expected to show regard for the welfare of their stakeholders by promptly sharing environmental information. Nevertheless, despite considerable criticism and calls for transparency from local communities. The company's

annual reporting on environmental disclosure remains important due to the harmful effects of the oil and gas industries. Consequently, it is imperative for the organization to deliver a thorough, realistic, and credible report, a responsibility that can only be fulfilled by the management through independent monitoring and auditing. The current accounting and corporate finance literature places high priority relating to the requirement for assessments of environmental effects and reporting as a means of effectively reducing the negative effects of various companies' operations (Ghani et al., 2018).

Furthermore, corporate entities must act properly in order to prevent the negative environmental effects of their operations. According to Wilson et al. (2011), for example, automated teller machines, railroads, hospital beds, telephones, and computer keyboards are all known to transmit microbes. As a result, the challenges posed by climate change have been directly related to industrial environmental pollution, numerous cases of respiratory infections, and chronic obstructive lung diseases. Growing numbers of domestic and international oil and gas firms have been linked to possible harm to the environment and human health. Concern over the problem of global warming brought on by environmental pollution is growing among governments, international organizations, and other stakeholders (Kalu et al., 2016). Sustainable Development Goals (SDG) of the United Nations, which are endorsed by all countries worldwide one of its goal is conscientious production that minimizes environmental harm. Therefore, in order to show how well they fulfil their environmental obligations, oil and gas companies are required to report information regarding their operations in the designated area. Since it gives the public the chance to effectively monitor the corporate entity's sustainability behaviour, it is anticipated that timely disclosure of significant information by businesses will have an impact on the company's corporate social image. High-quality environmental data must be released so that stakeholders can evaluate performance in a reasonable and accurate manner and take the appropriate action (Global Reporting Initiative, GRI, 2013).

Researches from both developed and developing countries have demonstrated that corporate governance influences environmental exposure. (Iyafekhe, Osamagbe, Equayeon, & Nelson, 2020; Okafor, Amahulu & Egbunike, 2022; Ndalun Ibanichuka & Ofurun, 2021; Ibrahim, Ibrahim, & Hussaini, 2023; Trireksani & Dajadikerta, 2016). One important corporate governance tool that may have an impact on environmental reporting practices is the audit committee's characteristics. The management of the companies have the authority to make the strategic decision to disclose environmental information. The management frequently consults the recommendations of its several committees, including the audit committees, while making this choice. The audit committee characteristics which include; size, independence, gender diversity, and meetings may encourage environmental disclosure of a company. Giving a wide public a clear picture of a polluter's environmental performance, including air emissions, waste water discharge, waste, and standard compliance, is known as environmental disclosure (United Nations, 2022).

Notwithstanding, numerous efforts in the literature have been made to evaluate the impact of corporate governance on environmental disclosure, very few studies have examined the impact of audit committee characteristics on environmental disclosure. However, these studies have produced inconsistent results, particularly due to sectoral coverage and variations in the method of analysis used. The existing studies have failed to take the Nigerian oil and gas companies issues into consideration. The study assessed the effect of audit committee characteristics on environmental disclosure of oil and gas companies in Nigeria.

LITERATURE REVIEW

Conceptual Review

A process by which businesses show their dedication to removing operational hazards and informing pertinent parties to gain their support is known as environmental disclosure. It is the practice of adding ecological data as an extra piece of material to annual reports in order to show environmental transparency. Al-Jubouri & Chakraborti (2022) define environmental disclosure as a business approach that tries to illustrate how the environment affects society and possible remedies. Giving information to assess the financial effects of a company's conservation efforts is known as environmental disclosure. Environmental disclosure, according to Mamman et al. (2021), is the process of educating various stakeholders about how corporate operations affect the environment. The distribution of information to different stakeholder groups about the operational performance of companies that affect the environment is also referred to as environmental disclosure. Firms can share their ecological performance through environmental disclosure. A company's environmental actions, including its goals, environmental policies, and environmental repercussions, are described in an annual public statement called environmental disclosure.

