IOSR Journal of Economics and Finance (IOSR-JEF)
e-ISSN: 2321-5933, p-ISSN: 2321-5925.Volume 12, Issue 6 Ser. II (Nov. – Dec. 2021), PP 48-54
www.iosrjournals.org

Cost of Capital and Environmental Accounting Practices of listed Oil and Gas Companies in Nigeria

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Abstract
The study investigated the cost of capital and environmental accounting practices of oil and gas firms in Nigeria from 2011-2020. Firm size was employed as a control variable to moderate the effects of the independent variables on the dependent variable. Eight (8) oil and gas companies were sampled; the study adopted secondary data, using multiple regression analysis with the help of e-view to analyze the data. The study found that dividend yield (DIY) and cost of debt (COD) cost of capital have a positive relationship and are statistically significant with environmental accounting practices, while equity weighted (EWC) cost of capital has a positive and statistically non-significant influence on environmental accounting practices of listed oil and gas firms in Nigeria. The study concluded that a company that adopted environmental accounting practices had a lower cost of both dividend yield and debt capital. As a result, it recommends that the disclosure of environmental accounting information is critical for business and improves the companies' brand as well as their cost of capital.

Keywords: *Environmental Accounting Practices, Equity Weighted Cost, Dividend Yield, Cost of Debt*

Date of Submission: 10-11-2021 Date of Acceptance: 26-11-2021

I. Introduction

The corporate existence of firms to a large part may be dependent on their environmental consciousness. The environment is extremely important for the sustainability of organizations. It is becoming an increasingly pressing economic, social, and political concern. This is because any influence on the environment impacts the livelihood of people and species. This awareness has made companies to imbibe policies and activities that tend to be environmentally friendly and are involved in one environmental event or the other, for example, the awards of scholarships, employment of indigenes of host communities, better welfare services to host communities and many others.

Environmental reporting organizations have sought a wider audience to disclose environmental information in their annual reports. The demand from corporate stakeholders and pressure from regulatory bodies have raised concerns that companies should report their environmental-related information in their financial reports (Richardson & Welker, 2001 cited in Sabo, 2020). Companies can report on their environmental management activities through environmental disclosures (Meng, Zeng, Shi, Qi, & Zhang 2014; Bachev 2018; Yusoff, Kamaruddin, & Ghani 2018; Haninun, Lindrianasari, Sarumpaet, Komalasari, & Gunardi, 2019). Environmental accounting practices show the companies' concerns about the environment in which they operate and may influence investors' decision-making. To understand the businesses, environmental practices can be derived from financial or non-financial data, existing firm circumstances, projections of firm conditions in the future (including risk), or any number of other variables. The disclosure of financial and non-financial information and other related information in the companies' annual reports is an important aspect of financial accounting and can add value to the companies. Environmental information is part of the financial statement disclosure (Deegan 2002; Al-Tuwaijri, Christensen, & Hughes 2004; Tasios & Bekiaris 2014; Odoemelam & Okafor 2018; Haninun, et al., 2019).

Ohidoa, Omokhudu, and Oserogho (2016) believe that companies, especially those whose operations have an impact on the environment, should disclose their financial commitments to environmental improvement, especially those whose operations are related to pollution and other hazards. Although Aondoakaa (2015) posits that the operation of business as a whole causes damage to society, thus destroying the social harmony necessary to provide a stable environment for operations, those business activities are not economically and socially sustainable. He further stressed that firms that cause damage to the ecosystem make it impossible to maintain human life at a higher level of living. This is obviously not socially or economically sustainable, as there can be no economic activity.Herbert, Nwaorgu, Onyilo and Iormbagah (2020) stressed that the serious health hazards normally associated with oil and gas exploration activities, the environmental, economic, and

social makeup of indigenous communities in oil-producing areas are also negatively affected. Furthermore, inadequate or weak enforcement of environmental laws is a major problem that the United Nations for many years has been trying to solve through the Sustainable Development Goals (SDGs). Nigeria does not have precise accounting standards but rather guidelines. The government needs to formulate clear policies and standards for environmental disclosure and ensure their implementation.

