Effect of Environmental Disclosure on Financial Performance of Quoted Oil and Gas Companies in Nigeria

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Abstract

This study examines the effect of Environmental Disclosure on Financial Performance of quoted oil and gas companies in Nigeria, using panel series data and regression analysis approach. The focus variables of this study are Environmental Disclosure for Independent Variable and Financial Performance for Dependent Variable. The Independent Variable is proxied by Research and Development Cost and Estimated Future Expenditure while Dependent Variable is proxied by Net Profit Margin and Return on Asset. The secondary data obtained from the annual reports of 12 oil and gas companies quoted on the floor of the Nigeria Stock Exchange (NSE) for 10 years ranging from year 2010- 2019 were used. The study adopted the E-view as a statistical tool for analysis with focus on Ordinary Least Square (OLS) regression method. The study found that Environmental Disclosure has positive and statistically significant effect on Financial Performance of quoted oil and gas companies in Nigeria during the period under review. The study concludes that Environmental Disclosurescontribute immensely to Nigeria's Oil and Gas firms to increase financial performance and profitability, as well as provide a springboard that can enable the country at large to emerge as an environmental-friendly nation. It is recommended, amongst others that, since Nigerian economy is highly dependent on the oil and gas resources, the continued insistence on full compliance to every form of best practice in the oil and gas sector (including full environment disclosures), is of great and immerse benefit to the industry players, oil and gas firms, the economy at large and to the citizenry of the country.

Keywords: Environmental Disclosure, Financial Performance, Research and Development, Net Profit Margin.

INTRODUCTION

According to Mishra and Siddiqui (2014), Climate change and Global warming is described to be an environmental challenge in the face of the world. This challenge is mostly caused by companies' operations. Emission from companies' operation is a major source of global warming and climate change. Companies do incur cost for environmental management and abatement of these challenges. Hence, the need for companies to account for environmental expenditure received great attention years ago. The laws of the Federal Republic of Nigeria 1992 Decree No.82 on Environmental Impact Assessment require that companies before embarking on any activity that has effect on environment, to submit Environmental Impact Assessment Report. The policy includes among others the following information; the description of the activities, description of the potentially affected environment, assessment of potential environmental impacts on proposed activity. The alternatives include cumulative, short term and long-term effect, an identification and description of measures available to mitigate adverse environmental

impacts of companies' activity and assessment of those measures. All companies whose activities have effect on the environment do incur environmental management cost. The Environmental agencies in Nigeria include: Federal Environmental Protection Agency (FEPA),Forestry Research Institute of Nigeria (FRIN), National Biosafety Management Agency (NBMA), National Environmental Standards and Regulations Enforcement Agency (NESREA), National Oil Spill Detection and Response Agency (NOSDRA), Abuja Environmental Protection Board (AEPB), etc.

Environmental reporting practices have emerged among economic players as a result of various influencing factors such as stakeholders' benefit, pressures from various interest groups, and political and cultural conditions. At the macro level, responding to voluntary environmental disclosures offers economic benefits such as being able to develop stronger business relationships with suppliers, attracting ethical investors and even penetrating new markets due to improved environmental performance (Sumiani, Haslinda & Lehman 2016). Corporate environmental disclosure is a new concept used to describe various means by which companies disclose information on their environmental activities to users of financial statements (Alok, Nikhil & Bhagaban, 2018). In literature, environmental disclosure is commonly described as the vehicle for providing environmental data designed to satisfy the accountability relationships and to indicate corporate consciousness through a moral disclosure on environmental issues. It is important to disclose environmental activities in order to expose pollution prone companies to a wider spectrum of stakeholders on their role to achieve a cleaner and greener environment. In the mid-1960s, the environmental movement gained momentum. This popularity prompted many companies to create a new green image through advertising. Jerry Mander, a former Madison Avenue advertising executive, called this new form of advertising "eco-pornography." The first Earth Day was held on April 22, 1970. This encouraged many industries to advertise themselves as being friendly to the environment. Public utilities spent 300 million dollars advertising themselves as clean green companies. This was eight times more than the money they spent on pollution reduction research. In 1985, the Chevron Corporation launched one of the most famous green-washing campaigns in history. Chevron's "People Do" advertisements were aimed at a "hostile audience" of "societally conscious" people. Two years after the launch of the campaign, surveys found people in California trusted Chevron more than other oil companies to protect the environment, (Mirian&Sneirson 2012). In the late 1980s The American Chemistry Council started a program called Responsible Care, which shone light on the environmental performances and precautions of the group's members. The loose guidelines of responsible care caused industries to adopt self-regulation over government regulation (King & Lenox; 2011)

In Nigeria, studies on environmental disclosures have sought to establish a relationship between environmental disclosures and financial performance, measured through profitability (Collins, 2015; Uwuigbe, 2012). This study aims to provide further empirical evidence on the linkage between environmental disclosures and financial performance of quoted oil and gas companies in Nigeria. The problem of lack of adequate or non-environmental disclosures among pollution prone companies in Nigeria in their annual reports today is a thing of concern to concerned stakeholders. International Finance Corporation (IFC) published in 2013 that businesses face growing pressure from outside investors, customers, trading partners, shareholders, governments, NGOs and the public to identify and report on social and environmental performance. Environmental disclosures help firms to disclose to the outside world through their annual reports their ability to be environmentally friendly. Environmental accounting and reporting include: identification of environmental cost and expenses, capitalization of cost, identification of environmental liabilities, measurement of liabilities (Pramanik, Shil & Das, 2017). The study has the following objectives;

i. Investigate the effect of environmental disclosures on Net Profit Margin of quoted oil and gas companies in Nigeria.
ii. Ascertain the effect of environmental disclosures on Return on Asset of quoted oil and gas companies in Nigeria.

