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THE INFLUENCE OF MANAGERIAL OWNERSHIP ON ENVIRONMENTAL REPORTING BY LISTED NIGERIAN OIL AND GAS COMPANIES

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ABSTRACT

The oil and gas industry is one of the most environmentally sensitive and polluting industries in the world accounting for the highest level of industry sectoral global carbon emissions. Nigerian oil and gas industry is also the most environmentally polluting industry in the country. However, corporate accountability through reporting on their interactions with the environment has contributed immensely to changing corporate behaviour on their interplay with the environment. Consequently, the aim of this study is to examine the environmental accountability of listed Nigerian oil and gas companies 2005 to 2019. To test for the influence of managerial ownership and other corporate variables, Panel Corrected Standard Error Regression Analysis (PCSERA) was employed while vulnerability and exploitability analytical framework is used as guide in the research. Results from the study revealed that sampled companies are devoting few words for environmental disclosure while regression analyses revealed that managerial ownership and size are statistically significant in explaining environmental disclosure by the sampled companies. However, Profitability is significant but negatively related with disclosure by sampled companies. Overall, vulnerability and exploitability analytical framework is found useful in explaining the disclosure practices of sampled companies. Policy makers in the companies should pay attention to environmental accountability which may perhaps bring about peaceful operations in the industry. Similarly, policy makers in the industry may choose to regulate environmental as mechanism of ensuring environmental accountability in the industry.

Key Words: Environmental reporting, oil and gas Industry, word counts, legitimacy theory.

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1. INTRODUCTION

Societal awareness of the negative environmental impacts of corporate operations resulted in demands for corporate environmental accountability (Phoprachak & Buntornwon, 2020). Corporate responses to these demands resulted in corporate social responsibility (Mohammed, Hassan & Bala, 2020) represented by reporting (Hassan 2012). The reporting is regarded as corporate accountability (Hassan 2012) on social or environmental impacts (Frynas 2009) and as a commitment to sustainable development (Jenkins & Yakovleva 2006). However, corporate environmental disclosure practices and studies thereon are reported as predominantly practiced in the developed countries (Mohammed, Hassan & Bala, 2020). Contrariwise, environmental reporting practices and studies are most needed in emerging and less developed countries (Gray & Kouhy 1993). This is premised on the prevalence of extraction of primary resources, often accompanied by social injustice, environmental degradation, poverty, and corruption in developing countries (Gray & Kouhy 1993). However, significant increases in global disclosure practices in 2020 are accounted by developing countries (KPMG, 2020). This notwithstanding, corporate environmental disclosure practices is still an evolving phenomenon in Nigeria (Mohammed, 2016).

Nigeria is endowed with oil and gas resources which are economically significant for the country (Central Bank of Nigeria, 2020). Listed Nigerian oil and gas companies are becoming significant players in the industry (Obasi 2013; Nigerian National Petroleum Corporation 2014). However, exploration and production of oil and gas resources are associated with many environmental problems such as gas flaring, oil spillage and other negative effects on soil and biodiversity (Frynas 2009; Mohammed et al. 2020). Listed Nigerian oil and gas companies are accountable for their environmental negative impacts; thus, this paper empirically investigates environmental accountability by the companies 2005 to 2019.

This is section one of the paper, subsequent section two is review of related literature, section three deals with methods of conducting the research. Section four is results of the study and its discussions while section five is conclusions and recommendations of the study.

2. LITERATURE REVIEW

This section reviews existing literature related to the current study to help in identifying gaps which could be areas not yet explored or under-explored, population or sample, research method, data collection and/or analysis, or other research variables

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or conditions, comparison, or outcomes (North Central University Library, 2020; Robinson, Saldanhea & McKoy 2011).

Dakhli (2021) investigated the relationship between ownership structure and corporate social responsibility disclosure of listed companies in France. The study uses panel data set of 200 French firms listed during 2007–2018 in the Euronext NV to test for the direct and moderating effects of the ownership structure using multiple regression techniques. Results from the study indicated that managerial ownership is negatively related with corporate social responsibility by sampled companies.

