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Determinants of Environmental Disclosure

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Abstract

This study explores the factors of environmental disclosure across oil and gas corporations operating in Nigeria over a ten-year period (2012-2021). The study emphasizes the need for firms to disclose their environmental performance, particularly in the downstream oil sector, and examines the determinants that shape corporate disclosure, including leverage, firm size, and profitability, taking a holistic approach to examine their collective impact on environmental disclosure. The ex-post facto research design was employed, making use of panel data that includes ten years' worth of financial records for oil businesses that are quoted on the Nigeria Exchange Group. The data was analysed using the Panel least squares and diagnostic tests were run to confirm the regression study's findings. The findings revealed that environmental disclosure and business size are positively correlated, while profitability has no statistically significant impact. Also, interestingly, and contrary to early assumptions, the study finds that leverage positively improves corporate environmental disclosure, although at a 10% significance level. This led the study to recommend the implementation of incentives to motivate companies to improve their disclosures, particularly as it pertains to the environment.

Keywords: *Environmental Disclosure, Oil and Gas Corporations*

Introduction

Global economic expansion has had detrimental effects on the environment, causing natural disasters, unchecked waste disposal, and climate change (Angela & Handoyo, 2021). Due to the damage these businesses' environmental effects have created, the environment is no longer able to provide clean water, clean air, electricity, and land that can be used for agriculture. The negative consequence of this degradation on the ecological atmosphere and human life has necessitated the users of annual reports and various stakeholders to show concern and demand for the disclosure of quantitative and qualitative data on environmental impacts of a firm annually (Atang & Eyisi, 2020).

Accounting disclosure about environmental activities has become more common over the last few decades and has recently assumed a central role on the agendas of nations whose businesses engage in activities that have the potential to negatively impact the environment and the financial reporting matrix, which must adhere to internationally recognized standards. Due to factors like rising corporate productivity, regulatory pressure, the influence of environmental groups, competition, and corporate stakeholder demands,

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corporate entries are being forced to disclose environmental information in their annual reports (Muttanachai & Stanton, 2012). Consequently, because more and more informed stakeholders are demanding accurate and tangible information about companies' corporate environmental performance, corporate environmental disclosure has emerged as a critical conversation point (Uwalomwa, 2011).

Environmental accounting is a subfield of accounting. Through reports for both internal and external usage, it offers information on the environment to the general public and financial community. It also generates environmental data for internal use, assisting management choices about pricing, overhead control, and capital budgeting (Yaklou & Dorweile, 2003, quoted in Beredugo & Mefor, 2013). The best way to describe the current status of environmental accounting reporting and disclosure is ambiguous; standard-setters, statutory and quasi-regulatory authorities, and the general public have not yet embraced environmental reporting and disclosure.

Previous study has demonstrated that environmental accounting disclosure is optional in poor nations, and Nigeria in particular, due to the lack of international or local regulations to govern disclosure. Firms typically reveal this information in order to comply with industry standards, in response to pressure from environmental activists and supporters, and in light of their relationships with parent companies (multinational firms), ownership structures, levels of profitability, and company size. These discipline-specific areas are especially important for Nigeria's downstream oil industry, which has a significant influence on the country's environment and, therefore, way of life. As a result, industry associations and oil firms have acknowledged the need for best practices while doing business in developing nations with lax environmental regulations, like Nigeria (Uwalomwa, 2011).

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Many prior research (Tilling and Tilt 2010; Deegan et al., 2002; de Villiers and Barnard 2000 and Sumiani et al., 2007) evaluated the environmental accounting disclosure factors in various situations and domains. Employee responses have largely guided the outcomes of studies conducted on environmental disclosure concerns (Chandok et al. 2017; Sulaimana et al. 2014; Suttipu & Stanton 2012; Fifka, 2012; Ahmad et al. 2003). However, some researchers have established a correlation between corporate features and the provision of environmental data (Nor et al. 2016; Deegan et al. 2002; Cormier et al. 2005). Even though there is a considerable amount of literature on environmental disclosure, it is mostly based on cross-sectional surveys, rendering it difficult to generalize findings (Suttipun & Stanton 2012; Fifka, 2012; Ahmad et al. 2003). Therefore, a longitudinal analysis is necessary to understand the relationship between environmental disclosure and firm-specific factors.

