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Firm Characteristics and Corporate Donations of Oil and Gas Sector in Nigeria

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ABSTRACT

This study empirically investigated the relationship between firm characteristics and corporate donations of oil and gas sector in Nigeria. It covered ten (10) years period (2011-2020), with the target variables being firm size, firm leverage, and liquidity ratio on corporate donations of the firms. The study adopted ex-post facto research design and employed panel fully Modified Ordinary Least Squares (FMOLS) regression analysis technique considering the unit root test (Levin, Lin & Chu t approach), Jarque-Bera test of normality of data series, and Pedroni Residual panel cointegration test. Result of the FMOLS showed that firm characteristics operationalized by firm size [Log (FS)], firm leverage [Log(FL)], and liquidity ratio [Log(LR)] play supportive (positive) roles in corporate donations of oil and gas firms in Nigeria. Particularly, the result revealed that firm size has negative but insignificant effect, while firm leverage and liquidity ratio have positive and insignificant effect. The implication of the finding is that increases in firm size at control of leverage and liquidity ratio discourages corporate donations in oil and gas firms in Nigeria, while appreciation of either firm leverage or liquidity ratio in control of other variables in the model motivates corporate donations in the oil and gas sector in Nigeria. However, it is suggested that Nigerian oil and gas sector should be properly educated on the relevance of community donations and charitable activities for increased financial growth and productivity. They should maintain effective financial leverage and work towards retaining liquidity through holding assets that could be shifted or sold quickly with minimum transaction cost and loss in value. This will go a long way in promoting their day to day operations and overall financial performance.*

Keywords: *Fully Modified Ordinary Least Squares; Firm Characteristics; Corporate Donations; Oil and Gas*

1. Introduction

Corporate Social Responsibility (CSR) involves an ethical and sustainable way that company operates and deals with its environmental and social impacts. It is a concept under which companies decide voluntarily to contribute to the achievement of a better society and a cleaner environment. However, it could be defined as "voluntary integration by companies of social and environmental concerns in their business operations and their interactions with their stakeholders" (Maldonado-Erazo, Álvarez-García, Río-Rama and Correa-Quezada, 2020). In corporate social activity, a company or firm carefully considers the environment in which it operates. Effective corporate leads to improved public image, increased brand awareness and recognition, cost savings, an advantage over competitors, increased customer engagement, greater employee engagement, more benefits for employees. It captured strategies that corporations or firms conduct their business in a way that is ethical, society friendly, and beneficial to community in terms of development.

Corporate donation is a business tactic that contributes to maintainable development by delivering economic, social and environmental benefits for all stakeholders (Robins, 2011). Such corporate social responsibility includes corporate philanthropy where economic and ethical responsibilities are entrenched depending on the motive for philanthropic expenditures; this includes contributing to community development activities and initiating infrastructural social projects such as the building of schools, bridges, roads, hospitals, recreation center, and training institute among other projects. Firms involve themselves in such activities to improve their reputation and performance (Malik, Ali, & Ishfaq, 2015; Liang & Renneboog, 2016). For instance, a firm's involvement in corporate social responsibility can help to make the society consider their products more attractive than others. This in turn, will translate to increased profitability and overall growth of the firm's financial performance. Also, as a social marketing strategy, involvement in corporate social responsibility can help to promote the image of the firm (Tarek, 2019), and thus help them to achieve the best utilization of resources.

Despite its relevance to organizational growth, firms' commitment and donations to society and community development can be hindered by some factors, among which are characteristics of the firm. Generally, firm characteristics is said to have significant role in explaining the level of a firm's earning quality. Firm characteristics can be referred to as those incentive variables that are relatively sticky at firms' level across time. The incentive variable ranges from ownership structures, firm size, leverage, profitability, liquidity, firm growth, among others. According to Shehu (2012), these variables affect the firm's decision both internally and externally. For instance, Hirdinis (2019) noted that larger firms have greater sensitivity and relatively greater wealth transfer compared to their smaller counterparts. In the manufacturing sector (especially oil and gas sector), the firm's financial leverage is essential to finance their assets and thus increase their shareholders' value. Also, the behavior of a firm's leverage with the corporate donation can affect the financial performance of firm. When firms have degree of leverage, their involvement in corporate social activities can help to reduce the losses in market share through minimizing the resisting attitude of customers and competitors (Tarek, 2019).