Global Reporting Initiative (GRI) is an international independent organization that provides the world's most widely used standards for sustainability reporting. GRI Standards help organizations understand and communicate their environmental, social, and governance (ESG) impacts, promoting transparency and accountability. GRI's goal is to standardize sustainability reporting across organizations, enabling stakeholders like investors, governments, and consumers to compare performance and assess risk and impact. The standards cover a wide range of topics such as energy use, labour practices, human rights, and economic performance. GRI provides widely adopted sustainability reporting standards. Under its GRI Standards, environmental disclosures are covered by the Environmental Standards (GRI 300 series). As of the most recent updates, there are eight key environmental themes, each with its own standard and disclosure requirements.

Materials (GRI 301). Focuses on the types and quantities of materials used, and how efficiently they are used. Materials used by weight or volume, Recycled input materials, and reclaimed products and packaging.

Energy (GRI 302). Covers energy consumption, energy efficiency, and the use of renewable vs. non-renewable sources. Energy consumption within and outside the organization, Energy intensity, Reduction in energy consumption and Renewable energy initiatives.

Water and Effluents (GRI 303). Addresses water withdrawal, consumption, and discharge, and how organizations manage water as a resource. Water withdrawal by source, Water discharge by quality and destination, Water consumption and water recycling, and Impact on water-stressed areas.

Biodiversity (GRI 304). Looks at how operations impact biodiversity in ecosystems, species, and habitats. Location and size of land used in or near protected areas, Significant impacts on biodiversity, habitats protected or restored and IUCN Red List species affected.

Emissions (GRI 305). Covers greenhouse gas (GHG) emissions, ozone-depleting substances, NO_x, SO_x, and other air emissions. Scope 1, 2, and 3 GHG emissions. GHG emissions intensity, reduction of GHG emissions, and Other significant air emissions

Waste (GRI 306). Focuses on how waste is generated, managed, and disposed of, including hazardous and non-hazardous waste. Waste generation by type and disposal method, waste

diverted from disposal, Waste directed to disposal, and Management of significant waste-related impacts.

Environmental Compliance (GRI 307), Assesses the organization's compliance with environmental laws and regulations. Non-compliance with environmental laws and regulations, fines and sanctions.

Supplier Environmental Assessment (GRI 308). Evaluates how the environmental practices of suppliers are monitored and managed. New suppliers screened using environmental criteria, Negative environmental impacts in the supply chain and actions taken. These eight themes encourage organizations to systematically assess and report their environmental impact, ensuring transparency, accountability, and progress toward sustainability goals.

Audit Committee (ACO), is the subcommittee of the board of directors charged with task of verifying the correctness and dependability of the financial accounts provided by management. Improving the quality of information disclosure to all pertinent stakeholders is the aim of the audit committee's monitoring procedure (Mamman et al., 2021). One of the main working committees of the board of directors is the audit committee, which is in charge of financial reporting and other information disclosure. According to section 359(6) of CAMA (2020), as modified, the Nigerian audit committee must, among other things, examine the company's financial accounts. Additionally, the act requires the audit committee to evaluate the scope and conclusions of external auditors in order to strengthen their objectivity and guarantee that the business maintains a robust accounting and internal control system. In this way, ACO evaluates risk management initiatives annually, taking corporate environmental responsibility into account. In order to guarantee the precision and dependability of financial reporting in businesses, ACO effectiveness is a crucial component. The audit committee's efficacy has been categorized by the accounting and auditing fields according to a number of factors, such as the committee's size, independence, level of experience, and frequency of meetings (Tumwebaze et al., 2022).

Audit Committee Size (ACOSZ) is the total number of members that constitute the committee. According to Financial Reporting Council of Nigeria - FRCN (2018), each audit committee must have a considerable number of members compared to the size of the board. A broader audit committee can contribute more information because its members usually have a wider range of backgrounds and experiences.

Audit Committee Independence, (ACOID) describes a member of the audit committee who does not engage in extensive business dealings with the company whose board of directors they serve on. It is the extent to which board members are the topic of the present CEO or organisation. An independent audit committee should support the board in carrying out its fiduciary and legal duties. In order to improve board activity confidence, financial control, and the legitimacy of the committee's work in supervising the company's financial statement process, it is intended to guarantee the committee's independence (Kibiya et al., 2016).

During an accounting year, the frequency of the audit committee's meetings (ACOME) determines how well they can carry out their duties because regular meetings give them a platform to critically examine operational processes that have an impact on the environment and to verify how these are reported in financial statements.