In line with the objectives of the study, the following null hypotheses are hereby formulated;

Ho_1: There is no significant effect between environmental disclosures and Net Profit Margin of quoted oil and gas's companies in Nigeria.

Ho_2: There is no significant effect between environmental disclosures and Return on Asset of quoted oil and gas companies in Nigeria.

LITERATURE REVIEW

Concept of Environmental Disclosure

According to (Crowther 2016), the primary purpose of environmental disclosure is to examine and incorporate in the firm annual reports issues that bother on environmental hazard that are not taken cognizance of in traditional or conventional accounting function that stakeholders can use for decision making. Disclosure of corporate environmental activities stressed the necessity for a close monitoring of natural resources and the corporation's harmful effect on the society it operate. Environmental effects caused by activities of firms especially those in the manufacturing, oil and gas and banking include pollutions like noise, waste, hazardous emission, spillages, degradation (Parmigiani, Klassen & Russo 2015). In recent years, then, a belief has arisen in businesses and in society that reporting has a wider role than that expressed in the traditional 'stockholder/shareholder' perspective. Importantly, one need not hold to the 'deep green' end of the argument to hold these views: there are strategic reasons why a wider view of accountability may be held and, accordingly, why initiatives such as environmental reporting may be supported; environmental consequences of an organisation's inputs and outputs. Inputs include the measurement of key environmental resources such as energy, water, inventories (especially if any of these are scarce or threatened), land use, etc. Outputs include the efficiency of internal processes (possibly including a 'mass balance' or 'yield' calculation) and the impact of outputs. These might include the proportion of product recyclability, tonnes of carbon or other gases produced by company activities, any waste or pollution (Lint, 2009).

These measures can apply directly (narrowly) or indirectly (more broadly). A direct environmental accounting measures those within the reporting entity whereas an indirect measure will also report on the forward and backward supply chains which the company has incurred in bringing the products from their origins to the market. For example, a company can directly report on the environmental impact of its own company: its branches and main office. But to produce a full environmental report, a company would also need to include the environmental consequences of those activities it facilitates through its business loans. Where a company claims to report on its environmental impacts, it rarely includes these indirect measures because it is hard to measure environmental impacts outside the reporting company and there is a dispute about whether such measures should be included in the company's report (the company may say it is for the other company to report on its own impacts).

Environmental Future Expenditures

An environmental liability is a legal obligation to make a future expenditure due to the past or ongoing manufacture, use, release, or threatened release of a particular substance, or other activities that adversely affect the environment also environmental liabilities" is used to refer to the potential for fines, penalties, and jail terms for violations of environmental laws. "Environmental liabilities" also frequently serves as short-hand to refer to the clean-up obligations under the federal Superfund and state counterpart laws for contaminated sites. Another common usage is to label the costs involved in complying with regulations as "environmental liabilities, (Kathleen & Tom 2010). Environmental liabilities arise from a variety of sources. Federal, state, and local environmental statutes, regulations, and ordinances, whether enforced by public agencies or through private citizens' suits, give rise to many types of environmental liabilities. Another legal source of these liabilities is "common law" (i.e., judge-made law) that can vary from state to state. A detailed list of environmental liabilities would be very lengthy. Thus, this report distinguishes the following broad categories of environmental liabilities: Compliance obligations related to laws and regulations that apply to the manufacture, use, disposal, and release of chemical substances and to other activities that adversely affect the environment, remediation obligations (existing and future) related to contaminated realproperty obligations to pay civil and criminal fines and penalties for statutory or regulatory non-compliance, obligations to compensate private parties for personal injury, property damage, and economic loss, obligations to pay punitive damages for grossly negligent conduct and obligation to pay for natural resources damages.

Businesses can incur environmental expenditures during the course of their operations. Linking these types of costs to specific KPIs provides a financial context to those stakeholders that are interested, especially institutional investors. Some expenditure may be attributable to a specific KPI, for example waste, in which case it should be described alongside the information disclosed on each KPI. Other fines and expenditures may be harder to attribute to one specific KPI, in which case they should be reported separately. Environmental expenditures are classified as types of costs aimed at directly preventing, reducing or ceasing pollution and nuisances created by a company's activities, including accumulated liabilities, provisions, public funding or other grants, and capital expenditures related to environmental issues. Where these expenditures can be separated from mainstream operational costs businesses should consider reporting them.