In another dimension, for the fact that Nigeria relied heavily on the income generated from the oil and gas sector in transforming and developing the country, there is every need that the sector remains strong to ensure they maintain their ability to meet expected and unexpected cash requirements, expand its assets, reduce its liabilities or cover any operating losses. This is because, businesses that are facing problem of liquidity may be heading towards crises and as such a reasonable part of asset is expected to be held in liquid form in order to meet day to day activities of the business. Therefore, the current study considered firm size, leverage and liquidity as variables of company characteristics, and however investigated their effects on corporate donation with reference to oil and gas sector in Nigeria.

Statement of the Problem

Corporations around the world are struggling with a new role, to meet the needs of the present generation. The concept of corporate donations states that corporations have an obligation to consider the interests of customers, employees, shareholders, communities, as well as the ecological 'footprint' in all aspects of their operations. Firms voluntarily welcome social and environmental activities in their business operation with a view that responsible behaviour leads to sustainable business success. This initiative to promote their business and especially boost their financial strength did not stand without some hic-ups in opposition to achieving the goal. Looking at it from oil and gas sector, the firms engage themselves with social activities in the host environment to increase their profits, and

engage in open and free competition without deception or fraud. But as there are some essential factors that needed to be intact for a firm to remain strong and sufficient for corporate social responsibilities. Also, from the extant literature, earlier studies from developed and developing countries provided that firm characteristics such as firm size, firm age, leverage, liquidity, dividend, capital, market share, off balance sheet activities, operating expenses, among others, can affect the operations of a firm either positively or negatively. For instance, the interaction between corporate donation and the financial leverage can affect the financial performance and corporate value of firms. Also, firm characteristics can equally influence the level of corporate donations as they determine both cash at hand and investment for future benefits. The direction and magnitude of their effects to corporate donations are still controversial. Hence, this study seeks to examine the effect of firm characteristics on corporate donation of oil and gas firms in Nigeria. The reference variables are firm size, leverage, and liquidity.

Objectives of the Study

The main objective of the study is to find out the effect of firm characteristics on corporate donations of oil and gas sector in Nigeria from 2011-2020. The specific objectives are:

1) To determine the effect of firm size on corporate donations in oil and gas sector in Nigeria.
2) To investigate the influence of firm leverage on corporate donations of oil and gas sector in Nigeria.
3) To find out the effect of firm liquidity on corporate donations of oil and gas sector in Nigeria.

Research Questions

Based on the research objectives, the following questions were raised:

1) How does firm size affect corporate donations of oil and gas sector in Nigeria?
2) To what extent does firm leverage influence corporate donations of oil and gas sector in Nigeria?
3) How does firm liquidity affect corporate donations of oil and gas sector in Nigeria?

Statement of Hypotheses

The following hypotheses guided the study. They are stated in their null forms as follows:

Ho_1: Firm size has no significant effect on corporate donations of oil and gas sector in Nigeria.
Ho_2: Firm leverage has no significant influence on corporate donations of oil and gas sector in Nigeria.
Ho_3: Liquidity ratio has no significant effect on corporate donations of oil and gas sector in Nigeria.

2. REVIEW OF RELATED LITERATURE

2.1 Conceptual Framework

Firm Characteristics

Firm characteristics are those incentive variables that relatively sticky at firms' level across time and they ranges from ownership structures, firm size, firm age, dividend, market share, leverage, profitability, liquidity, firm growth, off balance sheet activities, operating expenses, among others. Firm characteristics are essential determinants of a corporation's performance as well as its success in business. Corporate characteristics variables used in this study include: firm size, leverage and liquidity.

Firm Size

Firm size is an assessment of how large or small a company is. It is usually represented by a company's total assets (Benyamin & Endri, 2019). According to Shaheen and Malik (2012), firm size is the quantity and array of production capability and potential a firm possesses or the quantity and diversity of services a firm can make available concurrently to its clients. The size of a firm is very essential in today's world due to the phenomenon of economies of scale. Bigger firms can manufacture items on much lower costs in contrast to smaller firms. The size of a firm cannot be overruled in determining the value of the firm. Large firms may generate superior performance as they are more able to use economics of scale and scope, and they may organize their activities more efficiently. Hirdinis (2019) states that the larger the size or scale of the company, the easier it will be for the company to get funding, both internal and external.

