CORPORATE PERFORMANCE AND ENVIRONMENTAL ACCOUNTING DISCLOSURE OF LISTED OIL AND GAS FIRMS SOUTHEAST NIGERIA

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Abstract: The study evaluated corporate performance and environmental accounting disclosure of listed Oil and Gas firms in southeast Nigeria. The specific objectives of the study are to; ascertain the relationship between return on asset and waste management cost and determined the relationship between profit for the year and waste management cost of listed Oil and Gas firms. An adopted ex-post facto research design was adopted for the study. A secondary source of data was employed. Data was obtained from annual reports and accounts of oil and gas firms in southeast, Nigeria. The data was analyzed using the panel data regression technique. The result revealed that Return on the asset has a positive and significant relationship with the environmental accounting disclosure of listed Oil and Gas firms in Nigeria (r-value 0.6489). While Profit for the year has a positive and significant relationship with the waste management cost of listed Oil and Gas firms in Nigeria (r-value 0.7576). The study concludes that there is a positive and significant relationship between corporate performance and environmental accounting disclosure of listed Oil and Gas firms in Nigeria. We recommended that Government should make Environmental Reporting in annual reports compulsory since most organizations hardly report their environmental activities in their report.

Keywords: Accounting, Corporate, Disclosure, Environmental, Performance

1.1 Introduction

Climate change and global warming are some of the major challenges facing the world, and operations by companies are mostly caused by environmental challenges. The environmental challenges have effects on the environment, these effects include pollution, emissions, and environmental degradation. Onyali, et al (2020) are of the opinion that companies especially those whose operations have an effect on the environment should disclose their financial commitments towards environmental improvement, especially those companies whose operations have to do with pollution and other environmental hazard. Disclosing environmental information in annual reports continues to be a recent issue in research. According to Alodia, & Atmadja (2018), non-financial reporting is growing as companies, stakeholders and shareholders know that these issues eventually affect the overall long-term performance of companies.

The industrial revolution brought about expansion in the scope of businesses and improved the economy, particularly for those in the industrialized society (Beredugo & Mefor, 2012). As a result, large companies, due to the industrial revolution, not only benefitted their shareholders, but they also impacted, often negatively, the environment, health, and safety of employees, customers, surrounding neighborhoods, and communities (Sam, and Zabbey, 2018). The use of natural resources and energy in manufacturing companies is expedient and this is

not without environmental consequences. Therefore, there is a perceived feeling that manufacturing firms should be more involved in environmental accounting than non-manufacturing firms (Udeh, & Ezejiofor, 2018). Environmental accounting is used for internal organizations' decision-making processes and procedures which include descriptive qualitative and quantitative monetary information on material and energy consumption, the outflows, waste generated, and monetary information on costs, savings, and revenue on any activity with potential environmental impacts (Nnamani, et al 2017). The need to be globally relevant, as well as the negative consequences arising from the non-reporting of environmental impacts by corporate organizations, has resulted in increased academic debates and initiatives on this subject matter. These negative consequences include pressure on business activities from external forces such as society, non-governmental organizations, government, consumers, human rights activists, and environmentalists.

1.2 Statement of the Problem

Within the developing nations, the understanding is somewhat different mainly because of weak government regulations and a lack of organized pressure groups and consumer awareness to influence corporate behaviour. Environmental expenditures in terms of effective organizational cost reduction are a highly viable approach toward managerial justification of environmental management systems in enhancing profitability. Environmental Accounting has become the most important issue for the present time, not only for Nigerians but also for the whole world. So it's very important to be conscious of the environmental issues for all the sectors of any country besides their profit motive in the business. In accordance with this view, all the listed companies of any country should disclose the environmental policies in their Annual Report that have been taken by the company. To know this fact, whether, the Nigerian listed company discloses the environmental issues in their annual report or not and if disclose what is the extent to disclose, is the main purpose of this study. According to the study disclosure of different environmental-related information in corporate annual reports begins in the 1970s and expanded in the 1990s. Another research argued that before the 1990s, there was no specific evidence that any listed company in Dhaka Stock Exchange (DES) has disclosed environmental-related information in their annual reports.

a. **Objectives of the Study**
ii. The main objective of this research evaluated corporate performance and environmental accounting disclosure of listed Oil and Gas firms. The specific objectives of the study are to;
iii. Ascertain the relationship between return on asset and waste management cost of listed Oil and Gas firms in Nigeria.
iv. Determine the relationship between profit for the year and waste management cost of listed Oil and Gas firms in Nigeria.

a. **Statement of Hypotheses**
v. The following null hypotheses guided the direction of the study;
vi. There is no significant relationship between return on asset and waste management cost of Oil and Gas firms in Nigeria.
vii. There is no significant relationship between profit for the year and waste management cost of Oil and Gas firms in Nigeria.