The essence of environmental accounting information and studies related to the necessity of environmental accounting practices are receiving great attention from researchers in developed countries. These studies (Jung, Herbohn and Clarkson 2014; Abd Rahman, Johari, and Mohamad 2017; Sharfman and Fernando, 2018; Nguyen, Nguyen and Ha, 2020) have argued that corporate environmental performance can improve the satisfaction of all stakeholders, and therefore increase the company's image, enhance goodwill, and reduce the cost of capital.

In Nigeria, there are very few studies on the cost of capital and environmental accounting practices. This issue could be one of the factors in explaining why companies listed on the Nigerian Stock Exchange do not participate in the disclosure of their environmental practices to various stakeholder groups, and hence this study is desirous of filling this gap.

Objectives of the Study

The specific objectives are to:

1.0 Determine the impact of dividend yield cost of capital on environmental accounting practices of listed oil and gas companies in Nigeria.

2.0 Evaluate the influence of equity weight cost of capital on environmental accounting practices of listed oil and gas companies in Nigeria.

3.0 Investigate the extent of debt cost of capital on environmental accounting practices of listed oil and gas companies in Nigeria.

Research Questions

The study attempts to answer the following questions:

1.0 What extent does dividend yield cost of capital impact environmental accounting practices of listed oil and gas companies in Nigeria?

2.0 To what degree does equity weight cost of capital affect environmental accounting practices of listed oil and gas companies in Nigeria?

3.0 How does cost of debt cost of capital impact environmental accounting practices of listed oil and gas companies in Nigeria?

Research Hypotheses

The following hypotheses were formulated in null form:

Ho: There is no significant relationship between dividend yield cost of capital and environmental accounting practice of listed oil and gas firms in Nigeria.

Ho2: Equity weight cost of capital does not have a significant impact on the Environmental Accounting practices of listed oil and gas companies in Nigeria.

Ho3: Cost of debt cost of capital does not have a significant effect on the Environmental Accounting practices of listed oil and gas companies in Nigeria.

II. Literature Review

Conceptual Framework

Cost of Capital

In accounting, the cost of capital is the cost of a company's funds or, from an investor's perspective, "the required rate of return on the existing securities of a portfolio company." It is used to evaluate the new projects in an organization.

The Cost of Debt

The cost of debt is the rate of return that a business offers to its creditors. These financiers must be compensated for all the risks involved in lending funds to companies. Interest rates play an important role in quantifying the cost of debt; it is relatively easier to calculate the cost of debt than the cost of equity. The cost of debt does not only reflect a company's default risk, but also the level of interest rates in the market. It is also seen as an integral part of calculating a company's weighted average cost of capital.

Dividend Yield

Dividend yield is a financial metric that measures the annual value of dividends received relative to the market value per share of a security. In other words, the dividend yield formula calculates the percentage of a company's market price of a stock that is paid to shareholders in the form of dividends.

Equity-Weighted Cost

The cost of equity is the rate of return that a company pays to investors in equity. A company uses the cost of equity to assess the relative attractiveness of investments, including internal projects and external acquisition opportunities. Firms adopt a combination of equity and debt financing, with equity being the most expensive.

Environmental Accounting Practices

Nabulsi (2011), cited in Rabi (2019), posited that the social and economic developments in the international markets play a critical role in increasing the value of disclosure of accounting information, which serves as a source for clients' decisions. The disclosed information helps various users, such as consumers, investors, the environment, and consumer protection, and the public in decision making. It is expected of the company to disclose the environmental services provided at the end of a calendar year to various stakeholders who are interested in accountability. Otu, John and Sunday (2015) provided evidence in Nigeria that 77% of companies across eight (8) sectors under study disclosed their environmental report information. Good corporate governance attributes and a strong legal framework can enhance the quality of environmental disclosure in Nigeria.