Generally, it is assumed that larger companies have greater sensitivity and relatively greater wealth transfer compared to smaller companies. Also, larger firms are more likely to diversify their financing sources; while alternatively, size may be a proxy for the probability of default, for it is sometimes contended that larger firms are more difficult to fail and liquidate, or, once the firm finds itself in distress, for recovery rate. Firm size could be measured using various parameters, such as: market share of the business, level of sales turnover, number of employees, value of the total assets and value of capital employed (Chongyu & Frank, 2013). Some Authors like Zahid, Ali, Shahid and Muhammad (2013); Makoto and Pascal (2011), stated that firm size is measured using natural log. In this present study, the firm size would be measured using natural logarithm of the total assets.

Firm Leverage

Firm leverage describes the ratio of long-term debt to total equity. It can alternatively be represented as a ratio of long-term debt to total capital. Financial Leverage is essential in the oil and gas industry sector, as the firm uses it to finance its assets and thus increase shareholder's value (Alghusin, 2015). Also, effective financial leverage helps to promote firm profitability and as well, existence of the company in the market (Nawaiseh, 2015).

Noghondari and Noghondari (2017) refer to the financial leverage as one of the most difficult issues that face the financial manager when taking a decision, because the increase in the debt ratio may increase the financial risks and lead to the rise of capital cost. Financial leverage is a measure of how much firm uses equity and debt to finance its assets (Lucky and Agilebu, 2019). Pandey (2010) opined that the financial leverage employed by a company is intended to earn more return on the fixed-charge funds than their costs. The surplus (or deficit) will increase (or decrease) the return on the owners' equity. Thus, financial leverage is considered as a double-edged sword because it provides the potentials of increasing the shareholders' earnings as well as creating the risks of loss to them. Accordingly, firms should improve the use of financial resources in a way that leads to an increase in profitability.

Financial leverage is represented in the process of using debts (borrowing) within the financial structure or the loan whose surplus can be re-invested in order to obtain more earnings (Raheel & Shah, 2015). There are five (5) most commonly used leverage ratios. They include: Debt-to-Assets Ratio which is measured as Total Debt / Total Assets; Debt-to-Equity Ratio measured as Total Debt / Total Equity; Debt-to-Capital Ratio estimated as Today Debt / (Total Debt + Total Equity); Debt-to-EBITDA Ratio estimated by Total Debt / Earnings Before Interest, Taxes, Depreciation, & Amortization (EBITDA); and Asset-to-Equity Ratio = Total Assets / Total Equity. Financial leverage may expose a firm to high risks due to market volatility; and embedded leverage refers to a position with an exposure greater than the underlying market factor (Gupta, 2012) in Nega (2017).

Liquidity

The term 'Liquidity' refers to the ability of a firm to meet its short-term maturing obligations within one year. In order words, it refers to the quick and ease of converting assets into cash. In a simpler form, liquidity can be referred to as a firm's ability to pay back their short-term liabilities. It plays an important role in smoothening all operations of a firm (Elangkumaran and Karthika, 2013). A firm can maintain liquidity if it holds assets that could be shifted or sold quickly with minimum transaction cost and loss in value (Khan & Safiuddinm, 2016). However, maintaining an appropriate liquidity is the very vital part of any organization for day to day operation (Patjoshi, 2016). In other words, any organization that is liquid may be willing to disclose that in their financial reports in order to attract their creditors, and increase their ability of raising fund externally to finance future projects (Hassan and Farouk, 2014). Retaining liquidity as well as proper liquidity management is essential to control the financial performance and progress of an organization.

Liquidity has been argued over the years to imply a brain box for survival of a business. The liquidity resources of a firm may be kept in various forms: cash in hand and cash at bank in current assets, reserve drawing power under a cash credit or overdraft arrangement and short-term deposits (Ibida and Emeka-Nwokeji, 2019). Cash balances in current account provide the highest degree of liquidity. Consequent upon these, there are a number of measures of liquidity such as current ratio, quick ratio, acid test ratio, debt ratio, cash and cash equivalent relative to the total assets, etc. In this present study, firm liquidity would be estimated by ratio of cash and cash equivalent to total assets. Mathematically, liquidity ratio (LR) = $\frac{Cash\ and\ Cash\ Equivalent}{Total\ assets}$

Corporate Donations

Corporate donation also known as CSR is a concept whereby companies integrate social and environmental concerns in their business operations and in their interaction with their stakeholders on a voluntary basis. The term Corporate Social Responsibility has no one definition as different scholars at different times try to give their own definition based on the perception of the concept. It can be defined as any financial contribution made by a corporation to another organization that furthers the contributor's own objectives. Palmer (2012) also made a good attempt in defining CSR. The author opines that "with so many conflicting interests and goals of stakeholders, the definition of CSR is not always clear. For the purpose of his study, Palmer defined CSR as "actions that appear to further some social good, beyond the interest of the firm and that which is required by law." In this definition", voluntary aspect of CSR is also emphasized while the author further maintained that it is beyond the interest of the firm.