Review of Related Literature
2.1 Conceptual Review
2.1.1 Environmental Disclosure Index

Oraka, & Egbunike, (2016) define disclosure as the reporting of information (both financial and non-financial) to users of accounting reports, especially to investors; disclosure can either be voluntary or be mandated by the laws of the state. According to Platonova, Asutay, Dixon & Mohammad, (2016), disclosure in financial statements consists of both voluntary and mandatory items of information provided in the financial statements, notes to the accounts, management's analysis of operations for the current and forthcoming year, and any supplementary information.

Corporate disclosure is a very broad term that goes beyond reporting only financial information (Robert, Lyria & Mbogo, 2016). Corporate social and environmental disclosure emerges from a variety of sources (Siddiq, & Javed, 2014) and environmental information have appeared to be part of annual corporate reports since the 1980s

(Tasneem, Hamza & Basit, 2016). Corporate environmental reporting is the process of communicating the environmental effects of organizations' operational and economic functions to particular interest groups within the society and to the society at large (Tasneem, Hamza & Basit, 2016). It is a public relations vehicle whose aim is to influence people's perception of the company and hence influence corporate image and reputation (Udeh & Ezejiofor, 2018). It is also known as an essential ingredient of corporate social responsibility reporting (Udeh & Ezejiofor, 2018); it is an environmental strategy to communicate with stakeholders. It has been best described as a tool to spur corporate policies, strategies, and management systems geared towards minimizing adverse environmental impact (SustainAbility/ United Nations Environmental Programme (Yahya, & Ghodratollah, 2014).

2.1.3 Return on Asset

The term return on assets (ROA) refers to a financial ratio that indicates how profitable a company is in relation to its total assets. Corporate management, analysts, and investors can use ROA to determine how efficiently a company uses its assets to generate a profit. The metric is commonly expressed as a percentage by using a company's net income and its average assets. A higher ROA means a company generates profits while a lower ROA indicates there is room for improvement (Tasneem, Hamza & Basit, 2016). Return on assets is a metric that indicates a company's profitability in relation to its total assets. It can be used by management, analysts, and investors to determine whether a company uses its assets efficiently to generate a profit. This can calculate a company's ROA by dividing its net income by its total assets. It's always best to compare the ROA of companies within the same industry because they'll share the same asset base. ROA factors in a company's debt while return on equity does not (Udeh & Ezejiofor, 2018).

Businesses are about efficiency. Comparing profits to revenue is a useful operational metric, but comparing them to the resources a company used to earn them displays the feasibility of that company's existence. Return on assets is the simplest of such corporate bang-for-the-buck measures. It tells you what earnings are generated from invested capital or assets (Udeh & Ezejiofor, 2018). ROA for public companies can vary substantially and are highly dependent on the industry in which they function so the ROA for a tech company won't necessarily correspond to that of a food and beverage company. This is why when using ROA as a comparative measure, it is best to compare it against a company's previous ROA numbers or a similar company's ROA (Yahya, & Ghodratollah, 2014). The ROA figure gives investors an idea of how effective the company is in converting the money it invests into net income. The higher the ROA number, the better, because the company is able to earn more money with a smaller investment. Put simply, a higher ROA means more asset efficiency. ROA is calculated by dividing a company's net income by its total assets.1 As a formula, it's expressed as:

Return on Assets   =   <u>Net Income</u>
Total Assets

2.1.4 Profit for the Year

Ajayi, & Ovharhe, (2018) are of the view that corporate profits reflect the income earned by corporations as a result of current production; the measure is defined as receipts arising from current production less associated expenses. Receipts exclude income in the form of dividends and capital gains, and expenses exclude bad debts, natural resource depletion, and capital losses. Aggarwal (2013) opines that most businesses prepare two sets of profit information: financial and tax. Both financial accounting and tax accounting define a corporation's profits as the difference between its receipts and its expenses, but they differ with respect to the definition of some receipts and expenses; in the timing of when the receipts and expenses are recorded and for whom the information is prepared.

Aggarwal (2013), states that profit, in accounting, is an income distributed to the owner in a profitable market production process (business). Profit is a measure of profitability which is the owner's major interest in the income formation process of market production. There are several profit measures in common use. Corporate profit is one of the most closely followed economic indicators. Simona, & Veronika (2020), state that profitability provides a summary measure of corporate success or failure and thus serves as an essential indicator of economic performance. Profits are a source of retained earnings, providing much of the funding for investment in plant and equipment that raises productive capacity. They are also frequently used in measuring the rate of return on

investment and the relationship between earnings and equity valuation. Profits may also be used to evaluate the effects on corporations of changes in policy or in economic conditions.