Research and Development

Environmental pollution is one the greatest challenges that the world is facing today. It began since industrial revolution, increasing day by day and causing irreparable damage to Mother Earth. Environmental pollution has its own causes, effects and solutions. Looking into these will help you identify the causes and what steps to be taken to mitigate those effects. To ensure that land and infrastructure development takes place in an environmentally responsible and sustainable manner, the Players will ensure that there are adequate instruments to improve efficiency and effectiveness of environmental impact assessment system across the country. Investment in the institutions and other corporate bodies whose activities or outcome will improve the environmental standard of living is encouraged by the concerned Players that engage in the activities that cause environmental degradation (Ketlhatlogile, 2016**)**.

Financial Performance

Financial performance is commonly used as an indicator of a firm's financial health over a given period of time. The financial performance of a firm can be defined or measured in various different ways including profitability, gauge return, market share growth, return on investment, return on equity and liquidity. Financial performance was measured by the development of revenues and profits (Magara, Aming & Momanyi, 2015). Revenue development can be seen as a growth indicator of the firm and also as a competitive strategy for consecutive firms. A firm can, by being environmentally sustainable, differentiate its products and thus increase its revenue. Similarly, a firm can save costs on resources, regulatory costs, capital and labour and therewith increase its profits. In this study, financial performance will be measured by, Net Profit Margin (NPM), Return on Assets (ROA) and Return on Equity (ROE).

Net Profit Margin (NPM)

According to Bastian and Suhardjono (2006), Net Profit Margin (NPM) is basically one of the ratios used to demonstrate a company's ability to generate net income. Net profit margin is the ratio between net income and sales. This ratio is one of the important ratios for operational managers, because this ratio is able to reflect the sales pricing strategy that the company will apply. This ratio is also able to control the operating expenses. To calculate your net profit margin, divide your netincome by your total sales revenue. The result is your **net** profit margin. You can multiply this number by 100 to get a percentage.

$$\textit{Net Profit Margin (NPM)} = (\textit{Net Profits} \div \textit{Net Sales}) \times 100$$

Return on Asset (ROA)

Lyn and Aileen (2008) stated that return on assets (ROA) is a ratio that describes the assets measured by sales volume. The greater this ratio will be better for the company. This means that the rate of return will be greater. The greater the ROA, the higher the profits generated by the company, so that investors will

buy more shares of the company. It was stated that return on assets shows the number of profits earned relative to the level of investment in total assets. To calculate ROA the following formula can be used.

Return on Assets = Net Income ÷ Total Assets

The higher this ratio means the company is more effective in utilizing the assets to generate net income. Thus the higher ROA means the company's performance more effective because the rate of return will be greater. This will further increase the company's attractiveness to investors. Increased attractiveness of the company causes the company increasingly in demand by investors because it can provide great benefits (return) for investors. In other words, ROA will have an effect on stock returns that will be accepted by investors.

Environmental Disclosure and Financial Performance

The link between the concept of Environmental Disclosure and Concept of Financial Performance connotes incorporation or non-incorporation of the environmental information in the annual reports of the companies whose activities are prone to causing environmental degradations which in turn informs the decisions of the stakeholders either positively or negatively. Hai (1998) used a sample of potentially polluting publicly listed companies in Singapore and the accounting-based variables of ROA and ROE to measure the relationship between the variables and reporting. The study concluded that firms which produce environmental disclosure have better financial performance than those that do not. In addition, Stanwick and Stanwick (2000) examined US firms, and used the value of net income/total assets as their performance proxy. They found that high performance firms had higher disclosure of environmental policies and/or descriptions of environmental commitment compared to poor performing firms.

Empirical Review

Saman (2019) conducted research on the Environmental Accounting and Financial Performance of Oil and Gas Companies in Nigeria. The secondary data were made use in the study for the periods 2015, 2016 and 2017 with the total sampled 11 companies selected based on environmental information available in the annual reports. The data were analyzed using multiple regression analysis through the use of econometric model. The amount spent by each Oil company as their environmental costs (on air pollution, water pollution, staff welfare (medical expenses), community welfare and externalities were used as proxies for environmental accounting reporting while ROCE, NPM, DPS, and EPS were used as proxies for corporate performance. The result revealed that the explanatory variables, ROCE, NPM, EPS, and DPS have an insignificant relationship with ENVC with coefficients of .252, .011,.152 and .114 and P-values of .175, .950, .423 and .542 respectively. The 30.6% Adjusted R^2 indicates the variation in ENVC margin and could be explained by variability in explanatory variables as well as control variables in the model. Durbin Watson value of 1.683 affirmed that there is no first-order autocorrelation among the residuals in the model. The result is in agreement with the findings of Ruslaina (2010), who found that financial performance has no significant relationship with environmental reporting. However, the result is contrary to the discoveries of Turban and Greening (2012) that found a significant relationship between environmental reporting and firm performance. The findings suggested that lack of environmental reporting and disclosure standards significantly affected the reporting and disclosure uniformity of environmental related information in financial statements, annual reports and accounts. it was discovered that environmentally friendly organizations' who voluntary disclosed their environmental activities enjoyed high level of competitiveness.It was concluded that, issues related to financial performance, managerial accounting, external and internal auditing, tax and financial accounting need to be studied further in order to deal with other environmental issues effectively. This study thereby gave some recommendations among others that Government Environmental Agency should make environmental reporting in annual reports compulsory since most organizations hardly report their environmental

activities in their reports and also Oil and Gas companies on their part should ensure that they comply with the environmental laws of the nation as it will go a long way in enhancing their performances.