In the work of Ohaka and Ogaluzor (2018), donation is one of the corporate practices that help to enhance the image of the organization thereby leading to the acceptability of the organization. It involves commitment of a business to act ethically, operate legally and participate in improving the economy; it can provide many benefits for the firms and communities. First, applying CSR can make products of firms to be considered more attractive by the society which will in turn, boost the firm's profitability and overall financial performance. Second, it enhances the image of the companies which can be considered as a social marketing for the company (Tarek, 2019). CSR is a set of practices which elaborate the role of good management, business activities and practices and it is something more about transparency of the organization and disclosure to stakeholders. CSR aims to embrace responsibility for corporate actions and to encourage a positive impact on the environment and stakeholders including consumers, employees, investors, communities, and others. CSR is the responsibility that companies have for their impact on society (social, economic, and environmental), and therefore, it seeks to minimize negative impacts on society and maximize positive ones. Crowther and Aras (2008) defines corporate social responsibility as activity and therefore posited that there are three basic principles that together comprise the corporate social responsibility activity. They are: sustainability, accountability, and transparency. Although CSR activities may not be linked directly to financial performance of business organizations, they have been found to be linked critically with strategic outcomes of organizations that eventually enhance firms' reputations and organizational performance (Kurniawan & Wibowo, 2017; Putrevu, McGuire, Siegel, & Smith, 2012). Corporate social responsibility (CSR) involves the responsibilities a business organization is expected to carry out to improve its organizational reputation and performance (Malik, Ali, & Ishfaq, 2015; Liang & Renneboog, 2016).

2.2 Theoretical Framework

This study is underpinned to the Agency Theory being that it relates business principals with their agents. Particularly, the Agency Theory was propounded by Alchian and Demsetz in 1972, and further developed by Jensen and Meckling in 1976. This theory was based on the principal agent relationships; therefore, it resolves agency problems through monitoring management activities, controlling self-centered behaviours of management, and increasing and examining the financial reporting processes (Habbash, 2016). Generally, it is believed that high level of accountability through disclosure reduces the agency conflict of management and owners and at the same time, high level disclosure may mandate companies more involvement in CSR and then its disclosure (Mohd Ghazali, 2007).

Consequently, the Agency Theory is a principle that is used to explain and resolve issues in the relationship between business principals and their agents. Most commonly, that relationship is the one between shareholders as principals, and company executives as agents. The agents are responsible for running the day to day operations of the corporation. Also, the agency theory can be employed in the area of CSR activities. This according to Barako, Hancock and Izan (2006), is because, voluntary disclosure is a means of mitigating agency problem. In this line, Managers disclose more voluntary information to potentially reduce the agency cost and to convince the external users that they are behaving in an optimal way. These disclosures represent a monitoring platform to diminish the information asymmetry and agency problems with their resulting cost. In this case, relating the company owners with their host community. The relevance of this theory equally extends that through these relationships, a firm can meet its financial obligations.

2.3 Empirical Review

Firm Size and Corporate Donations

Inyiama and Ubesie (2016) employed simple regression model to investigate the effect of firm size on corporate borrowing of oil and gas firms in Nigeria. The study further examines the relationship between firm size and financial leverage in the same industry; as well as the causal relationship among the variables under study. Result revealed that financial leverage is significantly but negatively affected by firm size in the industry. This implies that as firms increase in total assets, the firms tend to play down on sourcing for fund through external borrowing. Also, negative relationship was revealed between firm size and financial leverage; though very insignificant; which implies that firm size and financial leverage change/increase in opposite direction in oil and gas industry. Therefore, firms at growth age, with a growing asset base, will need external borrowing more than a firm at mature or declining age with huge asset base and accumulated retained earnings.

Baloch, Ihsan and Kakakhel (2013) investigated the impact of firm size, asset tangibility and retained earnings on the financial leverage using auto sector in Pakistan. Data pertaining to 22 firms was collected from the financial statement analysis document issued by the State Bank of Pakistan (SBP). The result revealed that firm size and asset tangibility significantly affect the financial leverage. Furthermore, negative relationship was noted between the respective variables. It was found that retained earnings have no significant impact on financial leverage.

