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Corporate Sustainability Cost and Firm Value of Oil and Gas Firms in Nigeria (2009-2018)

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ABSTRACT

This study empirically examined the effect of corporate sustainability cost on the firm value of oil and gas firms in Nigeria. Specifically, the study delved into the effect of employee expenditure, tax expenditure, and community development cost on firm value (proxied by Tobin's Q) of the selected oil and gas firms in Nigeria. The study used a secondary sourced data extracted from the annual report and financial statements of the firms for the period of 2009-2018. Ex-post facto research design was adopted, while analytical tools employed were descriptive statistics and Vector Auto-Regression (VAR) analysis technique. Necessary diagnostic tests such as Levin, Lin & Chu t panel unit (stationarity), Pedroni panel cointegration and Jarque-Bera goodness of fit (normality) test were considered. Finding revealed that employee expenditure and community development cost have long-run positive effect on Tobin's Q, while expenditure on tax is an inhibiting factor to Tobin's Q of oil and gas firms in Nigeria. In conclusion, corporate sustainability cost contributes positively to firm value of oil and gas sector in Nigeria. Based on these findings, it was recommended among other things, the need for increased salaries of employees and adequate support to the community for the company to thrive*

Keywords: *Corporate Sustainability Cost; Firm Value, Oil and Gas Firms; Nigeria*

1. Introduction

Among major focus of business organizations are strategies for business operations and profit maximization through diversification, product differentiation and globalization. Activities that integrate social and environmental issues into business decision making process are thus of paramount important. According to Nwobu (2015), business organizations utilize corporate disclosure to communicate their accountability to various stakeholders such as investors, suppliers, government and society. Thus, corporate disclosure is an essential instrument for communicating financial and other performance indicators of business organizations aimed at reducing information asymmetries between an organization and shareholders.

In the dynamic and competitive business world, companies are faced with increasing pressures from their stakeholders to address and disclose social and environmental responsibilities so as to enhance their competitive advantage and increase access to finance. As a result, corporate sustainability disclosure had continued to gain ground over the years (Mohammed, Saheed, Oladele 2016) targeted at achieving effective communication of a company's social and environmental responsibility activities to stakeholders.

Johnson-Rokosu and Olanrewaju (2016), opines that the traditional financial reports are insufficient to provide a complete description of the economic, social and environmental impacts of an organization's operations, hence the need for sustainability accounting and reporting to manage and report organization's sustainability issues.

Corporate sustainability disclosure involves creating a long-term shareholder value by embracing opportunities and managing risks arising from social, environmental and economic factors. Hence, it is a necessary practice for the survival of modern business firms.

According to Nwobu (2015), corporate sustainability disclosure is an attempt by firms to report on their economic performance to interested users (usually shareholders), whose funds are directly involved in the financing of the firm's business. Diantimala (2018), asserts that corporate sustainability disclosure takes into account the balance between people, planet, and profit or the so-called Triple Bottom Line (TBL) concept, which shows a balance between economic (profit), environmental (planet), and social aspects (people); and thus, affects investors' decision to buy the company's shares (Fazzini and Maso, 2016; Saka and Oshika, 2014). From all explanations, sustainability disclosure provides information about the most important aspect of an organization (whether positive or negative) on the environment, society, and economy. On this background, the present study set out to investigate and ascertain the effect of corporate sustainability cost on firm value of oil and gas firms in Nigeria.

Statement of the Problem

Corporate sustainability had become an issue of concern in business operation across the globe. Generally, most companies are concerned about creating wealth and distributing it in form of dividend to shareholders, while neglecting other stakeholders. Corporate sustainability disclosure integrates economic, social and environmental factors into business operation for survival; hence, the concern about its influence (magnitude and direction) on the business growth. Particularly, it is argued that adopting environmental and social policies can destroy shareholder's wealth and values. In its simplest form, the argument is that sustainability may simply be a type of agency cost where managers receive private benefits from embedding environmental and social policies in the company's strategy, which in turn has negative financial implications for the organization. From the proponents' perspective, meeting the needs of other stakeholders can add value to the organization but on the other hand, this might lead to the companies experiencing higher cost structure which may result to them being eliminated by their competitors. Employee expenditure, tax expenditure, and community development cost are the major challenges. On these grounds, the question has remained, what is the effect of corporate sustainability cost on the value of firms in Nigeria? This study will provide an answer to this question.

Objectives of the Study

This study is focused on the effect of corporate sustainability cost on firm value of oil and gas firms in Nigeria. In specific term, the study set out:

1) To investigate the effect of employee expenditure on firm value (FV) of selected oil and gas firms in Nigeria.
2) To measure the effect of tax expenditure on firm value (FV) of selected oil and gas firms in Nigeria.

3) To ascertain the influence of community development cost on firm value (FV) of selected oil and gas firms in Nigeria.

Research Questions

The study was guided by the following questions:

1) How does employee expenditure affect firm value (FV) of selected oil and gas firms in Nigeria?
2) What is the effect of tax expenditure on firm value (FV) of selected oil and gas firms in Nigeria?
3) To what extent does community development cost affect firm value (FV) of selected oil and gas firms in Nigeria?

Statement of Hypotheses

From the research objectives and questions raised earlier in this study, the following hypotheses (in null forms) were formulated.