Nguyen and Tran (2019) assessed the relationship between disclosure levels of environmental accounting information and financial performance. Data were collected from the firms listed in Vietnam Stock Exchange from 2013 to 2017, including the firms disclosed and the ones did not disclose the environmental accounting information. The study used two regression models to investigate the relationship between environmental accounting information and return on assets. The results indicated that there was a close relationship between disclosure level of environmental accounting information and financial performance. In addition, there was a difference in terms of financial performance between the firms that had not disclosed environmental accounting information and the ones that disclosed the environmental accounting information. Conclusively, based on the quantitative and qualitative research methodology, the team assessed the impact of the level of disclosure of environmental accounting information on the financial performance of the business. The results indicate that the level of disclosure of environmental accounting information affects the financial performance of businesses both now and in the future. At the same time, the study also found the relative difference in financial performance between two groups of enterprises disclosing environmental accounting information and not disclosing environmental accounting information. However, it was recommended that the Environmental Regulatory of Vietnam needs to raise awareness of corporate environmental responsibility and the benefits of disclosing detailed environmental accounting information to the financial performance of the business.
Tafadzwa and Fortune (2019), examined the relationship between corporate sustainability disclosure and return on investment. The sample of the study consisted of ten Johannesburg Stock Exchange (JSE)-listed mining companies, and the data was extracted from sustainability reports for a period of five years from 2010 to 2014. In this regard, data collection was undertaken by the adoption of a content analysis approach. A multi-regression analysis was used to analyze the relationship between environmental disclosure and return on investment. The same statistical mechanism was employed to determine the association involving social disclosure and return on investment. Results showed that there is a negative relationship between environmental disclosure and return on investment. On the other hand, the research revealed that there is also a positive association between social disclosure and return on investment. In conclusion, this implied that an increase in corporate reporting of social issues results in heightened financial performance through an increase in return on investment. The study recommended the adoption of corporate social disclosure as it would encourage firms to be socially responsible, while also generating financial benefits.

Zamil and Hassan (2019), examined the Impact of Environmental Reporting on the Financial Performance of Fortune 500 firms from 2013 to 2017. It appraised financial performance by measuring three independent variables: reduction in greenhouse gas emissions, reduction in waste, and reduction in water consumption. While the target population comprised the top 100 CSR-reputed companies listed on Fortune 500, the sample size was determined to be 50 based on observations of 250 companies. The collected data were analyzed using descriptive statistics, correlation, and regression analysis. Findings indicated that reduction in nominated variables such as greenhouse gas emissions and water consumption had a positive and significant impact on financial performance, whereas that in another variable, i.e., waste, had a negative and significant impact on financial performance. It was concluded that the multinational organization should involve in very many environmental or sustainability activities as this kind of events improve and increase the customer base that will eventually escalate the number of profits, thence firm's financial performance also improves. In addition, environmental reporting or sustainability report increase the organization’s visibility and publicity. Through practicing the resources to be environmentally friendly organizations are in a position to contribute to the community at large. Moreover, the positive relationship between environmental reporting and financial performance recommends that global companies' managers can use the environmental reporting to enhance the customer trust (stakeholder's positive attention), lessen reputational risks, and as such create long term shareholder value. Thereby, this study recommended that

firms should adopt environment-friendly resources to attract stakeholders as well as save the planet. It also suggests that firms need to accord dedicated focus to environmental reporting to improve profitability.

Oyedokun, Egberioyinemi and Tonademukaila (2019), examined the effect of environmental accounting disclosure on firm value of listed industrial goods companies in Nigeria from 2007- 2016. The ex-post facto research design was adopted in this study while the data were gathered through the individual sample company annual financial statement. Multiple regression was used to analyze the effect of environmental accounting disclosure on firm value. Environmental accounting disclosure was measured by non- financial indicators, financial indicators and performance indicators while the firm value was measured by Tobin's Q. From the result, it is evident that non-financial indicators have a positive significant effect on firm value while performance indicators have a negative significant effect on firm value and the financial indicator has no significant effect on firm value of industrial goods companies in Nigeria. It was concluded that, the information content requirement by stakeholders helps in disclosing information about organizational financial performance and report on environmental accounting. Therefore, there is a need for corporate entities to improve on their environmental responsibility practices and disclose comprehensively their environmental risks, liabilities and impact on the environment. The study suggested that sanctions be put in place to encourage disclosures most especially non-financial indicators because it has a direct influence on the firm value of the industrial goods companies in Nigeria. Ahmad, Waseer, Hussain and Ammara (2018), investigated the relationship between environmental accounting and non-financial firm's performance listed in Pakistan stock exchange, Pakistan. Present study used regression analysis technique, using companies' annual data from 2006-2016. The empirical analysis showed a significant positive relationship between environmental accounting and firm's size. While earning per share and return on capital employed statistically turned out to be insignificant. Therefore, those companies, which have huge size, spend more resources for social welfare in term of environment pollution protection. On the Contrary, the limitation of this research is small sample size of listed companies in Pakistan stock exchange. Hence, outcomes cannot be generalized for entire population. Based on the results, it is suggested that government must give some tax relief to those firms, which work for the environment protection and environmental reporting should be compulsory in Pakistan to have clean homeland.