Golrida, Muliani and Joshi (2019) used visibility approach to re-examining the relationship between firm size and corporate social responsibility. Indonesian companies are chosen to capture the context of developing country. Content analysis is done in obtaining CSR data of 433 companies listed on Indonesian Stock Exchange on 2012, while the data of visibility proxies are extracted from Thomson Reuters and selected news portal namely, Detik.com. Finding revealed that both visibility proxies, which are Analysts Coverage and Media Coverage form inverted U-shape relationship with CSR participation. However, this contributed to the literature that, the form of firm size and CSR participation relationship in the context of developing countries is different than those in developed countries.

Akinyomi and Olagunju (2013) investigated the effect of firm size on profitability of Nigerian manufacturing sector. Panel data set over from 2005-2012 was obtained from the audited annual reports of the selected manufacturing firms listed in the Stock Exchange. The analysis was carried out using Pearson Product Moment Correlation co-efficient and regression. Result revealed that firm size, both in terms of total assets and in terms of total sales, has a positive effect on the profitability of Nigerian manufacturing companies. Meanwhile, on the control variables, a negative relationship with inventory was obtained while others have positive relationship.

Foyeke, Ojeka and Aanu (2015) examined firm size and financial performance using the financial data of 137 companies both from the financial and the non-financial sectors in Nigeria. Weighted logistic regression method of analysis was used to evaluate the type of relationship that exists between corporate governance disclosure practices of Nigerian companies with company size and financial performance. Finding revealed that there is a significant positive relationship between firm size and corporate governance voluntary disclosure.

Financial Leverage and Corporate Donations

By applying panel data analysis, Tarek (2019) examined the impact of financial leverage and CSR on the corporate value using 17 companies registered in the indicator of CSR in the Egyptian stock market. The study covers from 2014-2017. Finding showed that there is significant effect of financial leverage on corporate value while applying CSR activities has no effect on the corporate values which means that there is a lack in the awareness of investors about the importance of applying CSR activities in Egypt.

Alghusin (2015) investigated the impact of financial leverage, company's growth, non-current / total assets ratio, and firm's size as independent variables on profitability. A sample of 25 Jordanian Industrial companies listed on Amman Stock Exchange (ASE) for a period of 10 years (from 1995-2005) was selected. Finding showed that there is a significant effect of the financial leverage and growth on profitability of industrial companies. Therefore, industrial companies may enhance the profitability of their firms by minimizing the debt, and increasing financial assets compared with total assets.

Ramadan (2015) utilized unbalanced pooled Ordinary Least Square (OLS) to investigate the impact of the leverage on the firms' value. Data was gathered from the financial statements of all listed firms on ASE for the time period of year 2000 to 2013. F-test was used to test the hypothesis that the changes in the firms' leverage level significantly explain the changes in the firms' value. The result showed that the firms' leverage level affect the firms' value for the Jordanian listed companies included in the sample test.

Lucky and Agilebu (2019) examined the effect of leverage on corporate financial distress of quoted manufacturing firms in Nigeria using panel data analysis. Cross sectional data was sourced from financial statement of ten quoted manufacturing firms. Result revealed that financial leverage has positive effect on financial distress measured by the z-score while total debt ratio and debt equity ratio have positive effect on financial distress measured by changes on operating profits while short term debt and long-term debt have negative effect on operating profits. From the regression summary, the study concludes that leverage have significant effect on corporate financial distress.

Al-Slehat (2020) employed simple line regression to investigate the impact of financial leverage, size and assets structure on firm value of Industrial Sector, Jordan. Sample of 13 firms from the mining and extraction industry sector listed on the Amman stock exchange of the period 2010 to 2018 was used. Finding showed that the non-existence of the impact of financial leverage on the firm value and the relationship between the financial leverage and Tobin's q scale was negative.

Liquidity and Corporate Donations

Kajola, Alao, Sanyaolu and Ojurongbe (2019) employed multiple regression method, with pooled Ordinary Least Squares to examine the effect of liquidity and leverage on financial performance of Nigerian listed consumer goods firms using data of seventeen consumer goods firms listed on the Nigerian Stock Exchange during the financial years, 2012 to 2017. The result showed that leverage proxies such as degree of operating leverage and degree of combined leverage have significant effect on firm's financial performance.