1) Employee expenditure has no significant effect on firm value (FV) of oil and gas firms in Nigeria.
2) Tax expenditure has no significant effect on firm value (FV) of oil and gas firms in Nigeria.
3) Community development cost has no significant influence on firm value (FV) of oil and gas firms in Nigeria.

2. Review of Related Literature

2.1 Conceptual Review

Corporate Sustainability

Corporate sustainability is a new and evolving corporate management paradigm. It recognizes that corporate growth and profitability are important. Corporate sustainability aims to create long-term stakeholder value through the implementation of a business strategy that focuses on the ethical, social, environmental, cultural, and economic dimensions of doing business. It requires the corporation to pursue societal goals, specifically those relating to sustainable development — environmental protection, social justice and equity, and economic development. According to Wilson (2003), and extant literature review, the concept of corporate sustainability borrows elements from four more established concepts: 1) sustainable development, 2) corporate social responsibility, 3) stakeholder theory, and 4) corporate accountability theory. In this study therefore, the researcher considered employee expenditure, tax expenditure and community development cost, as measures for corporate sustainability in manufacturing firms.

Employee Expenditure

Expenditure is payment of cash or cash-equivalent for goods or services, or a charge against available funds in settlement of an obligation as evidenced by an invoice, receipt, voucher, or other such document. However, employee expenditure includes gross employee wages and salaries, workers' compensation, incentive compensation, commissions, sick pay, dues, vacation, pension, retirement payments, amongst others. According to Yaghoobi, Moradi and Nooghabi (2015), employee expenses are the only monetary information about employees that are presented in the financial statements. They are shown as paid or payable salaries under the right heading in the general and administrative expenses of the income statement.

Tax Expenditure

Taxes are compulsory payments made by individuals or organizations to the government. The National Tax Policy (2012) views taxation as basically the process of collecting taxes within a particular location or a pecuniary burden laid upon individuals or property and organizations to support government expenditure. Thus, taxation of corporate profits is a topical matter, and of great interest to many stakeholders (Ofurum and Aliyu, 2018). Tax expenditure take different shapes and forms including exemptions, deductions, credits, rate reliefs or deferrals, and can target a specific group of taxpayers as well as specific activities or regions. Myles, Hashimzade, Heady, Oats, Scharf and Yousefi (2014) stated that tax expenditure is a provision in tax rules, motivated by a social or economic policy, which reduces or defers the tax liability of a taxable entity in order to help a particular group of taxpayers or to encourage a particular activity. Changes in tax law that lowers tax rates should increase firm value.

Community Development Cost

Community wellbeing evolves from economic, social, environmental and cultural collective action of the people. However, community development is a process where community members come together to take collective action and generate solutions to common problems (Vogt and Jordan, 2016). According to Maimunah (2009), community development is an initiative undertaken by the community in partnership with external organizations or corporation to empower individuals and groups of people by providing them with the skills they need to effect changes in the environment. In this course, firms within the community initiate ideas and programmes that should benefit the community as one of its stakeholders. The financial implication of this activity is called community development cost (Nwoba and Udoikah, 2016).

Community development provides the foundation a city builds off to improve the lives of its citizens. It also creates strong, diverse communities that are able to attract and keep talent, start and grow businesses, and overcome issues that arise (Straza, 2019). Developing the community includes projects like libraries, schools, and parks, and includes providing care and resources for the elderly, homeless, and at-risk youth. The cost of all these affect the firm value either positively or negatively.

Firm Value

According to Oyedokun, Egberioyinemi and Tonademukaila (2019), firm value describes the assets a firm owned. It is broadly seen as an economic model showing the market value of the entire corporation. It is a sum of the interest of all shareholders of a company especially: creditors and shareholders. It is essential because it portrays the prosperity of the business owners. Firm value is the responsibility of the management who serves as the agent of the owner of the corporation to optimally maximize the values of the firm which form the core objective of any corporation. Ftouhi, Ayed and Zemzem (2010), opined that the increase in stock price will gain high firm value. Firm value indicates the successfulness level of the shareholders and investors.

In this study, the firm value is measured by Tobin's Q. The Tobin's Q measures the ratio of the total asset minus market value of common equity plus the book value of equity to the book value of assets. If Q index calculated for company is greater than one, there will be high motivation for investment, namely, a high Q ratio is usually a sign of the company's investment and growth opportunities worth; if Q ratio is less than one, the investment should be stopped.

2.2 Theoretical Review

Legitimacy Theory

Legitimacy theory was propounded by Max-Weber in 1968. This theory explains

i. the assumption that management will adopt strategies to demonstrate to society that the organization is attempting to comply with society 's expectations
ii. Management 's perception about the immediate environment (community) in which the business operates
iii. social contract between the management and society
iv. societal value in which organization continue to demonstrate to the society that its operations are legitimate and the organization remains a good corporate citizen (Johnson-Rokosu and Olanrewaju, 2016).

However, according to the theory, CSR is an essential means of accounting for stewardship to external parties that the organization is legitimate, proper and appropriate for the benefit of the larger society (Johnson-Rokosu & Olanrewaju, 2016).