Kolsi and Muqattash (2020) evaluated the relationship between social disclosures and ownership structure using sample of sixty-one (61) firms listed on Abu Dhabi Stock Exchange (ADX) 2010 to 2014. Data for the study is collected by means of content analysis of annual reports and accounts based on developed disclosure index. Results from the study indicated that managerial ownership, firm size and leverage have positive statistical relationship with level of CSR disclosures.

Oktafianti, and Rizki (2020) analyses the effects of managerial ownership, firm size, and financial performance on corporate environmental disclosure using secondary data obtained by means of content analysis based on Global Reporting Initiative (GRI) from the annual reports and accounts of listed companies on the Indonesian Stock Exchange (IDX) 2011 to 2013. Panel data regression analysis was applied on collected data to determine the effects of chosen variables while combination of agency and legitimacy theories guided the study. Results from the study indicated that managerial ownership and firm size have positive statistical relationship with environmental disclosure of sampled companies. Conversely, financial performance has negative effects of on corporate environmental disclosure by sampled companies.

Ekundayo, Jamani and Odhig (2021) examines environmental disclosure by listed Nigerian companies using sample of 35 non-financial firms listed on the Nigerian Stock Exchange. Secondary data on environmental disclosure by the sampled companies was retrieved from their financial statements. Double hurdle model was utilized in analysing collected data while Resource Based View (RBV) was employed to underpin the study. The result of the study reveals that managerial ownership is not a significant determinant of environmental disclosure in the annual reports.

Iyoha and Osakwe (2018) examined the effect of foreign, managerial, institutional and government ownerships on environmental disclosure practices of listed Nigerian oil and gas companies 2009 to 2013. Content analysis based on developed disclosure index of annual reports and accounts of sampled companies was conducted to collect data for the study while Ordinary Least Squares (OLS) regression technique is utilized

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in analysing collected data. Findings from the study reveals that institutional ownership is a significant determinant of environmental disclosure by listed Nigerian oil and gas companies. Conversely, foreign, managerial and government ownerships are not statistically significant and related to environmental disclosure.

Consistent with North Central University Library (2020) and Robinson, Saldanhea & McKoy (2011) there are literature gaps of location, time period and population to justify the replication of this study in Nigeria. From the purview of studies conducted in Nigeria, Ekundayo et al (2021), looked into non-financial sector while Iyoha and Osakwe (2018) focuses on listed Nigerian oil and gas companies 2009 to 2013. This study has differed with these studies on time period, means of data collection, sample selection and data analysis techniques. Therefore, this study may confirm or dispute existing hypotheses and theories on environmental reporting by listed Nigerian oil and gas companies thereby revealing new knowledge.

2.1 Review on Variables Employed in this Study

This section is review on corporate variables employed in this study looking at their concepts and empirical findings on their usefulness in explaining corporate environmental disclosure.

2.1.1 Managerial ownership

This is measured as the percentage of equity shares owned by directors' and their immediate families (Samaha & Dahawy, 2011) or ownership of equity by corporate officers and members of the board of directors (McConnell & Servaes 1990). The lower the management ownership, the higher the tendency that companies will provide more environmental reports. Positive relationship is found between this variable and environmental reporting (see, Leung & Horwitz 2004) while (Lagasio & Cucari 2019) found no significant relationship, (Hosain. Tan & Adams, 1994) reported negative relationship. Therefore, this study will test the following hypothesis as contribution to the argument.

H1: There is no significant relationship between managerial ownership and the quantity of corporate environmental reporting by listed companies in the Nigerian oil and gas industry.

H0: There is significant relationship between managerial ownership and the quantity of corporate environmental reporting by listed companies in the Nigerian oil and gas industry.