Few research has examined environmental disclosures as a sector-focused study in the oil and gas industry (Al-drugi & Fodio, 2012; Abdullah & Azhar, 2016). Nevertheless, the majority of these earlier research' factors focused on industrialized nations. The variables examined in earlier study varied, as were the conclusions drawn from those investigations by scientists. While some research suggested that business size, leverage, and audit firm all had a negative impact on environmental accounting disclosure, others did not include leverage as a variable. Instead, they suggested that only profitability has a beneficial impact on environmental disclosure. Extensive research has established that company size, audit firm type, and profitability positively affect the environmental accounting disclosure of oil and gas companies in Nigeria. These findings are supported by several studies (Dibia & Onwuchekwa, 2015; Suleiman, Abdullah & Fatima, 2014; Uwalomwa, 2011; Abdullah & Azhar, 2016; Ebiringa, 2013; Abubakar, 2017). The effect of firm size, profitability, leverage, and audit quality on environmental disclosure by Nigerian oil businesses has not, however, been examined in prior research. In order to close this gap, this study looks at how business attributes affect environmental disclosure in the setting of developing nations like Nigeria. The

goal of this study is to advance our understanding of the factors that influence environmental disclosure by oil and gas firms in Nigeria.

Research Objectives

This study's main goal is to investigate the factors that affect Nigerian oil and gas firms' environmental reporting disclosures. The study's specific objectives are:

(a) To ascertain how leverage affects how much environmental information oil and gas firms in Nigeria disclose.

(b) To examine the relationship between Nigerian oil and gas firms' environmental disclosure and their business size.

(c) To evaluate how Nigerian oil and gas firms' environmental disclosure and profitability relate to one another.

Literature Review

Theoretical Framework

The connection between corporate characteristics and environmental disclosure is explained by both the stakeholder theory and the legitimacy theory. Stakeholder theory is a philosophy of corporate ethics and organizational management that discusses morality and values in organizational management. The book "Stakeholders of the Organizational Mind" by Ian Mitroff was extensively discussed. It was initially released in San Francisco in 1983. Traditional analytical frameworks in a number of disciplines, including accounting, economics, law, management, and human resources, have been successfully disrupted by stakeholder theory. It supports prioritizing stakeholders' needs in all corporate decisions. The legitimacy theory states that organizations constantly make an effort to ensure that they are operating within the bounds and traditions of the society in which they are located. According to a legitimacy theory approach, a corporation would willingly disclose its operations if management believed that the communities it serves expected it to (Deegan 2002; Deegan, Rankin and Voght 2000; Cormier and Gordon 2001). Examining the corrective measures that these entities may take is essential, considering the consequences of alleged social contract violations for the continued survival of organizations. To achieve this, legitimacy theory proposes the phrases "legitimacy gap" and "legitimacy strategies,"

Empirical Review

Using a range of techniques, Ismail and colleagues (2018) investigated the variables affecting the caliber of corporate environmental disclosure (CED) in 116 oil and gas companies in 19 developing countries. Only five of the 12 suggested factors—company size, foreign ownership, profitability, leverage, and involvement in industry associations—had a positive effect on CED quality, according to their research. These findings are critical to improving our comprehension of CED practices in developing nations' oil and gas industries and determining which factors ought to be included in regulatory requirements for higher CED standards. As a result, this study offers regulators insightful information that can help them create CED regulations that work for the oil and gas industry.

In order to investigate the variables influencing Nigerian oil and gas companies' environmental disclosures, Dibia and Onwuchekwa (2015) conducted research. A sample of fifteen businesses from the oil and gas industries of the Nigerian stock exchange were selected for the study using the yearly reports of these companies as secondary data. The binary regression strategy was used in the data analysis procedure. The results show that while there is no significant correlation between the kind of audit firm, profit, or leverage and CSR disclosures, there is a strong correlation between the organization's size and CSR disclosures. The study comes to the conclusion that many businesses have been transparent in their reporting of social and environmental repercussions, using the voluntary nature of environmental reporting as justification. The authors recommend putting incentives in place to encourage more thorough and accurate disclosures.