Stakeholder's Theory

Stakeholder's theory was propounded by Edward R. Freeman in 1983. The theory explains that the existence of an organization is strongly influenced by the support of groups and individuals who have relationships with the organization (Freeman, 1984). In developing the model, Freeman categorized stakeholders' concepts into categories: Business planning and policy model; and Corporate Social Responsibility (CSR) model or stakeholders' management.

The model proposed an increased level of environmental awareness which creates the needs for companies to extend their corporate planning to include the non-traditional stakeholders like the regulatory adversarial groups in order to adopt a changing social demand. Moreover, the theory emphasized that organization should be thought of as a group of stakeholders with its purpose being to manage the interests, needs and viewpoints of the stakeholders (Oyedokun, Egberioyinemi and Tonademukaila, 2019). In the opinion of Oyedokun *et al* (2019), Stakeholders' theory is much concerned with the active management of the business environment, relationships and the promotion of shared interests in order to develop business strategies. It focuses on developing and evaluating the approval of corporate strategies decisions by groups whose support is required for the firm`s continued existence. However, Stakeholders' theory is motivated by organizational responsibility to stakeholders. It explains the motivation of managers or organizations for sustainability disclosure.

System Theory

Development of the system theory could be credited to Ludwig, von Bertallanffy in 1951, from a published article (Griffin, 2005). According to Cella-De-Oliveira (2013), the system theory shows that sustainability is an aggregate of the economic, environmental and social justice that formed an organizational sustainability. The concept of system theory promotes the idea of having different component parts that interacts, and also interrelates. It operates as a whole via interdependent. According to this theory, the organization's ability to pursue its economic benefits while maintaining its environmental and social aspect in a friendly interaction with the environment will ensure sustainability in the organization (McElroy, 2008).

This study is however underpinned by the Stakeholder's theory to explore the effect of corporate sustainability cost on firm value, taking a direction from oil and gas firms in Nigeria. The choice of this theory as the framework for the study is embedded on the fact that Stakeholder's theory is concerned with active management of the business environment, relationships and the promotion of shared interests with a view to developing business strategies.

2.3 Empirical Review

Employing Ordinary Least Square (OLS), Manukaji and Egungwu (2018) examined the effect of financial structure on the value of manufacturing firms listed on the Nigerian Stock Exchange. The result revealed that short term debt had significant and positive effect on earnings per share (EPS); long term debt had significant and positive effect on EPS; share capital had insignificant negative effect on EPS; and retained earnings had significant positive effect on earnings per share (EPS) of the selected firms in Nigeria.

Nwaolisa and Chijindu (2016) used the pooled ordinary least square to test the effect of financial structure on performance of Nigeria consumer goods firms and found that firms that are highly geared are negatively affected and concluded that financial structure had negative effect on financial performance.

Using content analysis, Nwobu (2015) examined the relationship between corporate sustainability reporting and profitability and shareholders fund in Nigerian Banks. The result showed a small positive correlation between sustainability reporting index and shareholders fund. The findings enhanced theorizing between corporate sustainability reporting and organizational profitability and is relevant for researchers. Sustainability reporting in the Nigerian banking sector is gaining attention from the Central Bank of Nigeria (CBN) and it is important to examine how well banks are responding. The extent of sustainability reporting in the banks is necessary to evaluate how well they are responding to the Central Bank of Nigeria (CBN) Sustainability banking principles and reporting guidelines. It also contributes to theorizing the relationship between sustainability reporting and profitability using accounting-based measure of organizational performance.

Utami (2015) empirically examined the influence of leverage, profitability, and the quality of sustainability disclosures on firm value with revenues growth as moderating variable from 2011-2013. The study used multiple regression analysis technique and found that leverage and profitability have positive significant influence on firm value. In addition, revenues growth was a moderating variable of the relationship between the quality of corporate sustainability disclosure and firm value.

Nnamani, Onyekwelu and Ugwu (2017) examined the effect of sustainability accounting and reporting on the financial performance of firms in Nigeria brewery sector using ordinary linear regression technique. The finding revealed that sustainability reporting has positive and significant effect on financial performance of firms studied.

Nze, Okoh and Ojeogwu (2016) examined the effect of corporate social responsibility on earnings of quoted firms in Nigeria using ordinary regression analysis to analyze the data collected from firms' financial statements and the fact book of Nigerian Stock Exchange. The finding showed that CSR has a positive and significant effect on earnings of firms studied.

Fodio, Abu-Abdissamad and Oba (2013) employed multiple linear regression analysis to examine the impact of Corporate Social Responsibility and firm value in quoted Nigerian financial services for the period 2004 – 2008. The fining showed that sector classification and positive earnings in previous year are significant instruments in estimating CSR.

Using Multiple regression, Oyedokun, Egberioyinemi and Tonademukaila (2019) examined the effect of environmental accounting disclosure and firm value of industrial goods companies in Nigeria from 2007-2016. The finding revealed 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. Therefore, there is a need for corporate entities to improve their environmental responsibility practices and disclose comprehensively their environmental risks, liabilities and impact on the environment.

Charles, John and Umeoduagu (2017) examined environmental accounting disclosures correlation with financial performance indices (ROE, ROCE, NPM) of food and beverage companies in Nigeria. Analytical techniques employed were Pearson correlation and multiple regression analysis techniques. The result revealed that there is a significant correlation among environmental accounting disclosures and return on equity of selected companies. The outcome of the study also revealed a negative correlation among environmental accounting disclosures and return on capital employed and the net profit margin of selected companies.