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2.1.2 Size of the Company

Large firms are more exposed to scrutiny from the general public than small firms, have larger market for products and more diversified stakeholder groups thus, are likely to make more disclosure (Brammer & Pavelin 2008). Proxies for size are sales volume (Alkababji 2014; Hackston & Milne, 1996), asset value (Juhmani 2014), and number of employees (Tagesson, Blank, Broberg, & Collin, 2009). The variable is found significant in determining environmental disclosure (Mohammed et al. 2020) although Hassan and Kouhy (2015) found it non-significant. With these mixed results, this study hypothesizes as follows:

H2: There is no significant relationship between corporate size and the quantity of corporate environmental reporting by listed companies in the Nigerian oil and gas industry.

H0: There is significant relationship between corporate size and the quantity of corporate environmental reporting by listed companies in the Nigerian oil and gas industry.

2.1.3 Profitability

Profitability is the ability of an investment to earn a return or financial gain (Tulsian 2014); thus, profitable companies having economic resources should be committed to environmental accountability (Pirsch, Gupta & Grau 2007). Proxies for corporate profitability are return on asset (Hackston & Milne 1996); two, net profit (Nandi & Gosh 2012) and three, return on Equity (Monteiro & Aibar-Guzmán 2010). Profitability is statistically reported as determinant of environmental reporting (Akther, 2017; Moshoud, 2020) while Shonhadji (2018) do not statistically find it as a determinant; thus, this study contributes by hypothesizing as follows:

H3: There is no significant relationship between corporate profitability and the quantity of corporate environmental reporting by listed companies in the Nigerian oil and gas industry.

H0: There is significant relationship between corporate profitability and the quantity of corporate environmental reporting by listed companies in the Nigerian oil and gas industry.

2.1.4 Liquidity Corporate

Liquidity is corporate ability to meet its current maturing obligations with short term assets (Poznanski, Sadownik & Gannitsos, 2013). Based on signalling theory, corporate organisations with high liquidity will provide more environmental

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disclosure (Abd El salam 1999). Conversely, based on agency theory, companies with low liquidity are likely to provide more corporate information (Aly, Simon & Hussainey 2010). Based on these arguments, Subramaniam, Samuel and Mahenthiran (2016) found positive and significant relationship between environmental reporting and liquidity. However, Al-ajmi, Al-Muttairi and Al-Duwaila (2015) found no relationship between the two variables. This study will contribute to the debate by testing below hypothesis:

H4: There is no significant relationship between corporate leverage and the quantity of corporate environmental reporting by listed companies in the Nigerian oil and gas industry.

H0: There is significant relationship between corporate leverage and the quantity of corporate environmental reporting by listed companies in the Nigerian oil and gas industry.

2.1.5 Leverage

Leverage is the degree of using borrowed funds to increase potential gains or losses of corporate organizations (D'Hulster 2009). Consequently, high leveraged companies are likely to provide more environmental reports (Akrout & Othman 2013). Conversely, highly leveraged companies are more likely to make less disclosure (Zarzeski 1996). This variable is found statistically significant in determining environmental disclosure (Sulaiman, Abdullah & Fatima 2014;). Other studies found the variable as not statistically associated with social disclosure (Al-ajmi, Al-Muttairi & AlDuwaila 2015). This study will contribute to the debate on the effect of this variable by testing below hypothesis:

H5: There is no significant relationship between corporate leverage and the quantity of corporate environmental reporting by listed companies in the Nigerian oil and gas industry.

H0: There is significant relationship between corporate leverage and the quantity of corporate environmental reporting by listed companies in the Nigerian oil and gas industry.

2.2 Vulnerability and Exploitability Analytical Framework

A number of emerging and less developed countries are endowed with and heavily dependent on natural resources such as minerals, oil, gas, forests and large human population living in poverty and weak legal frameworks (Belal, Cooper & Roberts, 2013). These weaknesses are vulnerabilities which corporate organizations are exploiting in their operations as governments are in dire needs of revenue from the

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resources while citizens have to contend with low corporate wages (Mohammed et al. 2020). Within the context of this study, Nigerian government needs oil and gas revenue while citizens living in abject poverty lack voices. These are vulnerabilities that listed Nigerian oil and gas companies may exploit by not rendering environmental accountability. Thus, this analytical framework which is increasingly utilized (Belal, Cooper & Roberts, 2013; Mohammed, 2016; Mohammed et al. 2020) underpins this study.