Dibia and Onwuchekwa (2021) examined how environmental disclosure factors affect the caliber of environmental disclosure provided by oil and gas companies listed between 2009 and 2018 on the Nigerian Stock Exchange. Because there aren't many oil and gas companies, the whole population of the fifteen (15) companies listed as of December 31, 2018, on the Nigerian Stock Exchange, was selected as a sample when using the census sampling approach. The information was gathered from annual reports, which also contain environmental, sustainable, and corporate social responsibility sections. The study was examined using binary logistic regression, the goodness-of-fit evaluation test, and descriptive statistics.

Firm size, financial leverage and return on assets were the three additional predictors that had a significant and positive effect on environmental disclosure and a negative effect was found between ownership distribution and environmental disclosure. Therefore, it can be said that while return on assets, financial

leverage, and business size have an impact on environmental disclosure, share ownership distribution has none. The Global Reporting Initiative-compliant environmental disclosure framework should be adopted by Nigeria's accounting regulatory agencies, and appropriate measures should be taken to encourage listed oil and gas companies to record their environmental actions in their annual reports.

The impact of company characteristics on environmental disclosure by Nigerian oil corporations is examined by Aluwong and Inuwa (2019). The study makes use of secondary data that was gathered between 2011 and 2017 from the annual reports and accounts of nine oil businesses that were chosen at random. The study's method for analyzing the data was logistic regression. The study finds that Nigerian oil companies' disclosure of their environmental accounting methods is significantly influenced by their business characteristics. Financial leverage considerably enhances Nigerian oil companies' environmental accounting disclosures, according to the study's findings. Second, Nigerian oil companies' environmental accounting disclosure is positively impacted by profitability. Third, the study also discovers a strong positive correlation between environmental accounting disclosure and the size of the business. Fourth, the study discovers that the kind of auditor has a slight but favorable influence on Nigerian oil firms' environmental accounting disclosure. The paper suggests that in order to force the corporations to produce more environmental information as a result of strict monitoring and demands from the debt holders, Nigerian regulators of oil companies should support the use of increased debt in the capital structure of their businesses.

The shortcomings in the amount and quality of corporate environmental disclosures supplied by Nigerian industrial businesses are examined by Alawiye and Akomolafe (2019). To ensure a comprehensive analysis and broader coverage of the topic, secondary data was extracted from the annual reports of fourteen (14) manufacturing companies. The annual reports were assessed during a six-year period, from 2010 to 2015. The businesses were chosen by selective selection or judgment. Data extraction from the yearly reports was done using interpretative content analysis. According to the survey, corporate environmental disclosure is still at an all-time low among industrial enterprises in Nigeria. Government intervention, public awareness campaigns, or regulatory pressure will be necessary to incentivize firms to participate in CEC. The opportunity to address issues with climate change, especially those pertaining to components of global warming, will undoubtedly be one benefit of this.

Between 1990 and 2019, Lin and Qamruzzaman (2023) examine how the adoption of IT, sound governance, and financial and environmental openness affect an organization's capacity to survive. A sample of 75 financial organizations registered on Bangladesh's stock market was taken into consideration in order to collect relevant data. Secondary data sources, including target financial institution annual reports, economic assessment reports, and publications from central banks, were examined in order to collect data. Using a variety of econometrical techniques, the empirical connection and elastic linkages of explanatory factors on company performance have been shown. The study discovered a statistically significant and favorable correlation between a firm's sustainability and the intended explanatory components in terms of baseline assessment. The study also discovered a favorable correlation between the company's IT adaption, strong governance, financial transparency, and environmental transparency and its performance sustainability. Lastly, the study used a system-GMM to broaden the empirical value. The study's findings suggest that accessibility to financial services, information symmetry, and investor protection all contribute to and sustain the success of the companies. The results indicate that corporate governance plays a mediating function that facilitates the improvement of financial performance. The study put up the theoretical argument that while disclosing information to the public, financial officials should take justice and honesty into account. Enforcement needs to begin in order to ensure good governance.