The term Audit Committee Gender Diversity (ACOGD) refers to reflecting the diversity of society and successfully representing a range of professional experiences and abilities within ACO, as well as different genders and races. It implies that having women on the ACO may

lead to more stringent reporting guidelines and more attentive oversight. Women are particularly likely to handle ESG reporting techniques more skilfully for a variety of reasons. According to Gallbreath (2018), women are expected to oversee environmental disclosures in ACO meetings more skilfully than males. However, the unique perspectives and moral values that female filmmakers contribute raise awareness of social and environmental issues. According to Bear et al. (2010), the research also emphasizes how female board members encourage more lively board discussions, which improves the ACO's capacity to discuss and keep an eye on environmental issues. Because they actively look for and learn about social and environmental issues

Empirical Review

Several studies have examined the effect of audit committee and environmental disclosure in different domain. Bambang and Robby, (2024), analyse the influence of audit committee characteristics, audit committee diversity, and the financial condition of entities with audit delay from companies listed on the Indonesia Stock Exchange between 2017 and 2021. The findings revealed that audit committee size, independence, and meetings have a significant effect on audit delay, while audit committee gender diversity has negative effect on audit delay of listed companies on Indonesia Stock Exchange. In addition, Hendrati et al.'s (2023) study on Indonesian companies found that the audit committee had a significant effect on environmental reporting, while the board of directors had no impact. Munandar and Setiawati's (2023) study on companies listed on the Indonesia Stock Exchange for the 2019-2021 period showed that audit committee effectiveness dimensions influenced the level of environmental disclosure.

Moreover, Emuobonuvie and Emmanuel, (2024), assessed the effect of audit committee independence on environmental sustainability disclosure of listed oil and gas firms in Nigeria covering a period scope of twelve (12) years from 2012 to 2023. The results from the test of hypothesis showed that audit committee independence has positive and significant effect on sustainability disclosure. This study concludes that, audit committee independence has significant effect on environmental sustainability disclosure. Consequently, the study recommended that audit committee should be granted independence to enable them perform their functions effectively for sustainability reporting.

Adebayo, et al. (2023) investigates the influence of audit committee attributes on the corporate environmental disclosure using listed non-financial companies in Nigeria. The study discovered evidence that audit committee features play a crucial impact in environmental disclosure procedures among non-financial corporations listed in Nigeria. Nigerian listed industrial products businesses' sustainability reporting disclosure was impacted by the independence and gender diversity of their audit committees. The findings showed that while audit committee gender diversity has a negligible and detrimental impact on the sustainability reporting disclosure of Nigerian industrial products companies, audit committee independence has a favourable and significant impact, (Ojo,et al., 2023). The impact of audit committee diversity on audit delays for Nigerian listed oil and gas companies is investigated in this study. According to the study, audit delays for listed oil and gas companies are negatively and statistically significantly impacted by the participation of independent directors and female directors with financial skills on the audit committee, (Jemila, et al). The relationship between sustainability reporting listed businesses on the Nigeria Exchange Group and the characteristics of the audit committee. According to statistical findings, audit committee size has a negative and significant impact on sustainability reporting, while audit committee independence and meetings have a negative but negligible impact. A positive and significant impact on

sustainability reporting was found to be caused by audit committee multiple directorship, (Ojeaga & Ohidoa, 2023).

Additionally, a study conducted by Tumwebaze et al. (2022) on financial services companies in Uganda discovered a significant correlation between audit committee efficacy and environmental reporting procedures, which enhanced the firms' overall sustainability. According to a research by Salleh et al. (2022) on Malaysian public firms, the efficacy of audit committees was essential to guaranteeing that greenhouse gas emissions were disclosed appropriately. Afolabi et al., (2022) evaluates how audit factors affect listed oil and gas companies' sustainability disclosure on the Nigerian stock exchange between 2010 and 2019. The findings showed that sustainability disclosure is positively impacted by the size and independence of the audit committee. However, sustainability disclosure is negatively impacted by the size of the audit firm and the compensation of the auditors. Rabiou et al., (2022) over a four-year period, studied how audit committee characteristics affect environmental disclosure in annual reports of quoted natural resources and industry. Used GRI to calculate environmental disclosure indices. The study found a substantial relationship between environmental disclosure and audit committee meetings, diversity, and size. The study also discovered a negligible relationship between environmental disclosure and other variables.