3. METHODOLOGY

The focus of this study is on listed Nigerian oil and gas companies for fifteen (15) years 2005 to 2019. Out of the twelve (12) listed oil and gas companies in the Nigerian Stock Exchange (NSE) as at 31st December 2020 only eight (8) have complete annual reports and accounts 2005 to 2019 and these eight (8) are the sample of the study. Table 1 depicts the inclusion or exclusion criteria employed by the study.

Table 1: Inclusion and Exclusion Criteria of Sampled Listed Nigerian Oil and Gas Companies

S/N	Name of Company	Annual Report and Accounts Available for:	Remarks
1	Anino International Plc	Incomplete 2005 - 2019	Not Sample
2	Ardova	Complete 2005 - 2019	Sample
3	Capital Oil	Incomplete 2005 - 2019	Not Sample
4	Conoil	Complete 2005 - 2019	Sample
5	Eterna Plc	Complete 2005 - 2019	Sample
6	Japaul Oil & Mar. Serv.	Complete 2005 - 2019	Sample
7	Mobil - 11 Plc	Complete 2005 - 2019	Sample
8	MRS Oil Nig Plc	Complete 2005 - 2019	Sample
9	Oando Plc	Complete 2005 - 2019	Sample
10	Rak Unity Petroleum Co.	Incomplete 2005 - 2019	Not Sample
11	Seplat Petroleum Dev Co.	Incomplete 2005 - 2019	Not Sample
12	Total	Complete 2005 - 2019	Sample

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The main sources of data for this research study are the annual reports and accounts and sustainability reports of the sampled companies from which data for the study was obtained using modified word counts content analysis bench marked on the Global Reporting Initiative (GRI) guidelines version G2, G3, G3.1 and G4; therefore, the nature of data for this study is quantitative.

3.1 Variables Description and their Measurement within this Study

The main dependent variable is quantity of environmental disclosure while managerial ownership is the main independent variable of interest in this study which is however tested along with corporate size, profitability, liquidity and leverage. Table 2 depicts the variables and their means of measurement based on results of econometric analyses.

Table 2: Variable in the Study and their Measurement

	DEPENDENT VARIABLE	
	Nature of Variables	**Means of Measurement**
1	*Quantity of Environmental Disclosure (QED)*	LOG_QED
	INDEPENDENT VARIABLES	
1	*Managerial Ownership*	% of Equity Shares Owned by Directors' and their immediate families at the accounting year end
2	*Size*	LOG_SALES
3	*Profitability*	Earnings per Share
4	*Liquidity*	Ratio of Current Assets to Current Liabilities
5	*Leverage*	Total debt to Total assets

3.2 Analysis of Data

The study collected data from the annual reports and accounts of eight (8) listed Nigerian oil and gas companies over a period of fifteen (15) years 2005 to 2019. This means the data set is cross sectional (Biorn, 2013) and time series in nature often referred to as Time-Series Cross-Section (TS-CS) or panel data. This type of data is

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posing some challenges to estimating a suitable model for analyzing it (Podestà, 2002). The first problem is serial correlation, the second problem is contemporaneous correlation the third problem is heteroskedasticity, the fourth problem is errors may reflect some causal heterogeneity across space, time, or both (Hicks, 1994; Podestà, 2002). To overcome these problems Parks (1967) developed Feasible Generalized Least Square (FGLS). FGLS model is found suitable for TS-CS by eliminating the serial and contemporaneous correlations while automatically correcting panel heteroscedasticity by overcoming contemporaneous errors (Park's 1967).