Theoretical Framework

Stakeholders' theory

The notion of stakeholders explains which firm is in charge (Freeman 1984). As a result of the concept of "stakeholders," organizations are encouraged to think about how their actions influence a wide range of people and communities beyond just shareholders. A company's connections with stakeholders should be able to be maintained by addressing the wants and requirements of those stakeholders who have influence over the availability of resources utilized by the company's operations such as jobs, corporate product marketplaces and other (Ghozali & Chariri, 2007).

Signal theory

Investors require management information that helps them estimate the amount of risk before making an investment, given the present economic conditions (Ali, Bakar & Ghani, 2018). Financial statements are one method of communicating corporate financial information to others outside the organization. According to the signal theory, financial statement information reveals information about corporate social responsibility initiatives. The idea of signals explains why companies share financial information with both internal and external stakeholders. The rate of return demanded by the company's common shareholders determines the cost of capital (Brigham & Houston 2016). In other words, the cost of capital is the expense spent in order to fund a source of financial resources. Voluntary disclosures, such as those relating to corporate social responsibility, will have an impact on the cost of capital as well.

Empirical Review

For the years 2009 to 2013, Jung et al (2014) examined the link between a company's exposure to carbon-related risk and the cost of debt. According to the findings, the cost of debt has a positive and substantial association with a firm's carbon risk.

Nguyen et al (2020) looked studied the relationship between 408 Vietnamese businesses' cost of capital and their use of environmental financial accounting procedures (EFAP). Two-stage regression was used to evaluate the collected data. Firms with better EFAP performance in Vietnam can lower their capital costs more quickly, according to the findings. Environmental accounting methods have a negative link with debt costs, according to the findings of the study.

For the years 2004 to 2018, Abdulsalam, Mohammed, Sani, Shafiu, and Aminu (2020) examined the impact of environmental protection costs on the return on equity of Nigerian petroleum marketing companies, based on the NSE profile and the financial statements and reports of twelve (12) Nigerian petroleum marketing companies. The study's theories were put to the test using regression. According to the findings, environmental protection costs have a favorable and considerable influence on Nigerian petroleum marketing firms' return on investment. Nigerian Oil Marketing Company's management was advised by the article to participate more in environmental protection, cleaning and pollution control in the community where it is located to enhance Nigerian Oil Marketing Company's profitability, particularly the return on Nigerian assets (ROA). Sharfman and Fernando (2008) investigated the environmental risks management and the cost of capital of 267 United States of America (USA) firms. The results provide another perspective on the relationship between environmental and

economic performance, which has been dominated by the view that the improvement of economic performance stems from better use of resources. The company will also benefit from improved environmental risks management by reducing the cost of equity, shifting from equity financing to debt financing, and higher tax incentives related to borrowing capacity. These results help build better theories about the results of improved environmental risks management strategies.

Abd Rahman et al (2017) used content analysis to look at the connection between voluntary disclosure and the cost of capital. Their research included 247 publicly traded Malaysian firms during the 2013-2014 fiscal years. Multiple regression, descriptive statistics, and correlation analysis were used to examine the data. According to their findings, the quality of voluntary disclosure had a minimal impact on the weighted average cost of capital. According to the findings, the government should track its progress toward decreasing carbon emissions and give credence to accounting standards bodies like the Malaysian Accounting Standards Board's demand for a carbon reporting standard.

III. Methodology

This study employed ex post facto research design. This is because ex post facto research design is a systematic empirical inquiry in which the researcher does not have direct control of independent variables because they are inherently not manipulated. The population of the study consisted of oil and gas firms listed on the Nigerian Stock Exchange, as shown in the Nigerian Stock Exchange Factbook for the years 2011 - 2020. The oil and gas firms are 11 plc, Ardova Plc (Forte Oil), Conoil, Eternaoil, Japaul Gold & Ventures Plc, Mrs (Texaco Chevron), Oando, Capital Oil, Rak Unity Pet., Seplat Energy and Total Nigeria. This therefore constituted a finite population, from which the sampling frame was built. Therefore, the study used judgmental sampling method to select eight (8) companies: 11plc: Ardova Plc (Forte Oil), Conoil, Eternaoil, Japaul Gold & Ventures Plc, Mrs (Texaco Chevron), Oando and Total Nigeria as the sample size based on the availability of data during the years 2011 to 2020.