Waste management Cost

Wastes generated from crude oil and natural gas exploration and production are generally subject to regulation under Subtitle D of the Resource Conservation and Recovery Act (RCRA) and state regulations, and many state governments have specific regulations and guidance for exploration and production wastes (Simona, & Veronika, 2020). In addition, some states are developing legislation and regulations in response to the increase in the use of hydraulic fracturing, including requirements related to waste management. As the use of hydraulic fracturing has increased, so too have concerns about potential impacts on public health and the environment, including potential impacts arising from improper management of wastes from exploration and production activities. Proper waste management is important for all exploration and production wastes, including those that are associated with hydraulic fracturing activities. (Sam, and Zabbey, 2018). Investments in production equipment might be made in order to reduce environmentally hazardous emissions. Such investments are considered environmental costs. Most investments however are not made solely for environmental purposes but also to increase the utilization capacity. These investments are not considered entirely environmental but also regular investments. In these cases, the environmental costs only consist of the part of the investment considered an environmental investment.

2.2   Theoretical Framework

Stakeholder Theory

This theory was developed and introduced by Edward Freeman in his landmark book "Strategic Management: A Stakeholders Approach", first published in 1984 (Freeman, 1984). It was originally detailed by Ian Mitroff in his book "Stakeholders of the Organizational Mind", published in 1983 in San Francisco. The first use of the word 'stakeholder' occurred in 1963, in a memorandum from the Stanford Research Institute. The book by Edward Freeman identifies and models the groups which are stakeholders of a corporation, and describes and recommends methods by which management can give due regard to the interests of those groups. Stakeholder theory argues that there are other parties involved, including employees, customers, suppliers, financiers, communities, governmental bodies, political groups, trade associations, and trade unions. Even competitors are sometimes counted as stakeholders – their status is derived from their capacity to affect the firm and its stakeholders.

The theory draws from several interrelated pieces of literature, such as sociology, strategic management, corporate social responsibility, and systems theory (Laplume, Sonpar, & Litz, 2008; da Silveira, Yoshinaga, & Borba, 2005). Freeman (1984) defined corporate stakeholders as 'any group or individual who can affect or is affected by, the achievement of a corporation's purpose'. They can broadly be referred to as persons and/or groups who contribute to the wealth-creating potential of the firm and are its potential beneficiaries (Mahoney, 2010) and/or those who voluntarily or involuntarily become exposed to risk from the activities of a firm (Mahoney, 2010; Clarkson, 1995).

2.3   Empirical Review

Benjamin (2010) examined the quantity and quality of environmental reporting in annual reports of publicly listed companies in Malaysia in the year 2008 only. Two hundred and thirty-four listed companies were sampled and content analysis was employed. It was discovered that larger companies and companies in environmentally sensitive areas published more information, and provided higher-quality disclosure as well.

Mahadeo et al. (2011) examined social and environmental reporting (SER) practices of listed companies in the Island economy of Mauritius. Using content analysis of annual reports, quantitative and qualitative changes in SER were analyzed in light of recent developments in corporate governance and with regard to the prevailing social and political contexts of Mauritius's emerging economy. They found a significant but selective increase in the volume and quality of SER over the period under review (2004–2007).

Ahmad (2012) examined environmental accounting and reporting practices: significance and issues: A case from Bangladeshi companies. There was found a remarkable disclosure on expenditure on energy while others such as WSM, safety-related measures, and environment protection presented in their annual reports were not remarkable in the sampled companies.

Kaoje & Auwal (2020) investigated the effect of sales and firm size on sustainability reporting of oil and gas firms in Nigeria from 2004 to 2018. The study targeted a population of 24 oil and gas firms playing a major role

in the upstream, midstream, and downstream of the Nigerian oil and gas sector. Six (6) of the firms were selected for the study. Panel regression analysis was utilized to analyze secondary data obtained from annual accounts and financial statements of the sampled firms. It was observed after the data analysis that firm characteristics measured with sales growth, firm size, and leverage exert a negative significant effect, whereas, firm size exerts a positive significant effect on sustainability reporting and profitability of oil and gas firms in Nigeria. It was recommended in light of the findings that oil and gas firms should consider a mixture of common stock, preferred stock, and retained earnings as a form of capital structure than giving preference to debt financing.