Conceptual Review

Environmental Disclosure

The term "environmental disclosure" is defined as information or data, typically of a financial nature, that describes the operations of businesses involved in economic activity. In this instance, the actions of Nigerian oil corporations are explained in terms of their compliance with industry standards and guidelines, as well as the consequences of their operations for the environment, land area, and/or geographic space. The United Nations Conference on Environment and Development (UNCED), held in Rio de Janeiro in June 1992, gave environmental disclosure reporting a boost in the media. Environmental disclosure, according to Ishak (2010), is a communication approach used in environmental management with stakeholders. According to Degan (2007), environmental disclosure is also frequently associated with corporate social responsibility reporting. business environmental disclosure was described by Parker (1986), referenced in Setyorim and Ishak (2010), as reporting on the social effect of business actions and the accomplishments of social initiatives. Companies may use social resources efficiently and meet their social duties in this way.

Corporate Attributes

Leverage: Lenders and investors use financial statements alone to assess a company's creditworthiness and overall financial health. Managers are therefore encouraged to disclose more information. Lenders and investors use financial statements alone to assess a company's creditworthiness and overall financial health. Consequently, managers have an incentive to disclose more in order to save money on agency fees between creditors and insiders. Research by Brammer and Pavelin (2006) and Cormier and Magnan (2002) shown a negative correlation between environmental disclosure and leverage. However, a favorable association was observed by Naser et al. (2006) and Roberts (1992). The majority of research on environmental disclosure determinants look at businesses that are involved in the production of pollutants. There is a greater chance of punishment for these businesses. Lenders and bankers will be more attentive to these firms' communications about corporate environmental responsibility in light of these documented facts. Therefore, if the polluting industries have more debt, they will want to publish more environmental information.

Firm Size: There is strong evidence from a number of empirical research (Brammer & Pavelin, 2006; Zeng et al. 2012) showing the amount of environmental and social disclosure and firm growth are positively correlated. These studies made the case that larger companies' exposure and visibility stem from their stature and reputation. In an attempt to satisfy their major stakeholders, large corporations are more prone to releasing information pertaining to their environmental impact. Additionally, they may seek external funding and divulge environmental data in order to shape public perception. Larger businesses are more likely to reveal environmental information in an attempt to lower the risk of regulation and prevent fines from government bodies, since this is frequently observed in them (Burgwal & Vieira, 2014). Numerous research studies have found that businesses in environmentally sensitive sectors often reveal more environmental information in their annual reports than do businesses in less environmentally sensitive industries (Ho & Taylor, 2007; Newson & Deegan, 2002). This implies a relationship between a company's industry and the amount of environmental disclosure it makes.

Profitability: The outcome of a business's operations over time is profitability. Managerial teams are driven to reveal more information when a company achieves a high margin of profit and profitability in order to demonstrate their strong standing to stakeholders such as shareholders, investors, and customers (Ullmann 1985). In fact, businesses would often only make voluntary disclosures after experiencing some financial

success. This is so because companies will only pay for environmental information disclosure if they can generate a profit that exceeds their commitment to shareholders (Brammer & Pavelin 2006). When employing a range of proxies for profitability, including return on equity (ROE), return on assets (ROA), earnings per share (EPS), dividend per share (DPS), return on capital employed (ROCE), and net profit (NP), studies on the connection between profitability and the degree of environmental disclosure have produced inconsistent results.

Methodology

Research Design

The ex-post facto research design is used in this study. Based on the study's primary goals of analyzing the correlations between one or more variables and another without allowing the researcher to manipulate the variables, the design is deemed acceptable for this particular investigation. Panel data for ten (10) financial years (2012–2021) for firms listed on the Nigerian Exchange Group (NEG), were used in this longitudinal study.

Model Specification

The model for the study is stated as follows: the model was adapted and modified from Dibia and Onwuchekwa's (2015) definition.

ENVD = F(SIZE,PROFIT AND LEV) - - - - - 1

This can be re-specified in regression form as;

ENVD=B0 + B1SIZE + B2PROFIT + B3 LEV + Ut - - 2

Where: ENVD = Environmental Disclosure

LEV = Leverage,

PROFIT = Profitability,

SIZE = Company Size

U = Stochastic term

The a priori signs are B1 > 0, B2 >0, B3 > 0.