Akinleye and Ogunleye (2019) examined the relationship between liquidity and profitability of manufacturing firms in Nigeria. Secondary data were collected from annual reports of sampled firms over a period of ten years (2007-2016). Data collected was analyzed using panel data estimators such as pooled OLS estimator, fixed effect estimator, random effect estimator, Hausman test, panel co-integration and pooled granger causality tests. Result revealed that financial liquidity proxy in terms of quick ratio (QR) had a negative and insignificant impact on profit after tax. Financial liquidity measured in terms of Cash ratio (CR) exerts positive and significant impact on profit after tax. Also, financial liquidity measured in terms of Current ratio (CNR) exerts insignificant negative impact on profit after tax. In addition, the result revealed that that there is no long-run relationship between liquidity and profitability of manufacturing firms in Nigeria.

Yameen, Farhan and Tabash (2019) investigated the impact of liquidity on the profitability of pharmaceutical companies listed on Bombay Stock Exchange (BSE). Data was extracted from ProwessIQ database and was analysis using a balanced panel data of 82 pharmaceutical companies for the period of 10 years from 2008 to 2017. Result showed that current liquidity ratio and quick ratio have a positive and significant impact on the profitability of pharmaceutical companies measured by return on assets, while control variables leverage, firms' size, and age have a negative impact on the profitability of pharmaceutical companies.

Hassan and Farouk (2014) employed multiple panel regression techniques to examine firm attributes and earnings quality of listed oil and gas companies in Nigeria for the period of 2007-2011. The listed Oil and Gas firms are Nine (9) in numbers out of which a sample of Seven (7) were used for the study. Firm attributes as the independent variable was proxy with firm size, leverage, Institutional ownership, profitability, liquidity and firm growth. Data were collected from secondary source through the annual reports and accounts of the firms. Result showed that leverage, liquidity and firm growth has a significant positive impact on earnings quality while firm size, institutional ownership and profitability have a significant but negative influence on earnings quality of listed oil and gas companies in Nigeria.

Bibi and Amjad (2017) investigated the relationship between liquidity and firms' profitability in Karachi Stock Exchange using cash gap in days and current ratio for measuring liquidity. Secondary data was collected from 50 listed firms of Karachi Stock Exchange, Pakistan for the year 2007 to 2011. Regression analysis, correlation analysis and incremental tests were used to analyze the data collected. Result showed that there is a significant negative relationship between cash gap and return on assets while current ratio has significant positive relationship with profitability. Results further indicate that log of sales and log of total assets has positive significant relationship with profitability.

3. Methodology

Research Design

This study adopted *ex-post facto* research design, as the study used an already existing data on the research variables. The *ex-post facto* research design is an after-the-fact design, and hence uses past data to determine research variables.

Area of Study

The study area is Nigeria, and the focus is on oil and gas firms quoted on the Nigerian Stock Exchange as at February, 2021.

Sources of Data

The study used annual time series data. It is a secondary sourced data as they were extracted from the annual report and financial statement of the selected oil and gas firms for the research period. The target variables are: corporate donation as dependent variable, firm size, leverage, and liquidity as independent variables.

Population of the Study

Population for the study comprised of thirteen (13) oil and gas firms currently in operation and quoted in Nigerian Stock Exchange.

Sample and Sampling Technique

The sample selection procedure adopted was simple random sampling. This was to minimize bias in selection and as well, give room for generalization. The study used a sample of five (5) oil and gas firms: MRS oil, Capital Oil, Conoil Plc, Forte Oil, and Oando oil and gas firm.

Model Specification

The model for this study is laid on the work of Foyeke, *et al* (2015). The model was based on the theoretical relationships of the research variables. Fundamentally, the model took its shape from the classical linear regression (CLR) from Ordinary Least Squares (OLS) regression technique. In line with the research variables, the model was explicitly specified thus:

$$\text{Log(CD)}_t = \beta_o + \beta_1 Log(FS)_t + \beta_2 Log(FL)_t + \beta_3 Log(LR)_t + \mu_t \quad - \quad (3.1)$$

Log(CD)_t = Log value of community donation at time t,

β_o = Constant,

$Log(FS)_t$ = Log value of firm size at time t,

β_1 = Coefficient of FS in the model,

$Log(FL)_t$ = Log value of firm leverage at time t,

β_2 = Coefficient of FL in the model,

$Log(LR)_t$ = Log value of liquidity ratio at time t,

β_3 = Coefficient of LR in the model,

μ_t = Stochastic error associated with the model.