Model Specification

The empirical evidences on the aforementioned hypotheses premise on the cost of capital and environmental accounting practices. The regression equation can be computed as:

$Y = a_0 + \beta x_1 + \beta x_2 + \beta x_2 + \mathcal{E}$

The equation can be transformed into econometric model as;
EDQ = $a_0 + \beta x_1$DIY + βx_2 EWC + βx_3COD + $\mathcal{E}$
Where;
B= coefficient of parameter
$\mathcal{E}$= error term
EDQ= Environmental Accounting Practices Proxies by Dummy 1 and 0.
DIY= Dividend Yield
EWC= Equity Weight Cost
COD= Cost of Debt

Moderating Variable
FSZE= Firm Size

IV. Analysis And Discussion Of Findings

In analyzing the data, the study adopted descriptive statistics and ordinary least square regression to analyze the cost of capital and environmental accounting practices of listed oil and gas companies in Nigeria.

4.1 Data Analysis

Table 1 Descriptive Statistics

	EDQ	COD	DIY	EWC	FSZE
Mean	0.015625	3.966426	4.212768	0.473684	7.661875
Median	0.000000	3.213200	3.781700	0.507000	7.792550
Maximum	0.125000	14.45430	12.08470	0.709000	9.031500
Minimum	0.000000	0.000000	0.000000	-1.229700	0.000000
Std. Dev.	0.041601	3.908824	3.177977	0.237730	1.304608
Skewness	2.267787	0.751660	0.513910	-4.707637	-5.068964
Kurtosis	6.142857	2.617961	2.492011	34.05870	30.58820
Jarque-Bera	101.4966	8.019752	4.381556	3510.967	2879.621
Probability	0.000000	0.018136	0.111830	0.000000	0.000000

Sum	1.250000	317.3141	337.0214	37.89470	612.9500
Sum Sq. Dev.	0.136719	1207.033	797.8635	4.464726	134.4581
Observations	80	80	80	80	80

Source: *Researcher Computation from E-view*

The descriptive statistics of the study variables on table 1 reveal the mean of EDQ, COD, DIY, EWC, FSZE are 0.0156, 3.9664, 4.2127, 0.4736 and 7.6619 respectively. The maximum values of the study variables are: 0.125, 14.454, 12.085, 0.709 and 9.032 respectively. Table 1 also shows that performance (EDQ) is the least dispersed among the study variables with a value of 0.04 while (COD) is the most dispersed with a value of 3.966.

Table 2 Regression result

Dependent Variable: EDQ
Method: Panel Least Squares
Date: 09/25/21 Time: 14:33
Sample: 2011 2020
Periods included: 10
Cross-sections included: 8
Total panel (balanced) observations: 80

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.025261	0.029662	-0.851616	0.3971
COD	0.004080	0.001089	3.745983	0.0004
DIY	0.004194	0.001315	3.188682	0.0021
EWC	0.000567	0.017806	0.031819	0.9747
FSZE	0.000883	0.003309	0.267025	0.7902

R-squared	0.264703	Mean dependent var	0.015625
Adjusted R-squared	0.225487	S.D. dependent var	0.041601
S.E. of regression	0.036611	Akaike info criterion	-3.716459
Sum squared resid	0.100529	Schwarz criterion	-3.567583
Log likelihood	153.6584	Hannan-Quinn criter.	-3.656770
F-statistic	6.749889	Durbin-Watson stat	0.505777
Prob(F-statistic)	0.000107		

Source: *E-view Output (2021)*

The regression output from table 2 shows that the coefficient of determination (R-squared) value of 26.4 indicates that 26% of changes in the dependent variable are accounted for by the combined impact of variations in the independent variables; also, the adjusted R-squared value of 23% approximately implies that the model is good and fit to be used in testing our hypotheses. This is the result of the regression used in examining the cost of capital and environmental accounting practices of quoted oil and gas companies on the Nigerian Stock Exchange.

