

Sustainable Finance And Corporate Performance Of Quoted Nigerian Oil And Gas Multinationals

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Abstract: *This paper evaluated the effect of sustainable finance on corporate performance of oil and Gas Companies over 15 years spanning from 2008-2022. The paper specifically disaggregated sustainable finance (regressor) into eco-friendly finance, green finance and social finance while corporate performance (regressand) was measured by return on investment (ROI). Meanwhile, firm size and financial leverage served as control variables. Data were drawn from all the ten (10) quoted oil and Gas Companies which formed the study population. The paper adopted the panel data estimation technique since the variables exhibited both cross section units and time series features. The Hausman diagnostic test evidenced that, the Random Effect Model is the most appropriate panel data estimate for the study. Meanwhile, the model accounted for multi-collinearity, normality; Heteroskedasticity, and mis-specification so as to ensure that the regression results are fit for the formulation of informed policies. The regression estimate evidenced that, when financial leverage and firm size were introduced into the model as moderating variables, eco-friendly finance had a high retarding effects on ROI. However, green finance have high meaningful effects on ROI. In the case of social finance, social finance became highly value additive. Hence, the paper concludes that, when moderated for both firm size and financial leverage, green finance and social finance are highly instrumental to the corporate performance (ROI) of oil and Gas Multinationals throughout the reviewed periods. Consequently, the regulatory authorities of the Nigerian oil and gas industry need to re-evaluate their cost centres with a view to determine the cost centre that reduces the company's ROI.*

Keywords: Sustainable Finance, Eco-Friendly Finance; Green Finance, Social Finance, Corporate Performance; Return on Investment; Oil and Gas Multinationals.

INTRODUCTION

Over time, the necessity for businesses worldwide to adopt financially sound practices has persisted throughout time, making it one of the major global concerns of the 21st century. This is because, for businesses to continue operating as legitimate entities, they must choose sustainable finance. The rationalization behind this is due to the rapidly increasing rate at which many stakeholders, particularly those in developing countries, live below the poverty line and the rise in social, environmental, and climate risks brought on by the loss of biodiversity. More so, the inability of oil and gas multinationals remains another issue of concern.

The above concerns that, why both environmental and changes in climatic conditions are regarded as the greatest long-term global concern, according to the World Economic Forum's (WEF) 15th Global Risks Report, which was published in January 2020 (Franco, 2020). Hence, it is believed that the only way for businesses worldwide—including those in the oil and gas industry—to satisfy the demands of the present and future generations is through sustainable financing (Raworth, 2017). According to Durrani, Rosmin, and Volz (2020), the equitable distribution of natural resources among current and future generations makes sustainable finance an effective financial strategy. It is on this note that, the United Nations developed a sustainable financial strategies called the established the Sustainable Development agenda/goal (SDG) 2030 (Durrani, Rosmin&Volz, 2020). These SDG serve as the standard for the global community's duty to advance environmental and social sustainability (Migliorelli, 2021). In order to accomplish these goals, robust global regulations have been established to integrate the flow of funds allocated to the purpose of sustainability. Under the meantime, the Nigerian government ratified the Paris Agreement in 2015. Under the condition of foreign help, this promise increases to 45%. This was established in 2017. The aforementioned suggests that sustainable finance has become a potent tool for a company looking to preserve positive stakeholder relations and ultimately achieve the broad goals of sustainable development.

Notably, eco-friendly finance, green finance, and social finance are the three recognized elements of sustainable finance. The eco-friendly finance aspect emphasizes that, for businesses to address economic issues, they companies need to shift their business strategies (models). Meanwhile, the green finance aspect emphasizes a company's deliberate attempts to allocate its financial (capital) resources toward investing in ecologically sustainable ventures. In other words, this aspect therefore facilitates shift to a low-carbon economy (Tur-Porcar, RoigTierno, & Mestre 2018). In a similar vein, the social finance dimension emphasizes the management of assets that provide financial returns together with quantifiable benefits to society and the planet.

However, companies (especially oil and gas multinationals) are still free to choose how to disclose their involvement in sustainable finance in their annual reports, despite the fact that doing so is essential for addressing the plethora of social and environmental issues that Nigeria and other countries around the world are currently facing. It is understandable that, despite the fact that the majority of oil and gas corporations rendered the surrounding area uninhabitable, they are still not subject to any legal requirements

regarding the information they are required to reveal. The goal of the current study is to further break down the three components of sustainable financing.