Buba et al. (2021), examined the effect of audit committee size and audit committee independence on environmental disclosure of non-finance service companies listed in Nigeria. This finding suggests that audit committee size has positive and significant effect on environmental disclosure of non-finance companies listed in Nigeria where members of audit committee have shares in the company. Buallay and Al-Ajmi's (2020), study on Gulf Cooperation Council banks showed that audit committee independence and meeting frequency were positively associated with environmental reporting, while financial expertise had a negative relationship. Mohammed S., (2020), study on Malaysian companies found that audit committee independence, gender diversity, and diligence had a significant impact on environmental disclosure. This indicates that the effectiveness of the audit committee plays a significant role in ensuring the accuracy and reliability of environmental reporting.

Despite the intensifying stakeholder pressure on companies to report on sustainability practices, the continuing imbalance among firms reporting on sustainability outcomes and those who do not may be due to various firm-specific aspects and characteristics of the audit committee, (Al-Shaer et al., 2017). The key factor may be the individual characteristics of the audit committee, whose commitment to SDGs will permeate across the entire organisation (Rao & Tilt, 2016). An effective audit committee improves corporate disclosure quality of both voluntary and non-voluntary information that includes sustainable practices. The effectiveness of audit committee impacts the extent of corporate disclosures, and this is dependent on the audit committee specific attributes. Environmental disclosure is crucial for mitigating adverse environmental effects and advancing company sustainability initiatives. (Eyenubo et al., 2017). These studies provide strong support for the significant effects of audit committee on environmental disclosure, which can in turn improve their overall sustainability performance and contribute to sustainable development goals.

Theoretical Framework

The best-fit theory for explaining the relationship between audit committee characteristics and environmental disclosure in oil and gas companies in Nigeria is Agency Theory, with Stakeholder Theory providing valuable context, especially given the environmental and social stakes in the Nigerian oil and gas sector.

Agency theory is based on the principal-agent relationship, where company shareholders delegate decision-making authority to managers, (Jensen & Mecklings, 1976). The audit committee acts as a monitoring mechanism to reduce agency problems that is information asymmetry and managerial opportunism. Audit Committee Characteristics that is independence, gender diversity, size, frequency of meetings are mechanisms of corporate governance meant to monitor management actions. A strong and independent audit committee ensures better oversight, including on non-financial reporting like environmental disclosures. Environmental Disclosure becomes a tool to reduce information asymmetry and signal transparency and accountability to shareholders. Stakeholder theory posits that firms have a responsibility to various stakeholders (not just shareholders), including employees, communities, regulators, and environmental activists. Oil and gas companies face significant environmental scrutiny, especially in countries like Nigeria with histories of environmental degradation. Audit committees may encourage environmental disclosures to address stakeholder concerns, manage reputational risk, and ensure regulatory compliance. Agency Theory explains why audit committee strength matters in holding management accountable. Stakeholder Theory explains why environmental disclosure is valuable beyond compliance as a means to satisfy broader stakeholder expectations. Audit Committee Independence reduces agency conflicts leads to higher quality environmental disclosure. Audit Committee Size, more diverse oversight capacity to enhances stakeholder-responsive actions. Frequency of Meetings, more monitoring increased transparency in environmental practices Environmental Disclosure Level Output reflecting management accountability (Agency) and stakeholder responsiveness.

Thus, stakeholders are putting more and more pressure on companies to reveal their environmental challenges, and audit committees are crucial in helping companies make strategic choices that result in the release of more environmental data. The ability of the audit committees to determine strategic decisions and thus encourage companies to disclose more environmental information is anchored on the audit committees' features which reflect the audit committee effectiveness.

METHODOLOGY

The research used a quantitative approach, collecting secondary data through content analysis of the annual financial reports of the selected oil and gas companies in Nigeria for the period of ten (10) years ranging from 2015 to 2024. The population of the study are two-hundred (200) registered oil and gas companies listed in Nigeria Exchange Group, (The Department of Petroleum Resources (DPR) & Nigerian Upstream Petroleum Regulatory Commission (NUPRC), 2024). The sample size was selected twenty (20) companies. The research used purposive sampling technique non-probability sampling based on researcher's judgment to fulfilled the data criteria needed. Companies must be currently operational, must be licensed by the NUPRC or DPR, companies with significant market share, production volume and annual reports published on NGX. Instrument for content analysis used based on the GRI 300:1 scoring system. This work is unique in that it used the practical generalized least square panel regression technique to test for endogeneity and correct for the issue. The study technique used

control violations of heteroscedasticity and serial correlation assumptions to achieve the objectives.