Methods of Data Analysis

The study utilized panel least squares regression analysis technique in obtaining the aggregate numerical coefficients of explanatory variables from the selected firms. Particularly, the study did not neglect preliminary and a battery of diagnostic tests so as to ensure appropriate statistical estimation and as well, avoid misleading results. The preliminary analysis spread across measures of central tendency, dispersion and distributional estimates. However, diagnostic statistical estimates considered were Jarque-Bera test for normality of data series, and Levin, Lin and Chu t* panel unit test. Evidences were judged at 0.05 level of significance.

4. Presentation and Discussion of Result

Table 4.1 Descriptive Statistics Result

Estimated parameters	Log (CD)	Log (FS)	Log (FL)	Log (LR)
Mean	15.35775	18.83918	4.089389	-2.394387
Median	14.82601	18.22060	4.098668	-2.345247
Maximum	19.35207	21.76809	6.050606	1.939941
Minimum	13.80004	14.90270	3.328627	-6.090718
Std. Dev.	1.478241	1.457645	0.369524	1.771263
Skewness	1.457835	0.536461	2.604969	-0.031856
Kurtosis	4.102649	3.165561	17.44162	3.251563
Jarque-Bera	20.24367	2.455363	491.0497	0.140299
Probability	0.000040	0.292971	0.000000	0.932255
Sum	767.8874	941.9591	204.4694	-119.7194
Sum Sq. Dev.	107.0747	104.1117	6.690867	153.7312
Observations	50	50	50	50

Source: Author's E-views 10 Result

Table 4.1 presents the descriptive statistics for our study variables in a common sample. The standard deviations of 1.48%, 1.46%, 0.37%, and 1.77% for community/corporate donation, firm size, firm leverage, and liquidity ratio respectively implies that the individual observations of series of corporate donation and firm leverage deviated much from their respective means. Meanwhile, the individual observations of firm size and liquidity ratio did not lay far from their respective means.

The skewness estimates which was used to measure how the variables are clustered on the distribution curve indicates that corporate donation, firm size, and firm leverage are positively skewed while liquidity ratio is negatively skewed. The implication is that, corporate donation, firm size, and firm leverage have fatter tail to the right of their respective means while liquidity ratio has fatter tail to the left of their means. The result also shows that the relative skewness of corporate donation and firm leverage does not lie closer to zero. This implies that the probability distributions of their series are not evenly distributed while those of firm size and liquidity ratio are evenly distributed. More so, all the variables have excess kurtosis (k>3.0) but those of Log (CD) and Log (FL) are substantially higher. Further justification of this result was shown by Jarque-Bera estimate and associated probability values of 0.000040, 0.292971, 0.000000, and 0.932255 for Log (CD), Log (FS), Log (FL), and Log (LR) respectively; confirming that the series of firm size and liquidity ratio are normally distributed while those of corporate donation and firm leverage are not. Hence, the means of Log (FS) and Log (LR) are significantly different from zero (p>0.05) while those of Log (CD) and Log (FL) are not (p<0.05). The null hypothesis that the data series is normally distributed is rejected in cases of corporate donation and firm leverage and accepted in cases of firm size and liquidity ratio.

Table 4.2 Summary of Panel Unit Root Test: Levin, Lin & Chu t* Approach

Variable	*Levin, Lin & Chu t* stat.*	*p-value*	*Order of integration*	*Inference*
Log (CD)	-5.897	0.0000	I (0)	Stationary
Log (FS)	-2.641	0.0041	I (1)	"
Log (FL)	-3.865	0.0001	I (1)	"
Log (LR)	-3.897	0.0000	I (1)	"

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

The Levin, Lin & Chu t* unit root test results above indicates that the variables were not stationary at same level. The series of Log (CD) was stationary at level form, hence integrated of order zero (i.e., I (0)); while Log (FS), Log (FL), and Log (LR) were stationary at first differencing, hence integrated of order one (i.e., I (1)). As the variables were not all integrated of order zero, rather a combination of order zero and one, the usual Ordinary Least Square (OLS) regression analysis technique cannot be applied.