4.2 Test of Hypotheses

In this section, the null hypotheses for the study were been tested against the alternative hypotheses.

Hypothesis One

H_{01} There is no significant relationship between dividend yield cost of capital and environmental accounting practice of listed oil and gas firms in Nigeria.

Table 2 shows that dividend yield has a positive coefficient value of 0.004194 and a statistical value of 0.0021, which is less than 5% significant level. This also implies that for every one percent increase in dividend yield, performance falls by about 0.001%. Based on the output, we can conclude that the dividend yield cost of capital has a statistically significant influence on the environmental accounting practices of listed oil and gas firms in Nigeria. We therefore reject the null hypothesis in our study.

Hypothesis Two

Ho2: Equity cost of capital does not have a significant impact on the Environmental Accounting practices of listed oil and gas companies in Nigeria.

Table 2 shows that the equity cost of capital has a positive coefficient value of 0.000567. It also has a positive statistical value of 0.9747, which is greater than the 5% significant level. Based on the output, we can conclude that the equity cost of capital has no statistically significant influence on environmental accounting practices of listed oil and gas firms in Nigeria. We therefore accept the null hypothesis in our study.

Ho3: Cost of debt cost of capital does not have a significant effect on the Environmental Accounting practices of listed oil and gas companies in Nigeria.

Table 2 shows that the cost of debt has a positive coefficient value of 0.004080 and a statistical value of 0.0004, which is less than 5% significant level. Based on the output, we can conclude that the cost of debt, or cost of capital, has a statistically significant influence on the environmental accounting practices of listed oil and gas firms in Nigeria. The null hypothesis in our study is therefore rejected.

4.2 Discussion of Findings

The outcome of hypothesis one reveals that the dividend yield cost of capital has a positive relationship that is statistically significant with environmental accounting practices. This result is consistent with the findings of Abd Rahman, Johari & Mohamad (2017). However, the study of Sharfman and Fernando (2008) revealed a negative relationship and statistically insignificant with environmental accounting practices.

The result of hypothesis two shows that the equity cost of capital has a positive relationship and is statistically insignificant with environmental accounting practices. This result is consistent with the findings of Sharfman and Fernando (2008). However, the study of Abd Rahman, Johari & Mohamad (2017) revealed a contrary result.

The outcome of hypothesis three reveals that the debt-cost of capital has a positive relationship and is statistically significant with environmental accounting practices. This result is consistent with the findings of Sharfman and Fernando (2008; Jung, Herbohn & Clarkson, 2014). However, the study of Nguyen, Nguyen & Ha (2020) found a negative relationship and statistically insignificant with environmental accounting practices.

V. Conclusion

From 2011 through 2020, the research examined Nigeria's oil and gas industry's cost of capital and environmental accounting procedures. The size of the company was employed as a control variable to evaluate Nigerian listed oil and gas firms. E-view was used to do multiple regression analysis on secondary data. However, it was discovered that dividend yield (DIY) had a positive association with environmental accounting standards and is statistically significant, whereas equity weighted cost of capital had no effect on environmental accounting practices in Nigerian listed oil and gas businesses. According to the findings of the research, companies that use environmental accounting techniques have reduced dividend yield and debt capital costs. Environmental accounting information should be made public since it enhances the company's reputation and decreases the cost of capital for investors.

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Lyndon M. Etale. "Cost of Capital and Environmental Accounting Practices of listed Oil and Gas Companies in Nigeria." *IOSR Journal of Economics and Finance (IOSR-JEF)*, 12(06), 2021, pp. 48-54.