Operationalization of Variables

Table 1 ***Operationalization of the Variables***

Variables	**Notation**	**Measurements**	**a priori expectation**	**Source (Used by)**
Environmental disclosure	CED	Proportion of environmental disclosure score measured by the un-weighted GRI-G4 environmental disclosure 34-item index.	-nil-	Ienciu, Popa, &Ienciu (2012)
Firm size	SIZE	Natural log of total assets	+	Akbas (2016)
Profitability	PROFIT	Profit after tax	+	Baboukardos (2017
Leverage	LEV	Total debt/Total Asset	+	Dibia and Onwuchekwa (2015)

Findings and Discussions

Table 2 displays the descriptive stats for the determinants examined for the specified time period. The sampled oil and gas businesses' mean values for each variable from 2012 to 2021, together with their corresponding standard deviations (degrees of dispersion), are shown. The examined oil and gas businesses reported an average of 38% of the GRI environmental disclosure requirement during the course of the study's 10-year period, according to the mean value for the variable ENVD, which was 0.381176. Additionally, the ENVD revealed a median value of 0.426, or around 43%, meaning that throughout the 10-year study period, roughly 50% of the examined oil and gas businesses declared more than 40% of the environmental disclosure obligations. Some of the sampled firms (like Dangote Cement) disclosed nearly 71% of the full environmental disclosure requirements in some of the study years, while others disclosed no environmental reporting information at all, as can be seen from the minimum and maximum rows, which were 0% and 70.5%, respectively.

Additionally, the variable FSIZE (calculated using the raw value of total assets) in the table had a mean value of ₦216,104,570,000. This suggests that, throughout the course of the 10-year research period, the average size of the studied oil and gas enterprises was around ₦216.1 billion. The largest oil and gas business in the sample, Seplat Petroleum Plc, had a total asset of up to ₦1.5 trillion as of year-end 2021, according to the lowest and maximum estimates, while the smallest company in the log had a total asset of

around ₦47 million at the beginning of the research. According to the median value, throughout the analyzed period, up to 50% of the tested oil and gas enterprises had total assets valued at 63.22 billion.

Table 2: ***Descriptive Statistics***

	ENVD (ratio)	FSIZE (₦'000)	ROA (ratio)	LEV (ratio)	BIG4 (Dummy)
Mean	0.381176	216,104,570	0.021454	0.727558	0.730000
Median	0.426471	63,219,975	0.024473	0.707932	1.000000
Maximum	0.705882	1,481,891,000	1.762669	2.478465	1.000000
Minimum	0.000000	47,150	-0.71357	0.022934	0.000000
Std. Dev.	0.143718	354,241,402	0.214619	0.319523	0.446196
Skewness	-1.77418	2.034339	4.855036	2.428004	-1.03613
Kurtosis	5.573396	5.951418	46.14003	13.69344	2.073567
Jarque-Bera	80.05499	105.2709	8147.281	574.7099	21.46894
Probability	0.000000	0.000000	0.000000	0.000000	0.000022
Sum	38.11765	2.16E+10	2.145393	72.75577	73.00000
Sum Sq. Dev.	2.044844	1.24E+19	4.560050	10.10738	19.71000
Observations	100	100	100	100	100

The mean return on assets (ROA) for the firms' profitability levels was 0.0215, or around 2.2%, with minimum and maximum values of -0.714 and 1.763, respectively. Together, the tested oil and gas businesses' average return on assets (ROA) of 2.2% may be viewed as a rather poor overall performance, consistent with the findings of Jewell and Mankin (2011), who say that a ROA of about 5% is regarded a satisfactory performance—though the higher, the better. On the other hand, because of the negative minimum value of -0.714, some of the studied oil and gas businesses performed badly relative to their total assets, while the highest value of 6.174 indicates that some of them were very efficient at using their assets to create earnings. But the standard deviation of 0.215, or around 22%, suggests that high-performing companies predominate more in the sample.