In Summary, various studies on environmental disclosures were reviewed with different results, though some have similarities in their conclusions that environmental disclosure has effect on financial performance while some were entirely different. Over several years, a variety of papers have examined the relationship between environmental disclosure and the financial performance or profitability of the firm. Studies have produced mixed results. Some have found a positive correlation between the two variables (Nguyen and Tran, 2019; Zamil and Hassan (2019); while some have found no correlation between environmental disclosure and profits (Saman, 2019; Tafadzwa & Fortune,2019). Given the inconclusive results found to date, this study aims to further examine the effect ofenvironmental disclosure on financial performance of quoted Oil and Gas companies in Nigeria by using E-view Econometric tool with focus on Ordinary Least Square to analyze the panel data extracted from the annual reports of the companies Oil and Gas in Nigeria for period of 10 years, covering 2010-2019

Theoretical Framework

Stakeholder Theory

Stakeholder theory has infiltrated the academic dialogue in management and a wide array of disciplines such as health care, law, and public policy (Freeman, Harrison, Wicks, Parmar & De Colle, 2014). Much attention has been paid to some basic themes that are now familiar in the literature that firms have stakeholders and should proactively pay attention to them, that stakeholder theory exists in tension (at least) with shareholder theory, that stakeholder theory provides a vehicle for connecting ethics and strategy (Philips, 2015), and that firms that diligently seek to serve the interests of a broad group of stakeholders will

create more value over time. Nevertheless, there are so many different interpretations of basic stakeholder ideas that theory development has been difficult (Scherer& Patzer, 2011).

The Slack Resources Theory

The slack resources theory contends that high performance firms would have a large pool of resources available for investment in socially responsible programmes. Implicit in this theory is that availability of slack resources for allocation to social programmes is contingent on good financial performance; hence a positive relationship should exist. Although Barnard (2011) had discussed the role of slack in his early work, the specific label of 'slack' had not been coined until March and Simon published their seminal book. Cyert and March (1963) defined slack as ''the difference between total resources and total necessary payments". It was added that "slack is that cushion of actual or potential resources which allows an organization to adapt successfully to internal pressures for adjustment or to external pressures for change in policy, as well as to initiate changes in strategy with respect to the external environment".

Legitimacy Theory

The concept of legitimacy is important in analysing the relationships between companies and their environment. Parsons (2000) defines legitimacy as "the appraisal of action in terms of shared or common values in the context of the involvement of the action in the social society" This book contains a collection of ten essays. It provides a theory of formal organization. Central constructs of legitimacy research are provided. For example, it distinguishes "authority" from "legitimation" and "authorization. Maurer (2012) points out that legitimacy is the process whereby an organisation justifies to a peer or super ordinate system its right to exist; that is to continue, import, transform, and export energy material or information. Legitimacy theory is derived from the concept of organisational legitimacy, which has been defined as "a condition or status, which exists when an entity's value system is congruent with the value system of the large social system of which the entity is a part." When a disparity, actual or potential, exists between the two value systems, there is a threat to the entity's legitimacy" (Dowling & Pfeffer, 2015). It was pointedout that legitimacy is conceived as congruence between institutional actions and social values, and legitimization as actions that institutions take either to signal value congruency or to change socialvalue.

In summary, Legitimacy Theory underpins this study because it argues that organisations seek to ensure that they operate within the bounds and norms of society, although the stakeholder theory, legitimacy theory, the slack resources theory and the theory of virtuous cycle theories have been reviewed. These theories explain the phenomenon of voluntary social and environmental disclosures in corporate communication. Consistent with the notion of legitimacy theory, companies seek to gain, maintain, or repair their legitimacy by using social and environmental reporting. Legitimacy theory provides useful insights for corporate social and environmental disclosures, (Gehan& Naser, 2015).