However, the method by Parks (1967) is discovered to possess some problems (see Beck, N., Katz, Alvarez, Garrett, & Lange 1993; Beck & Katz 1995). Consequently, Beck and Katz (1995) developed Panel Corrected Standard Error Regression (PCSER) that addresses observed problems in FGLS (Beck & Katz, 1995). PSCE's method of estimating a model for TS-CS data-sets is increasingly being used (Barako, Hancock & Izan, 2006; Hassan, 2012; Mohammed, 2016; Mohammed, Adam, Muhammad, Gimba & Sulaiman, 2020). Hence, this study also adopts the PCSEs method in estimating a suitable model towards testing and answering its developed hypotheses. Collected data was subjected to tests of skewness, extreme outliers, unit roots, multicollinearity, panel heteroscedasticity, contemporaneous correlation and panel serial correlation (Im, Pesaran & Shin, 2003, Beck & Katz, 2006). On conducting these tests, the model for the study is specified as follows:

$$LOG\_QNED_{it} = \beta_0 + \beta_1 LOG\_MO_{it} + \beta_2 LOG\_SIZE_{it} + \beta_3 PROF_{it} + \beta_4 LIQ_{it} + \beta_5 LEV_{it} + \epsilon_{it} \quad \ldots\ldots 2$$

***Where*:**

LOG_QNED = Quantity of ED

$\beta 0$ = the intercept

LOG_MO = Managerial Ownership measured by equity owned by corporate officers and members of the board of directors

LOG_SIZE = Corporate size measured by sales (turnover)

PROF = Corporate profitability measured by earnings per share

LIQ = Corporate liquidity measured by liquidity ratio

LEV = Corporate leverage measured by total leverage

Ɛ = the error term

i = Cross-section (8 companies) and

t = Time-dimension (15 years)

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4. RESULTS AND DISCUSSIONS

This section presents the results obtained by the study using numeric statistical means and regression analysis.

Table 3: **Total Disclosed Words and Environmental Words by Sampled Listed Nigerian Oil and Gas Companies 2005 to 2019**

S/N	Years	Total Disclosed Words in Annual Report & Accounts A	Environmental Disclosed Words (EDW) B	% of EDW from TDW (% of C from A) C
1	2005	74,063	0	-
2	2006	75,114	187	0.25
3	2007	82,252	280	0.34
4	2008	101,869	241	0.24
5	2009	127,774	167	0.13
6	2010	128,915	162	0.13
7	2011	138,161	165	0.12
8	2012	214,919	569	0.26
9	2013	231,851	823	0.35
10	2014	206,790	807	0.39
11	2015	244,920	1,424	0.58
12	2016	270,974	1,364	0.50
13	2017	294,820	1,439	0.49
14	2018	364,824	758	0.21
15	2019	254,577	991	0.39
Total		**2,811,823**	**9,377**	**4.72**

From Table 3, total disclosed words by sampled listed Nigerian oil and gas companies 2005 to 2019 are 2,811,823 words and only 9,377 words representing 4.72% of the total are devoted to environmental disclosure. This few disclosed words are perhaps portraying lack of environmental accountability by listed Nigerian oil and gas

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companies which is consistent with numerous environmental problems in the Niger-Delta oil and gas producing region. The result is consistent with Mohammed (2016) that reported lack of environmental accountability by listed Nigerian oil and gas companies and this lack of accountability could be linked to the influence of management shareholding. Overall, the result could be explained by vulnerability and exploitability analytical framework as the dominance of management ownership is perhaps responsible for the few disclosed words of environmental accountability. Table 4 presents results of regression analyses of the determinants of quantity of environmental disclosure by sampled companies

Table 4: Regression Analysis Results of Determinants of Quantity of ED by Sampled Listed Nigerian Oil and Gas Companies 2005 to 2019

Number of Obs =	120
Number of groups =	8
R-squared =	0.5635
Wald chi2 (6) =	156.09
Prob > chi2 =	0.0000

LOG_QED Determinants	**COEF**	**Panel-corrected Standard Error**	**P-value**
LOG_MO	1.414652	.201732	0.000
LOG_SIZE	.3434043	.0843054	0.000
PROF	-.00034	.0001371	0.015
LIQ	.0028646	.0104171	0.784
LEV	.21132	.2004542	0.294
_CONS	-.7498	.0626	0.2310

Table 4 indicates that there are total of eight (8) companies observed over a period of 15 years; thus, giving 120 observations. The R-squared has a value of 56, meaning that the independent variables included in the model are capable of explaining 56% variation in the dependent variable. An R-square of 9% is considered respectable in many social science research (Itaoka 2012); thus, managerial ownership and size significantly explains variations in quantity of environmental disclosure by sampled

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companies. The significance of the Wald chi square of 0.000 indicates that the model is fit and consistent.