The selected oil and gas businesses had a mean debt-to-asset ratio of 0.728 (72.8%) on the LEV variable, indicating that they are all heavily leveraged. However, the tested enterprises appear to have fewer liabilities than assets based on their leverage of around 73%. Furthermore, the Big Four auditing firms audit around 73% of the sampled enterprises, according to the BIG4 mean variable.

Table 3: ***Linearity of Variables***

Correlation Probability	ENVD	SIZE	ROA	LEV	BIG4
ENVD	1.000000 -----				
SIZE	0.768968 0.0000	1.000000 -----			
ROA	0.060579 0.5494	0.000984 0.9922	1.000000 -----		
LEV	0.265023 0.0077	0.163915 0.1032	-0.168584 0.0936	1.000000 -----	
BIG4	-0.097660 0.3337	0.065346 0.5183	0.013904 0.8908	-0.207627 0.0382	1.000000 -----

NB:* *Significant @5% level*

The correlation coefficient in Table 3 shows a mixed association with both positive and negative values. The variables size, ROA, and LEV are seen to be positively correlated with the variable ENVD. However, their probability values, which stood at 0.000, 0.549, and 0.0077, mean that only the variables size and LEV are statistically significant. This implies that large and highly leveraged firms are associated with greater environmental reporting practices and disclosures. On the other hand, the variable Big4 showed a negative correlation coefficient of -0.0977 and a non-significant probability value of 0.3337 ($p > 0.05$). In other words, the variables ROA and BIG4 are both not significant owing to their high probability values. Additionally, the outcome showed comparatively weak coefficient values and no sign of a collinearity issue. With a fairly low correlation value of 0.769, the largest association is seen between ENVD and size.

Specification and Diagnostic Tests

The study performed a number of diagnostic tests to make sure that none of the fundamental presumptions guiding regression modeling were broken.

An additional indication that the collinearity issue with the regression variables does not exist comes from the outcome of the test of variance inflation factor. The lack of multicollinearity is indicated by the centering variance inflation factors around the value of 1.00. The criterion for the centered variance inflation factor is 10.00, at which multicollinearity issues are indicated. Based on the choice rule, it can be said that the regression lines of both models show no signs of unstable parameter estimates.

The presence or absence of heteroscedasticity, a measure of non-constant variance, was ascertained using the Breusch-Pagan-Godfrey test. The judgment criterion is to infer that there is no heteroscedasticity if the relevant probability value of the F-statistic is greater than 5%. The decision rule states that the p-value of 0.269 is more than 5%, which suggests that the model is homoskedastic and free of uneven variances.

The low probability value (Prob. F, Prob. Chi-Square) of 0.0000, which is significantly less than 5%, meant that the null hypothesis of zero autocorrelation in the residuals could not be rejected, according to the results of the Breusch-Godfrey Lagrange Multiplier (LM) test for serial correlation. Conversely, panel data estimation is unbiased and stable even when serial correlation is present.

The results of the (mis)specification Ramsey reset test revealed a p-value of 0.22 (22%). The high probability values imply that the equation appears to be correctly specified. This indicates that there are no issues with missing variables or incorrect functional form definition in the model.

Multivariate Analysis

Table 4 illustrates the impact of environmental disclosure drivers as evaluated in the Nigerian economy, based on the findings. With an explanatory power of almost 63%, the model has a pretty high coefficient of determination, or R-square (R2). An adjusted R square (2) of 0.617 indicated that only around 28% of the systematic variation in the dependent variable (ENVD) throughout the course of the study's ten years could not be explained by the equation's regressors. The high f-statistic of 40.84 and the overall probability

value of 0.000 indicate that there is a linear relationship between the regressors and the regressand of corporate environmental disclosure, which is statistically significant at the 1% level.