3. Methodology

The study adopted the *ex-post facto* research design as data for the study are already existing data extracted from the published annual financial statements of the selected quoted oil and gas firms in Nigeria. The study area is Nigerian environment from where the datasets for analyses are drawn. The target is thirteen (13) oil and gas firms quoted on the Nigerian Stock Exchange (NSE) as at August, 2019.
The study used annual time series secondary data obtained from annual accounts and financial statements of the selected oil and gas firms for the ten years study period (2009-2018). Variables under investigation were: Firm value operationalized by Tobin's Q, Employee expenditure, Tax expenditure, and Community development cost.

The target population is thirteen (13) oil and gas firms quoted on the Nigerian Stock Exchange (NSE) as at August 2019. They include: Oando oil and gas Plc, MRS oil and gas Plc, Total oil and gas Plc, Chevron oil, Mobil oil and gas, Amino oil Plc, Capital oil and gas, Caverton oil and gas Plc, Conoil, Eterna oil, Forte oil, Japaul oil, and Rak Unity Petroleum.

After a thorough scrutiny of oil and gas firms listed on the Nigerian Stock Exchange (NSE) as at August 2019, a sample size of four (4) firms was randomly selected. First of all, the firms selected were those who have consistently posted their data as required by the law. They are also firms which were listed and participated for the ten (10) years required by this study. The choice of the random sampling technique was to ensure that:

- the firms have equal chance of being selected for study.
- generalization can be made about the result.

The selected oil and gas firms were MRS oil and gas, Oando oil and gas, Conoil, and Capital oil and gas plc.

Model Specification

The study employed the Vector Autoregression (VAR) analysis mechanism. The VAR model is an extension of univariate autoregression model to multivariate time series data. The choice of this technique was premised that study variables were stationary at first differencing and are thus not cointegrated. The general form of Vector Autoregression of order p (VAR(p)) is given by:

The general model for vector autoregression of order p (VAR(p)) is given by:

$$Y_t = \beta_o + A_1 Y_{t-1} + A_2 Y_{t-2} + \cdots + A_p Y_{t-p} + \beta_i X_t + \varepsilon_t \quad (3.1)$$

Where,

$Y_t = (y_{1t}, y_{2t}, \ldots, y_{nt})^T$ is an (m×1) vector of dependent variables,

$X_t = (x_{1t}, x_{2t}, \ldots, x_{nt})^T$ is an (1× n) vector of independent variables,

β_o = an (1×n) vector of constants,

$A_i \left(A_1, A_2, \ldots, A_p\right)$ is (m×1) vector of lag coefficients of the dependent variable,

β_i $(i = 1, 2, \ldots, \mathrm{p})$: an $(m \times n)$ matrix of independent variables' coefficients to be estimated

$\varepsilon_t = X_t = (\varepsilon_{1t}, \varepsilon_{2t}, \ldots, \varepsilon_{nt})^T$ is an (n×1) white noise innovation process which is independently and identically distributed (i.i.d) zero mean error term.

Explicitly for this study, we have that:

Firm Value operationalized by Tobin's Q = $f(\mathrm{EEXP}, \mathrm{TEXP}, \mathrm{CDC}, \mu)$; such that:

$$\mathrm{LNTQ}_t = \beta_0 + \sum_{i=1}^{4} A_i \mathrm{LNTQ}_{t-i} + \sum_{t=1}^{4} \beta_1 LNEEXP_{t-i} + \sum_{t=1}^{4} \beta_2 LNTEXP_{t-i} + \sum_{t-1}^{d} \beta_3 LNCDC_{t-i} + \varepsilon_t \quad (3.2)$$

Where,

LNTQ	=	Tobin's Q (the dependent variable);
LNEEXP	=	Employee expenditure (independent variable);
LNTEXP	=	Tax expenditure (independent variable);
LNCDC	=	Community development cost (independent variable);
β_0	=	Constant term;
$\beta_1, \beta_2, \beta_3$	=	Coefficients of the regression estimates.
e_t	=	Random error associated with the model
LN	=	Log-linear transformational operator
t-i	=	Time lags

The choice of the pooled panel regression is to enable the researcher capture the number of manufacturing firms used for the study in a single regression model. This assumes that since the selected firms are in the same financial sector, they share everything in common as the policies of the regulatory authorities affect each firm alike. By this, the researcher meant that emphasis will not be placed on the individual estimate rather population estimate of the

effect of explanatory variables on the response variable. The model obeys the work of Nze *et al* (2016) who made use of pool panel OLS in establishing the effect of corporate social responsibility on earnings of quoted firms in Nigeria.

Techniques of Data Analysis

Analytical technique employed in testing the research hypotheses was panel multiple regression analysis. To avoid running a spurious regression, following the researcher's concern on the population estimate, panel unit root test (Levin, Lin & Chu t* statistic approach) was carried out to examine the behaviour of the variables used in the model. In the unit root test, the test statistics was compared with the critical values at 5% level of significance to ascertain stationarity or otherwise of the series.

The researcher also performed multicollinearity diagnostic test to check the presence or otherwise of cointegration. The Johansen approach was adopted. Based on the statistical criteria, the student's t-test, which measures the individual statistical significance of the independent variable, and F-test of significance, which measures the overall statistical significance of the whole regression plane was estimated.