Kartiningsih (2020) studied the effect of firm characteristics on the profitability of food and beverage firms listed in Indonesia from 2014 to 2018. Firm characteristics were proxied by firm age, firm size, liquidity, and leverage while profitability was proxied with return on sales. The study targeted all the 12 foods and beverage firms listed on Indonesia Stock Exchange during the period. Secondary data were collected from the firms covering the period and analyzed using descriptive statistics and multiple regression analysis. The result of the analysis suggests that firm age, firm size, liquidity, and leverage have a significant and positive effect on the profitability of the firms. In view of this, it was recommended that the firms should maintain their assets, debt funds, and all resources effectively and efficiently by using experienced staff that is knowledgeable and well-skilled with capabilities to earn profits for the firms.

Onyali, Okerekeoti, Chinedu & Uchegbu (2020) investigated the relationship between firm characteristics such as firm size, profitability, and financial leverage with social responsibility disclosure of listed consumer goods firms in Nigeria. The study adopted Ex-post facto research design. A sample of 20 consumer goods manufacturing firms listed on the Nigeria Stock Exchange was selected for the study. Secondary data were sourced from the published annual report of the selected firms. Content analysis was used to measure corporate social responsibility disclosure and multiple regression analysis was used to ascertain the relationship between social responsibility disclosure and firm characteristics. The result indicates a strong positive relationship between firm size; profitability; leverage and corporate social responsibility disclosure. This study advocates for improved corporate social responsibility disclosure as this will enhance greater collaboration between firms and their stakeholders.

3. Methodology

An adopted *ex-post facto* research design was adopted for the study. A secondary source of data was employed for the study. The study focuses on oil and gas firms quoted on the Nigerian Exchange Group, between the periods 2011 to 2021. The data was obtained from annual reports and accounts of oil and gas firms in southeast, Nigeria. The population was made up of all the eleven (11) oil and gas firms quoted on the Nigerian Exchange Group (NEG) as of the end of the 2021 financial year. Out of the eleven (11) oil and gas Firms, one of them was chosen which is Ardova, Capital Oil. The data was analyzed using the panel data regression technique.

Model Specification

A model is a simplified view of reality designed to enable a researcher to describe the essence and interrelationship within the system or phenomenon it depicts. The models will be specified below in the explicit form:

$$WMC_{i,t} = \beta_0 + \beta_1 ROA_{i,t} + \beta_2 PFTY_{i,t} \dots \dots (1)$$

Where, ROA = Return on Asset

PFTY = Profit for the Year

WMC = Waste Management Cost

β = Coefficient for the independent variable

e = Error Term.

The correlation models for the test of hypotheses will be represented as follows:

Thus, hypothesis one states that there is no significant relationship between return on asset and waste management cost of Oil and Gas firms in Nigeria. The test hypothesis is modeled thus:

$$WMC = \beta o + {}_{b1}ROA_{it} + e_{it} \dots \dots (2)$$

For hypothesis two which states that there is no significant relationship between profit for the year and waste management cost of Oil and Gas firms in Nigeria. The hypothesis is modeled thus:

$$WMC = \beta o + {}_{b1}PFTY_{it} + e_{it} \dots \dots (3)$$

Data Presentation and Analysis
4.1   Data Presentation
Data here were presented according to the individual oil and gas firms and also in panel statistics.
4.1.1   Data Presentation for Ardona Oil
The firm-level data used for the test of hypotheses were presented in 4.1
Table 4.1 Processed Data for Ardona Oil

Ardona Oil			
Years	ROA	PEFY	WMC
2011	48525	26739	13030
2012	107719	124714	16872
2013	193,041	124714	13247
2014	186,828	124714	20442
2015	185281	124714	58400
2016	183942	124714	41000
2017	192447	124714	55000
2018	235036	124714	56000
2019	265406	124714	56000
2020	232621	135514	66000
2021	448069	135514	16300

Source: Computed Data from Annual Reports (2011 - 2021) from Appendix I
Where:
ROA   = Return on Asset
PAT   = Profit after Tax
WMC   = Waste Management Cost
The descriptive Statistics of Ardona Oil data are presented in Table 4.2
Table 4.2 Descriptive Statistics for Ardona Oil

	ROA	PEFY	WMC
Mean	207174.1	117770.8	37481.00
Median	192447.0	124714.0	41000.00
Maximum	448069.0	135514.0	66000.00
Minimum	48525.00	26739.00	13030.00
Std. Dev.	99877.74	30499.34	21459.20
Skewness	0.968499	-2.737521	-0.016776
Kurtosis	4.545572	8.757357	1.219466
Jarque-Bera	2.814512	28.93148	1.453571
Probability	0.244814	0.000001	0.483460
Sum	2278915.	1295479.	412291.0
Sum Sq. Dev.	9.98E+10	9.30E+09	4.60E+09
Observations	11	11	11