Model Specification

To assess the effect of audit committee characteristics on environmental disclosure, the following regression model was used:

$$ENVDI = f(ACOSZ, ACOID, ACOME, ACOGD, FSIZE) \dots \dots \dots i$$

$$ENVDI_{it} = \beta_0 + \beta_1 ACOSZ_{it} + \beta_2 ACOID_{it} + \beta_3 ACOME_{it} + \beta_4 ACOGD_{it} + \beta_5 FSIZE_{it} + \varepsilon_{it} \dots \dots \dots ii$$

Where:

ENVDI = Environmental Disclosure Index

ACOSZ = Audit Committee Size

ACOID = Audit Committee Independence

ACOME = Audit Committee Meeting

ACOGD = Audit Committee Gender Diversity

FSIZE = Firm Size

β_0 = intercept or constant

$\beta_1, \beta_2, \beta_3, \beta_4, \& \beta_5$: are regression coefficients

ε : is the error term

i: is Firms

t: is time frame

Table 1: Variables Measurement

Variables	Symbols	Description	Source
Dependent Variable			
Environmental disclosure index	ENVDI	A proportional index score reflecting a company's level of environmental information disclosure based on the GRI framework	Buallay and Al-Ajmi's (2020)
Independent Variables			
Audit Committee Size	ACOSZ	Number of members of committee	Rabiu et al., (2022)
Audit Committee Independence	ACOID	The proportion of non-board members in the board	Buba et al. (2021),

Audit Committee Meeting	ACOME	Number of frequency meeting in fiscal year	Rabiu et al., (2022)
Audit Committee Gender Diversity	ACOGD	Proportion of women in the audit committee	Rabiu et al., (2022)
Control Variables			
Firm Size	FSIZE	Natural log of total assets of the firms	Rabiu et al., (2022)

Source: Research Design (2025)

The Global Reporting Initiatives' eight environmental disclosure-related themes: energy, water, material, emission, biodiversity, products and services, effluent and waste disclosure, and compliance with environmental laws are used to determine the degree of environmental disclosure. The eight indicators are assigned weights using a four-level quantitative scale that runs from 0 to 3 (0, 1, 2, 3). If no information about a theme is revealed, the score is zero; if the theme is revealed in a broad statement, the score is one; if the theme is exposed qualitatively, the score is two; and if the theme is disclosed quantitatively, the score is three. It is implied that each indicator can only receive a maximum score of 3, and since eight environmental disclosure indicators are being recorded, the highest possible score is 24. Next, the environmental disclosure index is calculated as follows:

$ENDI = \frac{\sum di}{24}$ Where d is the weighted score obtained for each of the indicators i using a four-level quantitative scale, and ENDI stands for environmental disclosure index.

RESULTS AND DISCUSSION

The following are the descriptive statistics, pairwise correlations, normality test, heteroskedasticity test, multicollinearity test and fixed general least square regression results of the study.

Table 2: Descriptive Statistics

	Obs	Mean	Std.Dev	Min	Max	Skewness	Kurtosis
ENVDI	200	0.406	0.123	0.101	1.002	0.000	0.000
ACOSZ	200	1.501	1.225	3.000	7.000	0.005	0.001
ACOID	200	1.114	1.055	1.221	3.000	0.000	0.002
ACOME	200	2.102	1.451	2.001	4.100	0.002	0.005
ACOGD	200	0.011	0.104	1.000	2.231	0.001	0.000
FSIZE	200	2.012	1.418	1.341	1.961	0.000	0.100

Source: STATA 14 Output (2025)

Table 2 above revealed that the average environmental disclosure index (ENVDI) to be 0.406 implying that the extent of environmental disclosure among selected oil and gas firms in Nigeria is 40.6 percent. The average audit committee size (ACOSZ), as determined by the data,