Table 4: ***Ordinary Least Square (Error Correction Model)***

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.652243	0.085313	-7.645315	0.0000
SIZE	0.056785	0.004768	11.90945	0.0000
ROA	0.055884	0.042297	1.321227	0.1896
LEV	0.058517	0.029533	1.981418	0.0504
BIG4	-0.039031	0.020601	-1.894598	0.0612

R-squared	0.632308	Mean dependent var	0.381176
Adjusted R-squared	0.616826	S.D. dependent var	0.143718
S.E. of regression	0.088963	Akaike info criterion	-1.952480
Sum squared resid	0.751874	Schwarz criterion	-1.822222
Log likelihood	102.6240	Hannan-Quinn criter.	-1.899762
F-statistic	40.84203	Durbin-Watson stat	1.479070
Prob(F-statistic)	0.000000		

Furthermore, with a p-value of 0.0000<0.05, the explanatory variable of size is statistically significant. The variable's positive coefficient of 0.0568 indicates that, among the oil and gas companies in the research sample, a company's size enhances its degree of environmental disclosure. This implies that the amount of environmental disclosure will grow by around 6% for every 1% increase in the firm's size. In contrast, the profitability (ROA) explanatory factors had a significant probability value of 0.1896 ($p > 0.05$) and a positive coefficient of 0.0559. The conclusion is that, while if profit levels may cause a rise in corporate environmental disclosure, this rise is unlikely to be large enough to disprove the null hypothesis.

For the firm leverage (LEV) variable, the findings revealed a positive coefficient of 0.059 and a statistically significant probability value of 0.0504 (5.04%), which is significant at the 10% level. This means that, all things being equal, a one percent increase in debt financing is expected to increase environmental disclosure compliance by up to 5.9%. However, such an impact is only significant at the 10% level of confidence. Last but not least, the analysis of the control variable Big4 reveals that it has a probability value of 0.0612 and a negative coefficient of -0.039, both of which are significant only at the 10% level. All other variables being

equal, this suggests that businesses audited by the Big 4 auditing firms are more likely to reveal lower environmental disclosure requirements.

The results, which showed a positive link between environmental disclosure and firm size, validated the first hypothesis. The positive coefficient suggests that increases in business size can result in up to 6% more environmental disclosure when all other variables remain constant. The result theoretically supports the schools of thought (e.g., Burgwal & Vieira, 2014) that argue that because larger companies are more visible and exposed, they are more likely to disclose environmental information in order to maintain their reputation, appease major stakeholders, and stay out of trouble with the law. This finding is empirically consistent with studies by Dibia and Onwuchekwa (2015), Lin and Qamruzzaman (2023), Nawaiseh (2015), and others, which demonstrated a positive correlation between business size and corporate environmental disclosure in Bangladesh, Nigeria, and Sri Lanka, respectively. It contradicts research by Gatimbu and Wabwine (2016), which found a negative relationship between environmental disclosure and corporate expansion. This discrepancy may be explained by national differences as well as the various environmental regulations around the globe.

The study discovers a positive but negligible correlation between corporate environmental disclosure and profitability as a consequence of the second hypothesis. This is because the high probability value of 0.1896—that is, 19%—is significantly higher than 5%. This conclusion basically means that business profitability has no discernible impact on corporate environmental reporting practices. The findings of the study showed that there is a chance that profit-performance may result in more environmental disclosure, this increase will be minimal and will not support the null hypothesis. The results are empirically similar to those of Cormier et al. (2005), Ten (2009), and Dibia (2015), who found no significant correlation between profitability and the amount of environmental disclosure in industrialized countries. However, the results seem to contradict those of Aluwong and Inuwa (2019), who similarly examined the same oil and gas businesses and discovered that profitability significantly positively affects environmental accounting disclosure made by Nigerian oil companies. This discrepancy may have resulted from their study's (Aluwong & Inuwa, 2019) use of data from 2011 to 2017, a period when environmental challenges were not as prevalent in Nigeria. Additionally, our study employed content analysis, whereas their study used the environmental reporting pattern as a dummy variable.