Source: author's computation using e-views version 9
We find that return on assets of Ardona Oil grew at an average of 11.75% over eleven years (2011 – 2021), while the profit after tax of the company grew to remain constant for eight years and change to 13.5% from 2018 to 2021. Within the eleven-year period, earnings per share performed worst with a positive growth of 30.82%, while

its best performance was a growth of 73.78%. The current ratio shows that in the period, current liabilities outweighed current assets, averaging about 0.72%. The probability of the Jarque-Bera statistics shows that profit after tax (PEFY) data series are normally distributed (P-value = 0.000001 < 0.0500) while the probability of the Jarque-Bera statistics shows that return on asset (ROA), and waste management cost (WMC) data series are not normally distributed (P-value 0.000001 > 0.0500). The skewness statistics show that the variables are positively skewed, showing evidence of moderate skewness (PEFY, and ROA) and high skewness (WMC). The result shows that the variables are stable and predictable, given the very low standard deviation of less than one (1) for all variables.

4.3 Test of Hypotheses
The results of the various hypotheses testing are presented in the section.
4.3.1 Test of Hypothesis One
H$_{O1}$ There is no significant relationship between return on asset and waste management cost of Oil and Gas firms in Nigeria.
Correlation Analysis: Spearman rank-order
Date: 11/04/22   Time: 10:28
Sample: 2011 2021
Included observations: 99

Correlation	WMC	ROA
WMC	1.000000	
ROA	0.648921	1.000000

In testing this hypothesis, the return on assets was regressed against real GDP. The empirical result showed that the coefficient of return on the asset has a positive and significant relationship with the waste management cost of listed Oil and Gas firms in Nigeria (r-value 0.6489). The null hypothesis was rejected and the alternative hypothesis was accepted.

4.3.2 Test of Hypothesis Two
H$_{O2}$ There is no significant relationship between profit for the year and waste management cost of Oil and Gas firms in Nigeria.
Correlation Analysis: Spearman rank-order
Date: 11/04/22   Time: 10:30
Sample: 2011 2021
Included observations: 99

Correlation	WMC	PETY
WMC	1.000000	
PETY	0.757633	1.000000

In testing this hypothesis, profit for the year was regressed against waste management cost. The empirical result showed that the coefficient of profit for the year has a positive and significant relationship with the waste management cost of listed Oil and Gas firms in Nigeria (r-value 0.7576). The null hypothesis was rejected and the alternative hypothesis was accepted.

5.1 Summary of Findings
The following are the major findings of the study:
Return on the asset has a positive and significant relationship with the environmental accounting disclosure of listed Oil and Gas firms in Nigeria (r-value 0.6489). In addition, the return on assets has a 20 percent positive and significant impact on the environmental accounting disclosure of listed Oil and Gas firms in Nigeria. A percentage change in return on asset results in a 20 percent increase in environmental accounting disclosure of listed Oil and Gas firms in Nigeria.

Profit for the year has a positive and significant relationship with the waste management cost of listed Oil and Gas firms in Nigeria (r-value 0.7576). In addition, profit for the year has an 11 percent positive and significant impact on the environmental accounting disclosure of listed Oil and Gas firms in Nigeria. A percentage change in profit for the year results in an 11 percent increase in environmental accounting disclosure of listed Oil and Gas firms in Nigeria

5.2 Conclusion

This study set out to carry out an empirical analysis of the relationship between corporate performance and environmental accounting disclosure of listed Oil and Gas firms from the periods 2011 to 2021. Descriptive statistics and correlation matrix were pre-estimation tests that were carried out in the study. Descriptive statistics provide the nature and characteristics of the variable, the correlation matrix ensures that the variable of the study does not have a perfect linear correlation among explanatory variables. However, having established this, the study went ahead to conduct estimation tests such as the Hausman test and fixed effect panel data estimation to confirm the viability of the model. This study concludes that there is a positive and significant relationship between corporate performance and environmental accounting disclosure of listed Oil and Gas firms in Nigeria. Return on asset and profit for the year has positive and significant relationships with environmental accounting disclosure of listed Oil and Gas firms in Nigeria

5.3 Recommendations of the Study

Based on the findings of this study, the following recommendations were made.

i.	Government should make Environmental Reporting in annual reports compulsory since most organizations hardly report their environmental activities in their report. Government agencies should give tax credits to organizations that comply with the environmental laws of the land which will encourage environmental reporting.

ii.	Corporate firms should spend reasonable amounts of their income on donations (CSR) as this will in turn lead to an increase in their earnings as proposed by triple-bottom-line accounting.

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