METHODOLOGY

This study employs ex-post facto research design, with specific focus on the longitudinal Panel Series design which is a quasi-experimental study examining how an independent variable, present prior to the study in the participants affects a dependent variable. The ex-post facto research design was employed because this study relies mainly on already established secondary data on the environmental activities, which are extracted from annual financial statements. Also, this method entails the use of quantitative, statistical or regression techniques in evaluating the research issues and problems. In addition, the choice of this research design is informed by the effectiveness of the method in investigating the relationships among theoretically related variables. The data collected from the various sources is Panel in nature as it entails both the time series data and encompasses the cross-sectional approach since data were gathered from different oil and gas companies listed on the Nigeria Stock Exchange, for the period 10 years ranging from 2010 to 2019. A total of twelve (12) oil and gas companies are listed on the Nigeria Stock Exchange as at December 31st 2019 and their data were sourced from secondary source for the purpose of this study. The secondary source of data collection was employed because there is the availability of these data in the annual financial reports of the sample of this study. Multiple regression analysis was also employed in this study and it was used because it is known

as the best unbiased and efficient estimator, and it also minimizes the error term with a view to finding the model or regression equation that explains the data.

Procedure for Data Analysis and Model Specification

The data collected is analyzed using multiple regression method and this method was employed because it is useful for estimation. Statistical and econometric tests were also used to evaluate the regression and these include; Multiple R, which is the correlation coefficient and it measures the extent of relationship between variables, R – squares, which is the coefficient of determination measures the percentage (proportion) of variation in the dependent variable that can attribute to the independent variables. The F statistics, The Beta coefficient measures the relative significance of each of the independent variable, "t" statistics and Durbin Watson test. The models are stated below;

Model 1: Based on Hypothesis one, the explicit form of the model in equation is expressed as:

$NPM = \beta_O+\beta_1 ERD + \beta_2 EFE + \epsilon_{it}$…..…….. i

Where:

NPM = Net Profit Margin
β_O = Intercept
β_1= coefficient of ERD
ERD = Environmental Research & Development Cost
EFE = Estimate of Future Expenditure
ϵ = stochastic error term

Model 2: Based on Hypothesis two, the explicit form of the model in equation is expressed as:
$ROA = \beta_O+\beta_1 ERD + \beta_2 EFE + \epsilon_{it}$…..…… ii

Where:

ROA = Return on Assets
β_O = Intercept
β_1= coefficient of ERD
ERD = Environmental Research & Development Cost
EFE = Estimate of Future Expenditure
ϵ = stochastic error term

RESULTS AND DISCUSSION

The result of regression analysis on the Effect of Environmental Disclosure on Financial Performance of Quoted Oil and Gas Companies in Nigeria, using the Ordinary Least Square technique is presented. In addition, the results of other statistical estimations such as correlation, R^2, Adjusted R^2, t-statistic and F-statistic are also presented, as the importance of data and empirical evidence in any research effort cannot be overemphasized. The estimation technique and procedure capture the objectives of the research as stated in chapter one. The estimation processes in analyzing the Effect of Environmental Disclosure on Financial Performance of Quoted Oil and Gas Companies in Nigeria.

Descriptive Statistics

Descriptive statistics gives a presentation of the mean, maximum and minimum values of variables applied together with their standard deviations obtainable. The table below shows the descriptive statistics for the variables applied in the study.

Table 1: Descriptive Statistics

	ROA	NPM	ERD	EFE
Mean	1.558311	27.22307	42022.03	31331696

Median	2.751976	1.355	5593.2	439140
Maximum	173.509	5640.101	364814	1.06E+09
Minimum	-144.38	-714.894	100	150
Std. Dev.	23.93955	529.002	78296.3	1.38E+08
Skewness	0.877487	10.01151	2.458276	5.620165
Kurtosis	35.37215	107.4928	8.388292	36.14177
Jarque-Bera	5255.179	56598.34	266.0309	6123.61
Probability	0.000000	0.000000	0.000000	0.000000
Sum	186.9973	3266.768	5042643	3.76E+09
Sum Sq.Dev.	68199.15	33301327	7.30E+11	2.26E+18
Observations	120	120	120	120

Source: E-View 10 Output (2021)

Table 1 presents the descriptive statistics of the Environmental Disclosure on Financial Performance of Quoted Oil and Gas Companies in Nigeria during the period of 2010 to 2019. The table shows that NPM has a mean of 27.22307 with a standard deviation of 529.002 and the minimum and maximum values of -714.894 and 5640.101 respectively. Although the range between the minimum and maximum is wide, it implies a stable performance as the standard deviation indicated that there is no wide dispersion of the data from the mean value. For the other measure of Financial Performance, Return on Asset (ROA) the table shows a mean of 1.558311 with standard deviation of 23.93955 and the minimum and maximum values of -144.38 and 173.509 respectively. This implies that the Financial performance in terms of Return on Asset witnessed some fluctuations during the study period, as the standard deviation is large compared to the mean, together with the wide range between the minimum and maximum values. Also, the mean values for Environmental Research and Development cost and Environmental Future Expenditure are 42022.03 and 31331696 respectively.

The standard deviation values shown on table 1 indicate the dispersion or spread in the data series. The higher the value of the standard deviation, the wider the deviation of the series from its mean. Similarly, the smaller the value of the standard deviation, the lower the deviation of the series from its mean. The variable with the highest degree of dispersion from the mean is the Environmental Research and Development cost. Skewness which measures the shape of the distribution and equally shows the measure of the symmetry of the data set, indicated that NPM, ERD and EFE are all positively skewed and have values greater than zero which suggest that the distribution tails to the right-hand side of the mean, except for ROA, which though is not negatively skewed, but has a value less than one. Hence, the distributions of three of the variables (NPM, ERD and EFE) are positively skewed, considering that their values are greater than zero, in addition to the fact that their mean are greater than their median, while the case is the reverse for ROA.