Out of the five (5) variables tested to determine their effects on quantity of environmental disclosure by sampled listed Nigerian oil and gas companies, managerial ownership showed significant positive relationship with quantity of environmental disclosure having p-value of 0.0000 and coefficient of 0.202. Therefore, there is statistical evidence to reject the null hypothesis of no relationship between managerial ownership and quantity of environmental disclosure. This result is consistent with findings of Kolsi and Muqattash (2020), Oktafianti, and Rizki (2020) and Leung & Horwitz 2004. However, the result contradicts findings by Ekundayo, Jamani and Odhig (2021) and Iyoha and Osakwe (2018) that found the variable not significant in determining environmental disclosure and Dakhli (2021) that reported negative relationship between managerial ownership and environmental reporting. The result is indicating that the few environmental information provided by sampled companies is due to the influence of managers as owners; thus, it is not as a result of the expected corporate culture of accountability. This is clearly indicating that sampled companies are exploiting the vulnerability and Nigerians and their government on environmental accountability.

Similarly, corporate size showed significant positive relationship with quantity of environmental disclosure with a p-values of 0.0000 and coefficients of .084 respectively. Thus, there is statistical evidence to reject the null hypothesis of no relationship between corporate size and quantity of environmental disclosure. This result is in conformity with findings by Kolsi and Muqattash (2020) and Oktafianti and Rizki (2020), it however, contradict result obtained by Hassan and Kouhy (2015) that reported size not significant in explaining environmental disclosure. Obtained result showing size as a significant determinant of environmental disclosure by sampled companies means that the few reported disclosure in this study is accounted by large companies in the sample. Considering few provided information by sampled companies and the numerous environmental problems in the Nigerian oil and gas industry, sampled companies are perhaps exploiting the vulnerabilities of the Nigerian populace and governments.

Corporate profitability with a p-value of 0.015 is statistically significant but negatively associated with environmental disclosure having a coefficient of -.002. This may be implying that on generating additional 0.015 kobo as earnings per share, sampled companies reduce their environmental reporting by -.002 words. Thus, sampled companies are perhaps exploiting the vulnerabilities of Nigerians and their governments on environmental reporting. However, the variables of liquidity and

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leverage depict no statistical relationship with corporate environmental disclosure by sampled listed companies. Therefore, there are no statistical evidences to reject the null hypotheses that there are no relationships between these variables and quantity of environmental disclosure by sampled listed Nigerian oil and gas companies.

5. CONCLUSION AND RECOMMENDATIONS

This study examined the influence of corporate variables of managerial ownership, corporate size, profitability, liquidity and leverage on environmental reporting by listed Nigerian oil and gas companies 2005 to 2019. Out of these tested variables, managerial ownership and corporate size are statistically found having positive relationships with environmental reporting. Thus, it could be concluded that managerial ownership and corporate size are significant determinants of environmental reporting by sampled listed Nigerian oil and gas companies. However, the few environmental words (4.72% of the total) reported by sampled companies despite numerous environmental problems in the industry means that sampled companies are perhaps exploiting the vulnerabilities of Nigerians and their governments better explained by vulnerability and exploitability analytical framework. Profitability is statistically found significant but negatively associated with environmental reporting; thus, the study could conclude that there is a negative association between profitability and environmental reporting by sampled companies in this study. Corporate liquidity and leverage are not found statistically associated with environmental reporting; thus, the study could conclude that no relationship exist between these variables and environmental reporting. Policy makers in the companies should pay attention to environmental accountability which may perhaps bring about peaceful operations in the industry. Similarly, policy makers in the industry may choose to regulate environmental as mechanism of ensuring environmental accountability in the industry.

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