The outcome of the third hypothesis showed a strong and positive correlation between the leverage variable (LEV) and corporate environmental disclosure. But only with a 10% degree of certainty. The reason for this is the probability value of 0.0504, which is just above 5% but below 10%. According to this research, there appears to be a relationship between heavily indebted firms and an increase in environmental disclosures. This result contradicts the apriori expectation of the investigation. The study forecasts that the cost of debt financing would probably reduce expenditure on environmental concerns, leading to inadequate corporate environmental disclosure (Cormier and Magnan, 2002; Brammer and Pavelin, 2006). From an empirical standpoint, however, the outcome is consistent with studies by Maliah et al. (2014), Patrick et al. (2017), and Naser et al. (2006), which found that environmental disclosure and the firm leverage of businesses involved in polluting industries were positively correlated. The results, however, are at odds with those of Ohidoa et al. (2016), Dibia and Onwuchekwu (2015), Prastiwi et al. (2016), and Suleiman et al. (2014), who demonstrated that leverage had no impact on a company's ability to disclose environmental information. The heterogeneities across the several sectors that were sampled for this analysis may have contributed to the lack of convergence in past studies.

Conclusions and Recommendations

The results, which showed a positive link between firm size and corporate environmental disclosure (ENVD), validated the first hypothesis. The positive coefficient suggests that increases in business size can result in up to 6% more environmental disclosure when all other variables remain constant. The result theoretically supports the schools of thought (e.g., Burgwal & Vieira, 2014) that argue that because larger businesses are more visible and exposed, they are more likely to disclose environmental information in order to maintain their reputation, satisfy their major stakeholders, and stay out of trouble with the law. This finding is empirically consistent with studies by Dibia and Onwuchekwa (2015), Lin and Qamruzzaman (2023), Nawaiseh (2015), and others, which demonstrated a positive correlation between business size and corporate environmental disclosure in Bangladesh, Nigeria, and Sri Lanka, respectively. It contradicts research by Gatimbu and Wabwine (2016), which found a negative relationship between environmental disclosure and corporate expansion. This discrepancy may be explained by national differences as well as the various environmental regulations around the globe.

The study discovers a positive but negligible correlation between corporate environmental disclosure and profitability as a consequence of the second hypothesis. This is because the high probability value of

0.1896—that is, 19%—is significantly higher than 5%. This conclusion basically means that business profitability has no discernible impact on corporate environmental reporting practices. The study's conclusion is that, while there's a chance that profit-performance may result in more environmental disclosure, this increase will be minimal and will not support the null hypothesis. The results are empirically similar to those of Cormier et al. (2005), Ten (2009), Onwuchekwa and Dibia (2015), who found no significant correlation between profitability and the amount of environmental disclosure in industrialized countries. However, the results seem to contradict those of Aluwong and Inuwa (2019), who similarly examined the same oil and gas businesses and discovered that profitability significantly positively affects environmental accounting disclosure made by Nigerian oil companies. This discrepancy may have resulted from their study's (Aluwong & Inuwa, 2019) use of data from 2011 to 2017, a period when environmental challenges were not as prevalent in Nigeria. Additionally, our study employed content analysis, whereas their study used the environmental reporting pattern as a dummy variable.

The outcome of the third hypothesis showed a strong and positive correlation between the leverage variable (LEV) and corporate environmental disclosure. But only with a 10% degree of certainty. The reason for this is the probability value of 0.0504, which is just above 5% but below 10%. According to this research, there appears to be a relationship between heavily indebted firms and an increase in environmental disclosures. The study's apriori expectation is refuted by this outcome. The analysis anticipates that the burden of debt financing would likely restrict spending on environmental concerns, which will have the consequence of low corporate environmental disclosure, in line with Brammer and Pavelin (2006) and Cormier and Magnan (2002). However, from an empirical perspective, the result aligns with research conducted by Maliah et al. (2014), Naser et al. (2006) and Patrick et al. (2017), which discovered a positive correlation between environmental disclosure and the firm leverage of companies operating in polluting industries. The results, however, are at odds with those of Ohidoa et al. (2016), Dibia and Onwuchekwu (2015), Prastiwi et al. (2016), and Suleiman et al. (2014), who demonstrated that leverage had no impact on a company's ability to disclose environmental information. The lack of convergence in earlier research may have been caused by the heterogeneities among the various sectors that were sampled for this investigation.

The study recommends creating incentives to encourage disclosures. For instance, environmental disclosures have been included in the list of prerequisites for stock market listing in a number of industrialized economies.

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