Again, till date, accounting scholars are yet to unanimously agree as to whether the more firms are economically, socially, and environmentally friendly, the more they achieve higher returns in terms of ROI. For example, Udeagha and Muchapondwa (2023); Okolie and Igaga (2020); Madaleno and Vierra (2020) reported that, sustainable finance is instrumental to higher firms' financial performance. However, Munir, Irfan, and Malik (2022); Erhirhie and Ekwueme (2019); Zamil and Hassan (2019) reported that, investment in sustainable finance has an adverse effect on corporate performance of firms since the cost associated with firm's adoption of sustainability finance sometime outweighs the benefits therein and as such, one should not expect that, the impact sustainable finance has on firm performance is direct at all times. Notwithstanding, the aforementioned empirical studies failed to examine the linkage between sustainable finance and return on investment. As such, they could not give a clear picture on the extent to which sustainable finance affect return on investment of oil and gas multinationals. Hence, the current study is motivated towards examining the effect of three dimensions of sustainable finance on return on investment of oil and gas multinationals.

Again, accounting authorities have not yet reached a consensus on whether organizations that produce better ROI are also more socially, economically, and ecologically sustainable. For instance, studies by Udeagha and Muchapondwa (2023); Okolie and Igaga (2020); and Madaleno and Vierra (2020) have shown that improved financial performance for businesses is a direct result of sustainable finance. But according to Munir, Irfan, and Malik (2022); Erhirhie and Ekwueme (2019); and Zamil and Hassan (2019), investments in sustainable finance have a negative impact on businesses' corporate performance because adopting sustainable finance can come at a cost that sometimes outweighs the benefits. Consequently, sustainable finance retards business performance instead.

Justifiably, while it is possible that the inconsistent results stem from existing empiricists' inability to include firm size and financial leverage in their models, the majority of them also failed to examine the effect of sustainable finance on ROI. In light of this, the current study looked at how listed oil and gas multinationals in Nigeria's ROI was affected by sustainable finance. Specifically, the paper seeks to:

- i. Analyse the extent eco-friendly finance affects the ROI of listed multinationals in the Nigerian oil and gas industry.
- ii. Assess the magnitude green finance has affects the ROI of listed multinationals in the Nigerian oil and gas industry.
- iii. Examine the degree social finance affects listed multinationals Nigerian oil and gas industry.

Justifiably, the paper is divided into five major sections. While the first section is dedicated to the introduction, the second section is dedicated to literature review. Here, emphasis is made on conceptual, theoretical and empirical issues that surround the subject. Meanwhile, the third section is dedicated to the research methods. Here, emphasis is made on the research design, population, sampling technique, data source, analytical technique and variable measurement, operationalization and Apriori expectations. More so, the fourth section is dedicated to the research findings and discussions. Finally, the fifth section is dedicated to the conclusions and recommendations.

LITERATURE REVIEW

The term "sustainable finance" involves incorporating sustainability practices into their investment activities, to achieve healthy environmental and social conditions without compromising the economic benefits. Again, it is the combination of economic, social, and environmental issues into a firm's business model (Schoenmaker & Schramade, 2018). Meanwhile, corporate performance is a firm's ability to effectively use her resources in such a way to generate operational and financial results (Taouab & Issor, 2019). Ehiedu and Priscilla (2022) define corporate performance as the combination of effectiveness and efficiency. This emphasizes how a firm efficiently and effectively transform inputs into outputs. Siepel and Dejardin (2020) see corporate performance as a firm's ability to maximize profits.

Ehiedu, Onuorah and Mbagwu (2022) declare profit as the driving force towards future growth and there are multiple ways to measure profit but the most widely used measure is through financial ratios such as return on asset-ROA, earning per share-EPS, return on equity-ROE, ROI etc. According to Diamastuti, Muafi, Fitri, and Faizaty (2021), companies should endeavor to fulfill the interests of society as a whole as well as the rights of their shareholders. Business organizations must thus make trade-offs between their financial performance and their social responsibilities. The ultimate goal of a business is typically thought to be maximizing profits since it increases the firm's value to shareholders. However, in order to accomplish this, businesses frequently violate corporate regulations, harm the environment and ecological system, and jeopardize employee safety (Skouloudis et al., 2019).