Kurtosis value measures the peakness and flatness of the distribution of the series. If Kurtosis value is less than 3, it means the distribution of the variable is normal, but when it is more than 3, the distribution of the variable is said to be abnormal. Variables with value of kurtosis less than three are called platykurtic (fat or short-tailed) and no variable of the study qualified for this during the study period. On the other hand, variables whose kurtosis values are greater than three are called leptokurtic (slim or long tailed) and all variable qualified for this during the study period.The Jarque-Bera statistic is for testing normality of a variable. If the variable is normally distributed, the histogram will be bell-shaped and as such the Jarque-Bera test of normality is an asymptotic, or large-sample test. Jarque-Bera also measures the difference between the skewness and kurtosis of each of the variables. NPM has the highest Jarque-Bera value of

56598.34, while ERD has the lowest Jarque-Bera value of 266.0309. The Jarque-Bera for ROA and EFE are 5255.179and 6123.61 respectively.

Decision Rule: The decision rule for accepting or rejecting the null hypothesis for any of these tests would be based on the Probability Value (PV) and the Probability (F-statistic). If the PV is less than 5% or 0.05 (that is, if PV < 0.05), it implies that the regressor in question is statistically significant at 5% level; and if the PV is more than 5% or 0.05 (that is, if PV > 0.05), it is categorized as not significant at that level. This implies that the level of significance for the study is at 5% (for the two-tailed test). Thus, the decision rule for accepting or rejecting the null hypothesis is based on both the Probability Value (PV) and the Probability (F-statistic).

Test of Hypothesis One

Ho_1: There is no significant effect between environmental disclosures and Net Profit Margin of quoted oil and gas companies in Nigeria.

Table 2: Random Effect Regression Result (Hypothesis One)

Dependent Variable: NPM
Method: Panel EGLS (Cross-section random effects)
Date: 12/03/20 Time: 12:35
Sample (adjusted): 2010- 2019
Periods included: 10
Cross-sections included: 12
Total panel (balanced) observations: 120
Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-6.912033	8.368000	-0.826008	0.4109
ERD	4.60E-05	9.15E-05	0.503248	0.6160
EFE	0.988365	0.011046	89.47830	0.0000
	Effects Specification			
			S.D.	Rho
Cross-section random			0.000000	0.0000
Idiosyncratic random			70.49580	1.0000
	Weighted Statistics			
R-squared	0.988441	Mean dependent var		58.77692
Adjusted R-squared	0.988193	S.D. dependent var		651.6958
S.E. of regression	70.81447	Sum squared resid		466366.1
F-statistic	3976.401	Durbin-Watson stat		2.041131
Prob(F-statistic)	0.000000			
	Unweighted Statistics			
R-squared	0.988441	Mean dependent var		58.77692
Sum squared resid	466366.1	Durbin-Watson stat		2.041131

Source: E-View 10 Output (2021)

Table 2 above, the coefficient of multiple determinations (R^2) is 0.988441. This indicates that about 98% of the total variations in Net Profit Margin is explained by the variations in the independent variable (ERD and EFE), while the remaining 2% of the variation in the model is captured by the error term. This indicates that the line of best fit is highly fitted. The standard error test is applied in order to measure the size of the error and determine the degree of confidence in the validity of the estimates. Usually if the standard error is smaller than half the numerical value of the parameter estimate, it can be concluded that the estimate is statistically significant. Having carried out a standard error test on the parameters estimated and as also indicated by their respective probability values, the parameter estimate for ERD is not statistically significant, given that the individual probability is 0.6160 which is greater than 5%, while that of EFE is statistically significant, given that the individual probability is 0.00000 which is greater than 5%. However, when taken collectively the value of F-statistic is 3976.401 and the value of the probability of F-statistic is 0.000000. This result implies that the overall regression is positive and statistically significant at 5%.

Test of Hypothesis Two

There is no significant effect between environmental disclosures and Return on Asset of quoted oil and gas companies in Nigeria.