Decision Rule and Approach

Based on the limitation of the Vector Autoregression to provide the probability value of t-calculated value to be compared with 0.05, the critical value approach of statistical decision was adopted in accepting or rejecting the null or alternative hypothesis. The rule follows that if the $t\text{-}_{cal}$ is greater than or equal to $t\text{-}_{tab}$ (critical value), the null hypothesis is rejected in favour of the alternative. The reverse is the case when $t\text{-}_{cal}$ is less than $t\text{-}_{tab}$. Meanwhile, for the diagnostic tests, p-value decision approach was adopted.

Description of Model Variables

VARIABLE LABEL	ACRONYM	DESCRIPTION
TOBIN'S Q	TQ	This is the ratio of the total asset minus market value of common equity plus the book value of equity to the book value of assets.
EMPLOYEE EXPENDITURE	EEXP	This is the gross employee wages and salaries, compensations, commissions, sick pay, dues, vacation, pension, and retirement payments.
TAX EXPENDITURE	TEXP	These are compulsory payments made to the government to support their expenditure.
COMMUNITY DEVELOPMENT COST	CDC	These are financial activities in form of donation or gifts made by the company to the host community for their wellbeing and development.

Source: Author's compilation (2019)

4. Data Presentation and Analyses

4.1 Data Presentation

Tables 4.1 through 4.4 presents annualized time series data of Tobin's Q, Employee expenditure, tax expenditure, and community development cost (2009-2018)

Table 4.1.1 MRS Oil and Gas

Years	*TQ*	*EEXP (N'000)*	*TEXP (N'000)*	*CDC*	*LNEEXP*	*LNTEXP*	*LNCDC*
2009	2.4387	1,511,054	670,373	2,379,002	14.22831798	13.41558955	14.68219163
2010	2.6367	1,401,562	689,433	3,219,769	14.15309789	13.4436248	14.98482018
2011	2.4714	1,225,372	797,618	4,009,210	14.01875503	13.58938507	15.20410477
2012	2.9395	581,257	173,634	5,213,500	13.27294828	12.06470491	15.46676197
2013	3.3607	360,419	772,725	2,190,000	12.79502252	13.55767851	14.5994121
2014	2.8693	618,953	535,649	2,290,000	13.33578462	13.19123437	14.64406238
2015	3.1890	371,609	525,218	7,088,901	12.82559751	13.17156869	15.77404088
2016	3.6478	441,056	821,442	8,156,650	12.99692713	13.61881661	15.9143441
2017	2.5352	517,599	2,381,665	9,689,563	13.15695609	14.68331038	16.08655988
2018	2.6202	463,706	162,507	4,178,542	13.04700601	11.99847636	15.24547294

Source: Financial Statement and Accounts of MRS oil (2009-2018)

Table 4.1.2 Oando Plc

Years	*TQ*	*EEXP (N'000)*	*TEXP (N'000)*	*CDC*	*LNEEXP*	*LNTEXP*	*LNCDC*
2009	11.5486	54,778	159,952	207,958,774	10.91104393	11.98262905	19.15285042
2010	0.2483	108,075	275,826	72,309,091	11.59058071	12.52752551	18.09646042
2011	2.9942	227,148	10,011	86,673,450	12.33335707	9.211439767	18.27765817
2012	3.9454	494,860	311,297	173,436,302	13.11203017	12.64850272	18.97132095
2013	26.7449	265,416	433,123	13,307,680	12.48905369	12.97877703	16.40385187
2014	1.5335	69,994	1,572,367	13985750	11.1561648	14.26809269	16.45354951
2015	6.3131	43,720	241,499	93,840,486	10.68556094	12.39462061	18.35710694
2016	16.2541	631,710	146,405	70,092,315	13.35618571	11.89413203	18.06532372
2017	6.376	376,141	15,904	253,804,314	12.83771935	9.674325929	19.35207411
2018	6.927	399,707	626,567	2,253,580	12.89848706	13.34801099	14.62803062

Source: Financial Statement and Accounts of Oando oil (2009-2018)

Table 4.1.3 Conoil Plc

Years	*TQ*	*EEXP (N'000)*	*TEXP (N'000)*	*CDC*	*LNEEXP*	*LNTEXP*	*LNCDC*
2009	2.5089	1,856,914	1,472,596	2,000,780	14.43442653	14.20253739	14.50904766
2010	3.0306	1,889,847	1,230,954	1,997,500	14.45200643	14.02330004	14.50740696
2011	2.7591	1,802,721	1,385,043	1,845,320	14.40480775	14.14124174	14.42816326
2012	5.338	1,562,621	433,838	1,867,300	14.2618751	12.98042647	14.4400041
2013	4.591	1,664,674	1505,733	1,630,580	14.32513987	14.22479038	14.30444634
2014	5.4083	1,167,803	697,753	1,798,250	13.97063476	13.45562045	14.40232453
2015	3.9346	1,994,046	1,140,840	1,982,700	14.5056763	13.94727539	14.49997011
2016	3.7951	1,908,477	1,442,665	1,869,240	14.4618161	14.18200266	14.44104249
2017	3.5233	1,800,375	726,120	2,145,800	14.40350553	13.49547057	14.579023
2018	3.3366	1,802,838	770,723	2,625,000	14.40487265	13.55508431	14.78059145