was 1.501 with a standard deviation of 1.225. The audit committee could include as few as three members or as many as seven. The findings showed that Nigerian oil and gas firms' average audit committee independence (ACOID) was 1.114 with a standard deviation of 1.055, with a minimum of 1.221 and a maximum of 3. During a fiscal year, the average frequency of audit committee meetings (ACOME) is 2.102 with a standard deviation of 1.451. The minimum frequency of meeting are 2 times a year for 6 hours each meeting and maximum frequency of meeting are 4 times a year for 2 hours each meeting, respectively. Additionally, the audit committee gender diversity (ACOGD) average female representation is 0.011 with a standard deviation of 0.104, whereas the minimum and maximum are 1.000 and 2.231 respectively. The calculated average mean for the firm size (FSIZE) is 2.012, with a standard deviation of 1.418. As the standard deviations were found to have lower values than the means of all elements with the exception of audit committee gender diversity, where the standard deviations were found to have higher values than the study means the results imply that there was little variation in the environment disclosure index of a subset of Nigerian oil and gas companies over the period covered. Table 2 above displays the results of the normality test using the skewness and kurtosis tests. It indicates that the null hypothesis of a normal distribution is rejected when the probability values of the skewness and kurtosis scores are 0.000.

Table 3: Matrix of Pairwise Correlations

Variables	ENVDI	ACOSZ	ACOID	ACOME	ACOGD	FSIZ
ENVDI	1.000					
ACOSZ	0.251	1.000				
ACOID	0.151	0.016	1.000			
ACOME	0.127	0.155	0.223	1.000		
ACOGD	0.101	0.013	0.151	0.160	1.000	
FSIZE	0.426	0.535	0.142	0.413	0.214	1.000

Source: STATA 14 Output (2025) $p < 0.01$, $p < 0.05$

Table 3 above shows results of pair correlations that the interrelationship between the dependent variable and the explanatory variables on one hand, and on another between the explanation variables shows the absence of multicollinearity as the highest correlation coefficient shows a value of 0.535 for the relationship between the size of audit committee (ACOSZ) and firm size (FSIZE). This value is lower than the threshold of 0.7 as suggested by Kennedy, (2008) for the presence of multicollinearity.

Table 4: Estimated Feasible Generalised Least-Square Panel Regression Results

Variables	ACOSZ	ACOID	ACOME	ACOGD	Full Model
ACOSZ	0.1052* (0.0542)				0.0145** (0.0452)
ACOID		-0.0021** (0.00154)			-0.0115 (0.0024)
ACOME			0.0054		0.0131***

			(0.0014)		(0.0012)
ACOGD				0.0451*	0.0121**
				(0.00351)	(0.0112)
FSIZE	0.0034***	0.0052***	0.0145**	0.0214*	0.0034**
	(0.0027)	(0.00197)	(0.00156)	(0.00312)	(0.0041)
Constant	-0.231***	-0.222***	-0.317***	-0.275***	-0.319***
	(0.0541)	(0.0074)	(0.0019)	(0.0371)	(0.0561)
Observations	200	200	200	200	200
R-squared	0.716	0.704	0.715	0.702	0.723

Note: Standard errors in parentheses ***p<0.01, **p<0.05, *p<0.1

Source: STAT 14 Output (2025)

Table 4 above shows an estimated Feasible Generalised Least-Square Panel Regression Results. With a coefficient of 0.1052 and a standard error of 0.0542, the first column's results showed the audit committee size (ACOSZ), suggesting that audit committee size significantly and favourably impact the environmental disclosure index of a subset of Nigerian oil and gas businesses. Inferentially, the environmental disclosure index is significantly impacted by audit committee sessions. Audit committee frequency meetings had a positive impact on the environmental disclosure index, as confirmed by the full model's coefficient of 0.0054 and standard error of -0.0014. Nevertheless, column two's data show a standard error of 0.00154 and a coefficient of -0.0021. According to this, the environmental disclosure index is negatively and negligibly impacted by audit committee independence (ACOID), meaning that the lower the proportion of independent board members, the less likely Nigerian oil and gas companies are to disclose their environmental information. Similar findings are observed in the entire model, where the coefficient is -0.0115; stand error = 0.0024. This shows that audit committee independence has a negative and negligible impact on the environmental disclosure index among Nigerian listed oil and gas companies. According to the findings, audit committee meetings (ACOME) significantly improve the environmental disclosure index of Nigerian listed oil and gas companies (estimated coefficient of 0.0054; stand error = 0.0014). The whole model also shown that, at the 5% level, audit committee meetings have a favourable and noteworthy effect on the environmental disclosure of listed oil and gas companies in Nigeria. Additionally, the findings indicate that audit committee gender diversity (ACOGD) significantly improves the environmental disclosure index of listed oil and gas companies, with an estimated coefficient of 0.0451; stand error = 0.00351. This suggests that greater audit committee diversity raises the environmental disclosure index in the Nigerian corporate environment. Higher female representation on the audit committee is expected to facilitate higher corporate environmental disclosure index in oil and gas companies, according to the estimated results, which also show the influence of the control variables firm size (FSIZE), which recorded positive and significant influence on environmental disclosure index, indicating that larger companies are more likely to disclose more environmental information index.