Eco-friendly Finance and Corporate Performance:

Eco-friendly Finance involves a broad set of decision making strategies aimed at achieving economic growth by rejecting wasteful short-term processes and embracing the planet's long term well-being. It therefore stresses that, that in order for businesses to function

in a sustainable way, they must make sure that resources are used in the most effective and responsible way possible in order to generate the highest possible operational profit. As a result, no company can be deemed economically viable if it does not employ resources in the most effective and ethical way possible (Asuquo, Dada, & Onyeogaziri, 2018). The rationalization here is that, if more attention is placed on addressing economic issues by rejecting wasteful short-term processes and embracing the planet's long term well-being, oil and gas firms are expected to achieve higher financial performance in terms of ROI.

Following the legitimacy theory, economically centric firms will achieve higher social approval and ROI than firms that are not. Meanwhile, the stakeholder theory stresses that, a firm's ROI is dependent on the ability of such firm to meet the diverse needs of her stakeholders of which the investors are one. By implication, ROI is dependent on the extent to which a firm is economically centric.

From empirical viewpoint, studies on eco-friendly finance and firm performance are relatively mixed. For example, Udeagha and Muchapondwa (2023); Okolie and Igaga (2020); Madaleno and Vierra (2020); Menike (2020) reported that, eco-friendly finance improves financial performance. However, Frempong, Adu-Yeboah, Hossin, and Adu-Gyamfi (2021) evidenced that, sustainability-oriented supplier partnership, environmental, economic sustainability, influenced firm performance indirectly. Hence, the paper hypothesizes:

H0₁: Eco-friendly finance does not significantly affect the ROI of listed multinationals in the Nigerian oil and gas industry

Green Finance and Corporate Performance

Green Finance is simply defined as the allocation of resources to investments that provide environmental benefits while ensuring that the said firm achieves higher ROI. Various measures of green finance include but are not limited to: consumption of fuel, energy conservation, and emissions of greenhouse gases, risk to the environment posed by suppliers, and environment risk posed by clients. According to Ehiedu and Eyamu (2023) and Ighoreje and Ozigbo (2023), there are three main sectors of "green financing": The rationalization here is that, if more attention is placed on addressing the rising cases of environmental degradation by being more environmentally inclined, oil and gas firms are expected to achieve higher financial performance in terms of ROI.

Following the legitimacy theory, environmentally responsive firms will achieve higher social approval and ROI than firms that are not. Meanwhile, the stakeholder theory stresses that, a firm's ROI is dependent on the ability of such firm to meet the diverse needs of her stakeholders. By implication, ROI is dependent on the extent to which a firm invest in green finance.

From empirical viewpoint, studies on green finance and firm performance are relatively mixed. For example, Udeagha and Muchapondwa (2023); Okolie and Igaga (2020); Madaleno and Vierra (2020); Menike (2020); Oprean-Stan, Oncioiu, Iuga, and Stan (2020) reported that, inadequate environmental, social, governance and risk rating/management has a huge bad influence on the financial performance of reporting firms. However, Munir, Irfan, and Malik (2022); Erhirhie and Ekwueme (2019); Zamil and Hassan (2019) reported that, investment in social finance affect corporate performance adversely since the cost associated with green finance sometime outweighs the benefits therein. Hence, the paper hypothesizes:

H0₂: Green finance does not significantly affect the ROI of listed multinationals in the Nigerian oil and gas industry

Social Finance and Corporate Performance

Social finance is simply an investment that seeks a measurable social, cultural, and/or environmental impact as well as a financial return for investors. Put differently, social finance is a supply chain that establishes connections with its stakeholders, including its customers, employees, suppliers, and the larger community in which it works. In this regard, the public is now aware of all social business activities and is closely watching the trade in illegal weapons, civil rights violations, gambling, labour law violations, workplace conditions, child labour, employee exploitation through low pay and long hours, gender discrimination, and unpaid maternity and sick leave (Kuhn, 2020). Within the context of multinational oil and gas firms social finance promotes social cooperation and investment in local networks, fosters social assorted variety, considers human rights and respects for human rights, and ensures that the need for equity and fairness in the sharing of social and economic resources. (Okolie & Igaga, 2020). The rationalization here is that, if more attention is placed on social finance disclosure, oil and gas firms are expected to achieve higher financial performance in terms of ROI.