Source: Financial Statement and Accounts of Conoil (2009-2018)

4.1.4 Capital oil

Years	*TQ*	*EEXP*	*TEXP*	*CDC*	*LNEEXP*	*LNTEXP*	*LNCDC*
2009	0.0449	8,902,560	23,113,048	1,355,200	16.00184943	16.95590786	14.1194596
2010	0.0282	8,443,643	61,204,310	984,649	15.94892441	17.92972817	13.80004051
2011	0.0385	11,301,116	58,656,900	2,875,422	16.24041204	17.88721577	14.87171
2012	0.3411	17,066,144	65,004,693	2,980,550	16.65260718	17.98997003	14.90761841
2013	0.0199	22,895,920	16,208,957	1,827,775	16.94646929	16.60107455	14.41860994
2014	2.0674	49,758,922	17,926,064	1,950,030	17.72270034	16.7017663	14.48335532
2015	2.1649	36,258,792	5,698,500	2,001,120	17.40619245	15.55571354	14.50921758
2016	3.1113	35,053,700	3,315,888	2,254,000	17.37239173	15.01423602	14.62821697
2017	3.2312	35,767,170	4,249,652	2,541,330	17.39254099	15.26234766	14.74819812
2018	5.329	3,262,093	23,934,656	2,774,000	14.99787957	16.99083801	14.83580088

Source: Financial Statement and Accounts of Capital oil (2009-2018)

Where,

TQ = Tobin's Q

EEXP = Employee expenditure proxied by salaries and wages

TEXP = Tax expenditure

CDC = Community development cost

4.2 Data Analysis

Table 4.2.1 Statistical Description of Study Variables

	LNTQ	**LNEEXP**	**LNTEXP**	**LNCDC**
Mean	0.744241	14.13768	13.96897	15.51436
Median	1.121901	14.19071	13.57353	14.76439
Maximum	3.286344	17.72270	17.98997	19.35207
Minimum	-3.917036	10.68556	9.211440	13.80004
Std. Dev.	1.626176	1.814480	1.988031	1.568821
Skewness	-1.687782	0.289515	0.186927	1.334799
Kurtosis	5.270310	2.556456	3.286576	3.381111
Jarque-Bera	27.58123	0.886677	0.369820	12.11999
Probability	0.000001	0.641890	0.831179	0.002334
Sum	29.76962	565.5073	558.7590	620.5742
Sum Sq. Dev.	103.1335	128.4011	154.1385	95.98677
Observations	40	40	40	40

Source: Author's E-views 10.0 Result

From the descriptive result as shown in table 4.2.1 above, the standard deviations of series of Tobin's Q is high. This indicates that the distribution of series of LNTQ is highly unpredictable while for employee expenditure, tax expenditure, and community development cost, the standard deviations are low, indicating that the series are clustered around the mean and therefore highly predictable. The skewness and kurtosis estimates showed that LNEEXP, LNTEXP and LNCDC are positively skewed with little or no excess kurtosis; while the series of Tobin's Q is negatively skewed and with excess kurtosis. The Jarque-Bera goodness of fit estimate (with p-values>0.05) indicates that the series of errors in LNEEXP and LNTEXP follows normal distribution while those of LNTQ and LNCDC do not (p-value<0.05).

Table 4.2.2 Summary of Stationarity Test Result

VARIABLE	LEVIN, LIN & CHU T*	P-VALUE	ORDER OF INTEGRATION	INFERENCE
LNTQ	-8.596	0.0000	I(1)	Stationary
LNEEXP	-2.377	0.0087	I(1)	"
LNTEXP	-4.710	0.0000	I(1)	"
LNCDC	-6.744	0.0000	I(1)	"

Source: Author's Extract from E-views 10.0 output

The unit root test was conducted to check for a unit root for the random walk series in both levels and first differences. The unit root test result as presented in table 4.2.2 above indicates that the hypothesis of a unit root is rejected at first differencing. Hence, it is concluded that the variables are non-stationary at first differencing. This therefore suggests that further estimations could be performed in first difference in order to avoid running a spurious regression analysis.

Table 4.2.3 Cointegration/Multicollinearity Check

Pedroni Residual Cointegration Test					
Series: LNTQ LNEEXP LNTEXP LNCDC					
Null Hypothesis: No cointegration					
Trend assumption: No deterministic trend					
User-specified lag length: 1					
Newey-West automatic bandwidth selection and Bartlett kernel					
				Weighted	
		Statistic	Prob.	Statistic	Prob.
Panel v-Statistic		-0.701987	0.7587	-1.180558	0.8811
Panel rho-Statistic		-0.359419	0.3596	0.535467	0.7038
Panel PP-Statistic		-4.455249	0.0000	-2.260316	0.0119
Panel ADF-Statistic		0.729026	0.7670	0.553237	0.7099

Source: Author's extract from E-views 10.0 result

From the panel cointegration estimate as shown in table 4.2.3 above, there is no problem of multicolinearity in series of the dataset for the study period. Hence, the null hypothesis is not rejected at 0.05 level of significance (panel v-stat. = -0.702; p-value = 0.7587). However, since the variables are free from multicolinearity and are stationary at order zero and one, the vector autoregression procedure can be employed to ascertain the link and magnitude of effect of the independents on the dependent variable. The estimated result is as shown in table 4.2.4 below:

Table 4.2.4 Vector Autoregression Estimates

Sample (adjusted): 2011 2018				
Included observations: 32 after adjustments				
Standard errors in () & t-statistics in []				
	LNTQ	LNEEXP	LNTEXP	LNCDC
LNTQ (-1)	0.114164	-0.108080	-0.093226	0.057655
	(0.15346)	(0.10258)	(0.17158)	(0.14514)
	[0.74394]	[-1.05360]	[-0.54334]	[0.39724]
LNTQ (-2)	0.354550	-0.070464	-0.452809	0.062218
	(0.15119)	(0.10107)	(0.16905)	(0.14299)
	[2.34504]	[-0.69721]	[-2.67862]	[0.43511]
LNEEXP (-1)	0.267158	0.779219	-0.552593	0.210477
	(0.27542)	(0.18411)	(0.30795)	(0.26049)
	[0.96999]	[4.23235]	[-1.79443]	[0.80801]
LNEEXP (-2)	-0.067774	-0.141353	1.183132	-0.765176
	(0.29498)	(0.19718)	(0.32981)	(0.27898)
	[-0.22976]	[-0.71686]	[3.58728]	[-2.74274]
LNTEXP (-1)	-0.170977	-0.131809	0.071959	0.077538
	(0.17179)	(0.11483)	(0.19207)	(0.16247)
	[-0.99528]	[-1.14783]	[0.37464]	[0.47724]
LNTEXP (-2)	-0.176545	0.308865	-0.131587	0.355319
	(0.19223)	(0.12850)	(0.21493)	(0.18180)
	[-0.91842]	[2.40367]	[-0.61224]	[1.95441]
LNCDC (-1)	0.502217	0.241303	0.033589	0.207148
	(0.25587)	(0.17104)	(0.28609)	(0.24200)
	[1.96275]	[1.41079]	[0.11741]	[0.85599]
LNCDC (-2)	-0.473672	-0.288023	-0.040934	0.322069
	(0.24125)	(0.16127)	(0.26974)	(0.22817)
	[-1.96339]	[-1.78600]	[-0.15175]	[1.41154]
C	2.244779	3.432807	6.297863	8.973480
	(5.20717)	(3.48079)	(5.82208)	(4.92479)
	[0.43109]	[0.98622]	[1.08172]	[1.82210]
R-squared	0.675436	0.916468	0.800875	0.743793
Adj. R-squared	0.562544	0.887414	0.731614	0.654677
Sum sq. resids	19.53354	8.728375	24.41938	17.47245
S.E. equation	0.921566	0.616031	1.030394	0.871591
F-statistic	5.983025	31.54301	11.56315	8.346394
Log likelihood	-37.50839	-24.61953	-41.08029	-35.72426
Akaike AIC	2.906774	2.101220	3.130018	2.795267

Schwarz SC	3.319012	2.513459	3.542257	3.207505
Mean dependent	0.984323	14.18085	13.88369	15.52256
S.D. dependent	1.393347	1.835946	1.988948	1.483203
Determinant resid covariance (dof adj.)		0.190923		
Determinant resid covariance		0.050953		
Log likelihood		-133.9945		
Akaike information criterion		10.62465		
Schwarz criterion		12.27361		
Number of coefficients		36		

Source: Author's E-views 10.0 result

From the long and short-run estimates, the coefficient of employee expenditure (LnEEXP) in the long-run is 0.267; while in the short-run, it is -0.068. This means that, increases in employee expenditure decreases the firm value (Tobin's Q) of oil and gas firms in Nigeria in the short-run. But in the long-run, increases in employee expenditure appreciate firm value in the oil and gas sector.

Also, the coefficients of tax expenditure (LnTEXP) in both long-run and short-run are -0.171 and -0.177 respectively. This means that increases in tax expenditure decreases the firm value (Tobin's Q) of oil and gas firms both in the long-run and short-run.

Moreover, the coefficient of community development cost in the long-run is 0.502; while in the short run, it is -0.474. This implies that community development expenses favour the growth of firm value (Tobin's Q) of oil and gas firms in the long-run; but in the short-run, increases in community development cost decreases the value of oil and gas firms.

The R-Squared estimate is 0.675; F-stat. = 5.983, indicating that the selected corporate sustainability costs exert joint significant influence on firm value of oil and gas sector in Nigeria. The explanatory power of the model is high (67.5%), indicating that the model is a good one.

Test of Hypotheses

Hypothesis one

H_o: Employee expenditure has no significant effect on firm value (FV) of oil and gas firms in Nigeria.

Level of Significance (α) = 0.05; t-tab = 1.96

Decision Rule: Reject the null hypothesis if t-cal>t-tab, otherwise do not reject.

From the Vector Auto-Regression result in table 4.2.4, the employee expenditure (LnEEXP) with a t-statistic (calculated) value of 0.970<1.96 (tabulated value) has a long-run insignificant positive effect on the Tobin's Q (firm value) of oil and gas firms in Nigeria. The null hypothesis is therefore not rejected.

Hypothesis two

H_o: Tax expenditure has no significant effect on firm value (FV) of oil and gas firms in Nigeria.