Table 4.3 Summary of Panel cointegration test

Pedroni Residual Cointegration Test
Series: LCD LFS LFL LLR
Sample: 2011 2020
Included observations: 50
Cross-sections included: 5
Null Hypothesis: No cointegration
Trend assumption: No deterministic trend
User-specified lag length: 1
Newey-West automatic bandwidth selection and Bartlett kernel

Alternative hypothesis: common AR coefs. (within-dimension)

	Statistic	Prob.	Weighted Statistic	Prob.
Panel v-Statistic	2.051955	0.0201	-0.533430	0.7031
Panel rho-Statistic	0.528906	0.7016	1.422561	0.9226
Panel PP-Statistic	-3.630368	0.0001	0.636819	0.7379
Panel ADF-Statistic	0.303340	0.6192	2.071696	0.9809

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

The Pedroni Residual Cointegration test result in table 4.3 above (with panel rho-statistic of 0.529 and associated p-value of 0.7016>0.05) shows that there is no cointegration among the study variables. The null hypothesis of no cointegration is therefore upheld.

Table 4.4 Panel Multiple Regression Result

Dependent Variable: LCD
Method: Panel Fully Modified Least Squares (FMOLS)
Sample (adjusted): 2012 2020
Periods included: 9
Cross-sections included: 5
Total panel (balanced) observations: 45
Panel method: Pooled estimation
Cointegrating equation deterministics: C
Coefficient covariance computed using default method
Long-run covariance estimates (Bartlett kernel, Newey-West fixed bandwidth)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Log (FS)	-0.138975	0.460728	-0.301643	0.7646
Log (FL)	0.650524	0.906820	0.717368	0.4777
Log (LR)	0.119177	0.085209	1.398634	0.1702

R-squared	0.725163	Mean dependent var	15.34687
Adjusted R-squared	0.673167	S.D. dependent var	1.427494
S.E. of regression	0.816088	Sum squared resid	24.64201
Long-run variance	0.380879		

Source: Author's computation using E-views 10 Result

The multiple regression results as shown above revealed that in a model containing the three explanatory variables, firm size [Log (FS)] has insignificant negative effect on corporate donations. This implies that as firm size increases, company involvement in community activities decreases. This finding obeys the work of Akinyomi and Olagunju (2013), and disobeys the finding of Foyeke, et al (2015) that a significant positive relationship exists between firm size and corporate governance voluntary disclosure in Nigeria. Moreover, the outcome of this study, partially contradicts the finding of Golrida, et al (2019), and Foyeke, et al (2015), among other studies.

Also, this present study discovered that firm leverage has insignificant positive influence on corporate donations of oil and gas firms in Nigeria. However, increased leverage encourages the firms to engage in community donations and activities. This finding conforms to the finding of Ramadan (2015) in Jordanian listed companies, and partially with the work of Lucky and Agilebu (2019) in Nigeria. The result disobeys the work of Tarek (2019), Alghusin (2015), and partially contradicts the work of Lucky and Agilebu (2019), amongst others.

Moreover, in this study, it was uncovered that liquidity ratio has insignificant positive influence on corporate donations of oil and gas firms in Nigeria. in a way, this finding contends with the works of Kajola, et al (2019), and partially agrees with the finding of Akinleye and Ogunleye (2019), Yameen, et al (2019), Bibi and Amjad (2017), and Hassan and Farouk (2014), among other studies.

Overall evaluation of the model indicates that it is a good one as the explanatory variables jointly explains about 72.5% of the total variations in corporate donations of the oil and gas firms in Nigeria. The long-run variance is 38.1% which is infinitesimally low.

5. Conclusion

Based on evidences from our empirical analysis on the effect of firm characteristics on corporate donations of oil and gas firms in Nigeria, the conclusion emerged that firm size plays an infinitesimally detrending role to the magnitude of corporate donations in oil and gas sector in Nigeria. Other firm characteristics such as leverage and liquidity ratio are positive but insignificant factors as it concerns Nigerian oil and gas sector, for the period of study. However, oil and gas firms may increase their level of corporate donations through increased firm leverage and liquidity.

6. Recommendations

From our findings, the following way forwards were suggested:

i) Since growth in firm assets pulls out their concerns on social and environmental activities of their host community, the oil and gas sector should be properly educated on the relevance of community donations and charitable activities for increased financial growth and productivity.
ii) The oil and gas firms in Nigeria should maintain effective financial leverage so as to enhance their profitability, existence in the market, and as well increase their shareholder's value.
iii) The oil and firms in Nigeria should work towards retaining liquidity through holding assets that could be shifted or sold quickly with minimum transaction cost and loss in value. This will go a long way in promoting their day to day operation and overall financial performance.

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