The full model's estimated slope and corresponding standard. According to the findings of the study's feasible generalized least-square panel regression, audit committee gender diversity (ACOGD) has a significant and positive impact on the environmental disclosure index. This means that the more female audit committee members there are, the more environmental information Nigerian oil and gas companies disclose. The results are consistent with other research that shown that having a higher percentage of women on the board improves environmental disclosure procedures (Wang & Sun, 2022). Furthermore, the study's findings

show that audit committee size (ACOSZ) has a favourable and noteworthy impact on the environmental disclosure index. This study's findings contradict those of earlier research (Buallay & Aldhaen, 2018), which showed no discernible relationship between audit committee size and environmental disclosure. However, the study contradicts the findings that indicated that ACOSZ had no discernible impact on the environmental disclosure index (Mamman et al., 2021). This is in line with the agency theory's efficient monitoring hypothesis, which holds that companies engage in and report sustainable practices to lessen knowledge asymmetry between stakeholders and management and increase shareholder value. It is ultimately simpler to make well-informed judgments, particularly those concerning the release of environmentally sensitive material, when an audit committee has a diverse range of opinions and an impartial viewpoint. As the audit committee is encouraged by higher ACOSZ to make independent strategic decisions that are equitable to all stakeholders, including the disclosure of environmental disclosure procedures, this is to be expected. The R-squared value generated by FGLS between ACOSZ, ACOID, ACOME and ACOGD against ENVD is 0.723. This means that ACOSZ, ACOID, ACOME and ACOGD affects ENVD by 72.3% while the remaining 27.7% is explained by other variables that are outside the research model. Thus, the research concluded that, audit committee characteristics has significant effects on environmental disclosure of selected oil and gas companies in Nigeria.

CONCLUSION AND RECOMMENDATIONS

This study examined the effect of audit committee characteristics on environmental disclosure of selected oil and gas companies in Nigeria. Some audit committee characteristics were considered in this work, such as the committee's size, independence, gender diversity, and meeting frequency. The study's empirical results from FGLS showed that audit committee independence had a negative impact on the environmental disclosure index of Nigerian oil and gas companies, while audit committee size, frequency meetings, and gender diversity had a positive and significant impact. The study shows that increasing the number of women on audit committees is essential to achieving greater environmental transparency. The problem of endogeneity has mostly been overlooked in earlier research on the relationship between audit committee characteristics and environmental disclosures. This work is unique in that it used the practical generalized least square panel regression technique to test for endogeneity and correct for the issue. These results highlight the importance of strengthening audit committee characteristics to enhance accountability and sustainability reporting in Nigeria's oil and gas sector. Regulatory bodies and stakeholders are encouraged to enforce and support corporate governance practices that promote environmental responsibility. Ultimately, enhancing audit committee effectiveness not only improves transparency but also helps align the sector with global best practices in environmental sustainability and corporate governance. The study concluded that, the composition of the audit committee should be changed to allow for more independent members and women on the committee, rather than the audit committee's size or frequency of meetings, in order to promote the disclosure of environmental information. The study concluded that the audit committee's characteristics have an effect on environmental disclosure of oil and gas companies in Nigeria.

This study recommended that, regulatory bodies such as the Financial Reporting Council of Nigeria (FRCN) and the Nigerian Securities and Exchange Commission (SEC) should enforce stricter requirements for the independence of audit committee members. Independent committees are more likely to ensure transparency and improve environmental disclosures. Oil and gas companies should be encouraged to appoint at least one member with a background in

environmental science or sustainability reporting to their audit committees. This will help improve the quality and relevance of environmental disclosures. The Nigerian government, in collaboration with environmental agencies like NESREA and the Ministry of Environment, should introduce clear, enforceable environmental disclosure standards specific to high-impact sectors like oil and gas. Academics and regulatory bodies should continue to monitor the impact of audit committee reforms on environmental disclosure practices and update regulations based on empirical evidence.

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