Table 3: Random Effect Regression Result (Hypothesis Two)

Dependent Variable: ROA
Method: Panel EGLS (Cross-section random effects)
Date: 12/03/20 Time: 12:38
Sample (adjusted): 2010- 2019
Periods included: 10
Cross-sections included: 12
Total panel (balanced) observations: 120
Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.060146	2.315941	0.025971	0.9793
ERD	1.17E-05	1.74E-05	0.671307	0.5037
EFE	0.030869	0.001352	22.83676	0.0000
	Effects Specification			
			S.D.	Rho
Cross-section random			6.943744	0.4171
Idiosyncratic random			8.209201	0.5829
	Weighted Statistics			
R-squared	0.832359	Mean dependent var		0.995140
Adjusted R-squared	0.828754	S.D. dependent var		21.08337
S.E. of regression	8.724704	Sum squared resid		7079.202
F-statistic	230.8783	Durbin-Watson stat		1.292875
Prob(F-statistic)	0.000000			
	Unweighted Statistics			
R-squared	0.656461	Mean dependent var		2.580404
Sum squared resid	15780.46	Durbin-Watson stat		0.579991

Source: E-View 10 Output (2021)

In the estimated regression line as indicated in Table 3, the coefficient of multiple determinations (R^2) is 0.656461. This indicates that about 65% of the total variations in Return on Asset (ROA) is explained by the variations in the independent variable (ERD and EFE), while the remaining percentages of the variation in the model is captured by the error term. This indicates that the line of best fit is highly fitted. The standard error test is applied in order to measure the size of the error and determine the degree of confidence in the validity of the estimates and it can be concluded that the estimate is statistically significant. The value of F-statistic is 230.8783 and the value of the probability of F-statistic is 0.000000. This result implies that the overall regression is positive and statistically significant at 5% level of significance.

Discussion of Findings

The result for the first hypothesis (which is a direct consequence of the first objective of the study) showed that when taken collectively, Environmental Research and Development (ERD) and Environmental Future Expenses (EFE) has a positive and significant effect on Net Profit Margin and this implies that Environmental Disclosure is a significantly and independent predictor of Net Profit Margin. That is to say there are empirical evidences to suggest that more transparency and increase in Environmental Disclosure will lead to an increase in the Net Profit Margin profile of quoted oil and gas companies in Nigeria. This finding is in agreement with the research efforts of Turban and Greening (2012) who found out that there is a positive and significant relationship between environmental reporting and firm performance. The findings of Turban and Greening (2012) study, confirmed that lack of environmental reporting and disclosure standards significantly affected the reporting and disclosure uniformity of environmental related information in financial statements, annual reports and accounts. They discovered that environmentally friendly organizations' who voluntary disclosed their environmental activities enjoyed high level of competitiveness, thus issues related to financial performance, managerial accounting, external and internal auditing, tax and financial accounting need to be studied further in order to deal with other environmental issues effectively. This finding of this study is however in contrast to the results of Ruslaina (2010), who established in his own research effort that financial performance has no significant relationship with environmental reporting.

With respect to the second hypothesis (which is a direct consequence of the second objective of the study), the findings also revealed that the Environmental Research and Development (ERD) and Environmental Future Expenses (EFE) has a positive and significant effect on the Return on Assets of oil and gas companies in Nigeria. This also implies that Environmental Disclosure is a significant and independent predictor of Return on Asset. The empirical evidences therefore suggest that the more there are efficient and effective disclosure in the Environmental activities of quoted oil and gas companies in Nigeria, there is likely to be a corresponding increase in the Return on Asset position of the firms. This finding is in agreement with the result of the research work of Zamil and Hassan (2019), who examined the Impact of Environmental Reporting on the Financial Performance of multinational companies. They established a positive and significant relationship between environmental reporting (sustainability report) and return on asset, which they equally confirmed is capable of increasing an organization's visibility and publicity. Through practice of environmental disclosure, they posited that environmentally friendly organizations are in a position to contribute to the community at large. Moreover, the positive relationship between environmental reporting and financial performance recommends that global companies' managers can use the environmental reporting to enhance the customer trust (stakeholder's positive attention), lessen reputational risks, and as such create long term shareholder value. This finding is however contrary to the research carried out by Saman (2019), who established that there is no positive and significant relationship between Environmental Accounting and Return on Asset (Financial Performance) of Oil and Gas Companies in Nigeria. In addition, the finding is also in contrast to the works of Tafadzwa and Fortune (2019), which examined the relationship between corporate sustainability

disclosure and return on investment and established that there is a negative relationship between environmental disclosure and return on investment.

CONCLUSION AND RECOMMENDATION

In the Accounting and Financial literature several studies have investigated the link between Environmental Disclosure and Financial Performance. This paper contributes to the strands of literature by investigating the effect of Environmental Disclosure on Financial Performance of quoted oil and gas companies in Nigeria. A positive and statistically significant relationship exists between Environmental Disclosure and Financial Performance. These results support the findings of Turban and Greening (2012), Zamil and Hassan (2019), Oyedokun, Egberioyinemi and Tonademukaila (2019). The study concludes that Environmental Disclosure can contribute immensely and to spur Nigeria's Oil and Gas firms to increased financial performance and profitability, as well asprovide a spring board that can enable the country at large to emerge as an environmental-friendly nation, with its attendant positive multiplier effects on the overall economy. This revelation is instructive, given that Nigeria generates huge revenue from oil and gas resources every year. Based on the findings of the study and its implication on the overall activities of the oil and gas firms in Nigeria, the following recommendations are made:

i Right policies that will enhance the Environmental Disclosure should be put in place by the Environmental Management Sectors of Nigeria.

ii. High level of interest must be exerted on Environmental Disclosure by relevant regulatory authorities and requisite legislations put in place

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