Level of Significance (α) = 0.05; t-tab = 1.96

Decision Rule: Reject the null hypothesis if t-cal>t-tab, otherwise do not reject.

From the Vector Auto-Regression result in table 4.2.4, the tax expenditure (LnTEXP) with a t-statistic (calculated) value of −0.171<1.96 (tabulated value) has a long-run insignificant negative effect on the Tobin's Q (firm value) of oil and gas firms in Nigeria. Thus, the null hypothesis is upheld.

Hypothesis Three

H_o: Community development cost has no significant influence on firm value (FV) of oil and gas firms in Nigeria.

Level of Significance (α) = 0.05; t-tab = 1.96

Decision Rule: Reject the null hypothesis if t-cal>t-tab, otherwise do not reject.

From the Vector Auto-Regression result in table 4.2.4, the community development cost (LnCDC) with a t-statistic (calculated) value of 0.502<1.96 (tabulated value) has a long-run significant positive effect on the Tobin's Q (firm value) of oil and gas firms in Nigeria. The null hypothesis is therefore rejected.

Discussion of Findings

From the empirical analysis of this study, it was discovered that employee expenditure has a long-run insignificant positive effect on the firm value (Tobin's Q) of oil and gas firms in Nigeria. The implication is that increased expenditure on employees fosters the growth of firm value (proxied by Tobin's Q). This finding aligns with the work of Ezejiofor et al (2017), and Sampong et al (2018). It also agrees with the findings of Omodero et al (2016) that personnel benefit costs have positive effect on firms' profitability. To some studies, this finding is contradictory.

Also, the study found that tax expenditure has a long-run insignificant negative effect on the firm value (proxied by Tobin's Q) of oil and gas firms in Nigeria. This finding somehow aligns with the work of Oyedokun et al (2019) that non-financial indicators have significant positive effect on firm value of industrial goods companies in Nigeria.

The study equally established that community development cost has a long-run significant positive effect on the Tobin's Q (firm value) of oil and gas firms in Nigeria. The implication is that, in the long-run, firms' contribution to community development favours the growth of firm value of oil and gas sector in Nigeria. This finding agrees with the work of Bassey *et al* (2013), Mohammad *et al* (2013), Akinlo and Iredele (2014), Nwobu (2015), Sharif and Lai (2015), Ndukwe and John (2015), Utami (2015), Mohammed *et al* (2016), Charles *et al* (2017), Nnamani *et al* (2017), among others. It partially obeys the work of Sampong *et al* (2018). Meanwhile, on the other hand, it disagrees in magnitude with some earlier studies like the work of Sampong *et al* (2018) in an emerging economy.

5. Summary of Findings

This study empirically examined the effect of corporate sustainability cost on firm value of oil and gas firms in Nigeria. From the empirical analysis, the following findings emerged:

1) Employee expenditure has long-run positive and insignificant effect on the firm value (Tobin's Q) of oil and gas firms in Nigeria.
2) Tax expenditure has long-run negative and insignificant effect on the firm value (Tobin's Q) of oil and gas firms in Nigeria.
3) Community development cost has long-run positive and significant effect on the firm value (Tobin's Q) of oil and gas firms in Nigeria.

6. Conclusion

This study utilized panel least squares regression analysis techniques to investigate the effect of corporate sustainability cost on firm value of oil and gas firms in Nigeria. The study used a sample of four oil and gas firms quoted on the Nigerian Stock exchange and covered the period from 2009-2018. From the empirical results of this study, it was revealed that corporate sustainability cost has significant influence on firm value (Tobin's Q) of oil and gas firms in Nigeria. The implication is that firm involvement in corporate sustainability expenditure is substantial for improved value in oil and gas sector.

7. Recommendations

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

1) The Nigerian oil and gas sector should maintain the existing salary scales and structures for enhanced employee productivity aimed at achieving organizational goals.
2) Since tax expenditure has long-run negative and insignificant effect on the firm value (Tobin's Q) of oil and gas firms in Nigeria, the company should seek for ways to plead with the federal government of Nigeria to reduce their tax rates which in turn will attract more investors into oil and gas sector.

3) Since community development cost has a long-run positive effect on firm value of the oil and gas sector, the firms should often consider various ways for supporting and appreciating the host communities for a healthy growth and profitability.

8. Contributions to Knowledge

This research work has contributed to knowledge in the field of main emphasis, scope and geography. On the main emphasis, it captured the effect of corporate sustainability cost (proxied by employee expenditure, tax expenditure, and community development cost) on firm value (Tobin's Q) of oil and gas firms in Nigeria. In scope, the study spanned from 2009-2018 exposing the current situation between corporate sustainability cost and firm value in oil and gas sector. Geographically, the study covered oil and gas sector in Nigeria, adding to existing literature on the subject area.

9. Suggestions for Further Studies

From the findings of this research, further studies were recommended on the following areas:

i) Further studies should be carried out, examining the link between corporate sustainability cost and macroeconomic instability in Nigeria.
ii) Similar study centering on the interaction between corporate sustainability cost and firm value should be extended to African countries.
iii) Studies of this nature can be necessary in other sectors of the economy: e.g., consumer goods manufacturing firms, ICT sector, so as to compare with the findings of the present research.

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