Following the legitimacy theory, socially responsive firms will achieve higher social approval and ROI than firms that are not. Meanwhile, the stakeholder theory stresses that, a firm's ROI is dependent on the ability of such firm to meet the diverse needs of her stakeholders. By implication, ROI is dependent on the extent to which a firm invest in social finance.

From empirical viewpoint, studies on social finance and firm performance are relatively mixed. For example, Udeagha and Muchapondwa (2023); Okolie and Igaga (2020); Madaleno and Vierra (2020) reported that, sustainable finance is instrumental to

higher firms' financial performance. However, Munir, Irfan, and Malik (2022); Erhirhie and Ekwueme (2019); Zamil and Hassan (2019) reported that, investment in social finance affect corporate performance adversely since the cost associated with social finance sometime outweighs the benefits therein. Hence, the paper hypothesizes:

H0₃: Social finance does not significantly affect the ROI of listed multinationals in the Nigerian oil and gas industry

RESEARCH METHODS

This study adopted the expost research design. The study adopted the secondary source of data collection using the data that was sourced from the annual reports of the 10 oil and gas multinationals. Since the study population equals the sample size of 10 multinationals in the Nigerian oil and gas industry, the census sampling technique was adopted. The study adopted the panel data methodology. The key tests conducted in an attempt to determine the most appropriate model for the study was Hausman Test. Accordingly, the Hausman test was used to choose between the Fixed Effect Model (FEM) and the Random Effect Model. The null hypothesis of the Hausman test is that the REM is most appropriate for the study. However, the alternative hypothesis holds that the FEM is most preferred.

Justifiably, the research followed both the descriptive and inferential analysis. Meanwhile, to ensure that the regression results are fit for the formulation of informed policies, the model accounted for multi-collinearity, normality; Heteroskedasticity, and mis-specification. The Econometric Views version 9.0 was used as a tool for running the regression results. Econometrically, the model is expressed as:

$$ROI_{it} = \beta_0 + \beta_1 ECDS_{it} + \beta_2 GRDS_{it} + \beta_3 SDSF_{it} + \beta_4 FSIZ_{it} + \beta_5 FLEV_{it} + \varepsilon_{it} \text{ --- Eqn. 3.1}$$

Where:

ROI_{it} = Return on Investment at time t

ECDS_{it} = Eco-friendly finance at time t

GRDS_{it} = Green finance at time t

SDSF_{it} = Social finance at time t

FSIZ_{it} = Firm Size at time t

FLEV_{it} = Financial Leverage at time t

β_0 = Constant

$\beta_1 - \beta_5$ = Parameter Estimates

ε_{it} = Error term

Operationalization of Study Variables

Regressors

The regressor is sustainable finance and is measured by eco-friendly finance, green finance, and social finance. Particularly, the eco-friendly finance proxies are economic benefit generated profits, operating cost, income tax, employees' salaries and wages, and market development. Meanwhile, social finance covers human rights, employee health and safety, fair labour practices, diversity, work life balance, community engagement, philanthropy, employee empowerment, and volunteerism. Meanwhile, green finance is measured by carbon emission reduction, fuel cost, gallons of water saved, reduction of electricity usage, and increased waste diversion. Should any firm disclose any of the item, such firm is scored 1 otherwise 0. These estimates were sourced from the notes to the accounts of the sampled firms as published by Global Reporting Index (GRI).

Regressand

The regressand is corporate performance and its was measured by return on investment-ROI. This is mathematically expressed as:

$$ROI = \frac{\text{Net income after interest and tax total}}{\text{total Investments}}$$

Control Variables

The two control variables considered are:

- i. **Firm size:** Natural logarithm of the total assets of the 10 quoted oil and gas multinationals
- ii. **Financial Leverage:** Debt divided by Equity.

RESEARCH FINDINGS AND DISCUSSIONS

Preliminary Analysis

Table 2 presents the descriptive statistic estimates while table 3 presents the correlation analysis. Both test the behavioural patterns of each of the variables under study.

Table 2: Descriptive Statistics

Variables	Mean	Median	Maximum	Minimum	Std. Dev.	Observations
ECDS	0.644759	0.666700	0.888900	0.166700	0.160854	150
GRDS	0.633675	0.600000	0.800000	0.200000	0.164792	150
SDSF	0.633127	0.666700	0.888900	0.222200	0.179758	150
FLEV	1.453462	1.516708	2.918100	0.116900	0.732090	150
FSIZ	8.540370	9.790550	12.11090	0.400000	3.009024	150
ROI	0.066067	0.022950	0.885600	0.000300	0.140726	150

Source: E-Views Version 9.0 (2023)

Table 2 reported that, the quoted oil and gas companies have an average ROI value of 0.066067 but varied by 0.140726. This indicates high degree of dispersion since the standard deviation estimate is greater than the mean value. Again, ROI reported maximum values of 0.885600 percent and minimum values of 0.000300%.

Additionally, for the studied time, eco-friendly finance has highest and least value of 0.888900 and 0.160854, respectively. Regarding the extent of variability, eco-friendly finance deviated by 0.160854 though has an average value of 0.644759. This suggests that there is little variability, or dispersion.

Further, the green finance has a maximum and minimum value of 0.800000 and 0.200000 respectively for the sampled period. In terms of variability, green finance has an average value of 0.633675 but dispersed by 0.164792. This indicates a low variability/dispersion since the standard deviation estimate is less than the mean value.

Likewise, over the studied time, the highest and lowest social finance value were 0.888900 and 0.222200, respectively. Meanwhile, the average social finance value 0.633127. Also, socialfinance deviated by 0.179758. The fact that the standard deviation estimate is smaller than the mean value suggests that there is little variability, or dispersion.

Additionally, for the studied time, the highest and minimum values of firm size were 12.11090 and 0.400000, respectively. Regarding the extent of variability, the sampled firms had averagefirm sizevalue of 8.540370 but varied by an estimated value of 3.009024.

Finally, over the sampling time, the highest and lowest financial leverage were 2.918100 and 0.116900 respectively. Meanwhile, the average leverage was 1.453462, but deviated by 0.732090. The fact that the standard deviation estimate is smaller than the mean value suggests that there is little variability, or dispersion.

Table 3: Correlation Analysis

	ROI	ECDS	GRDS	SDSF	FLEV	FSIZ
ROI	1.000000					
ECDS	-0.702755	1.000000				
GRDS	0.411935	-0.044755	1.000000			
SDSF	0.318916	0.019085	0.019365	1.000000		
FLEV	-0.410312	-0.087752	0.058684	0.127665	1.000000	
FSIZ	-0.207970	-0.165583	-0.069390	-0.068767	0.107884	1.000000

Source: E-Views 9.0 (2023)

Table 3 demonstrates that, although their degrees of association vary, green finance and social finance exhibit positive correlations with ROI with corresponding correlation values of 0.411935 and 0.318916. However, there is a negative association among financial leverage, firm size, eco-friendly finance and ROI.

Nevertheless, no regressor had a coefficient value higher than 70%. This suggests that there is extremely little chance of a multicollinearity issue among the regressors. To confirm this, the multi-collinearity test was introduced (See Table 4).

Diagnostic Tests

To ensure that the regression results are fit for the formulation of informed policies, the model accounted for multi-collinearity, normality; Heteroskedasticity, and mis-specification. Each of their outcomes are presented thus:

Table 4: Multicollinearity Test

Variable	Nature of Variables	VIF	TOV	Conclusions
ECDS	Independent	1.9059	0.5247	Free from Multicollinearity Issues
GRDS	Independent	1.6784	0.5958	No Multicollinearity Problem
SDSF	Independent	1.9037	0.5253	No Multicollinearity Problem
FLEV	Moderating	1.8277	0.5471	No Multicollinearity Problem
FSIZ	Moderating	3.7457	0.2670	No Multicollinearity Problem
Average	Aggregate	2.2123	0.4920	No Multicollinearity Problem

Note: VIF-Variance Inflation Factors; TOV –Tolerance Value

Source: E-Views 9.0 (2023)

Table 4 reported average VIF value of 1.03295 and average TOV of 0.49198 > 0.10. Hence, the paper reaffirmed that, the model is free from multicollinearity problems.

Table 5: Other Robustness Tests

Heteroskedasticity Test	F-statistic	2.0954	Prob. F(5, 144)	0.3607
Ramsey Reset Test	F-statistic	0.6308	(1, 143)	0.4284
Hausman Test	Period Random	2.8203	5	0.9011

Source: Author's Computation Using E-views 9 (2023)

The Heteroskedasticity Test reported a prob. value of 0.3607 evidencing that, the model spreads evenly while the Ramsey Reset Test reported that, all the variables are well-specified. Meanwhile, the Hausman test with p-value of 0.9011 proved that, the Random effect model is most appropriate model for this paper. However, the model corrected for variable perturbation issue (Oboro& Onuorah, 2022).

Regression Results

The REM estimate is shown in table 6 having evidenced that, the model is fit for prediction:

Table 6: Panel EGLS

Dependent Variable: ROI

Method: Period random effects)

Balanced Panel Observations: 150 (Cross Sections=10 & Periods)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.3161	0.1287	10.2289	0.0000
ECDS	-0.7062	0.1447	-4.8788	0.0000
GRDS	0.4153	0.2014	2.0615	0.0421
SDSF	0.4046	0.1110	3.6449	0.0004
FSIZ	0.0030	0.0028	1.0403	0.3009
FLEV	-0.1829	0.0602	-3.0368	0.0031
Weighted Statistics				
R-squared	0.5823	Mean dependent var		0.0590
Adjusted R-squared	0.5201	Durbin-Watson stat		2.0190
F-statistic	2.9311	Prob(F-statistic)		0.0081

Source: Author's Computation Using E-views 9 (2023)

Table 6 reported R-Square value of 0.5823 and adjusted R² value of 0.5201. By implication, 58.23% of the variation in ROI is jointly explained by Eco-friendly finance, Green finance, social finance firm size and financial leverage. Meanwhile, the remaining 41.77% variance in ROI is explained by the error term. Also, the F-statistic of 2.931071 with a p-value of 0.0081 suggests that the model is significant at 5% level. Furthermore, the Durbin-Watson statistics of 2.0190 indicates the absence of autocorrelation in the model.

The regression estimate evidenced that, when financial leverage and firm size were introduced into the model as moderating variables, eco-friendly finance had a high retarding effects on ROI such that, if less attention is placed on eco-friendly finance, ROI of oil and gas multinationals would rise by a high value of 70.62%. This further suggests that, high level of indebtedness is a critical factor which influences the magnitude of relationship between eco-friendly finance and ROI. However, green finance also have high meaningful effects on ROI such that, if less attention is placed on green finance, ROI of oil and gas multinationals would fall by

41.53%. However, attention need to be placed on the high level of toxicity, neglect and degradation recorded by the activities of oil and gas multinationals over the years.

In the case of social finance, when financial leverage and firm size were introduced into the model as moderating variables, social finance became highly value additive. These result is in support of the findings of Madaleno and Vierra (2020); Appiah, jianguo and Kofi (2020) Amacha and Dastane (2018) but deviated sharply from the findings of Menike (2020); Maher, Ali, Hameedi, and Almagtone (2019); Clarissa and Rasmini (2018); Asuquo, Dada, and Onyeogaziri(2018).

CONCLUSION AND POLICY RECOMMENDATIONS

The paper concludes that, when moderated for both firm size and financial leverage, green finance and social finance are highly instrumental to the financial performance (return on investment) of oil and Gas Multinationals throughout the reviewed periods. Hence, we made the following submissions:

1. The regulatory authorities of the Nigerian oil and gas industry need to re-evaluate their cost centres. This is with a view to determine which of the cost centres that reduces the company's ROI.
2. The regulatory authorities of the Nigerian oil and gas industry must encourage, oil and gas multinationals to address the environmental issues caused by their activities.
3. To achieve a desirable ROI, the managers of the oil and gas industry should continue to cultivate a healthy work-life balance, donate to a social cause, and at the same time they should emphasize the importance of health and safety.

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