



Corporate Social Disclosures and Financial Performance of Quoted Oil and Gas Companies in Nigeria

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ABSTRACT

This study examined the extent to which corporate social responsibility (CSR) disclosures impact the financial performance of publicly quoted oil and gas companies in Nigeria. Two CSR disclosure indicators - local community initiatives and social donations/gifting - were employed as independent variables, alongside four financial performance indicators: return on assets (ROA), return on equity (ROE), return on capital employed (ROCE), and earnings per share (EPS). Firm size served as a control variable. Using dummy variables for CSR disclosures and panel data from 10 companies over a 10-year period (2014–2023), the analysis applied descriptive, post-estimation, and inferential statistics through fixed and random effects models. Findings revealed that CSR disclosures significantly influenced ROA ($F = 11.31$; $p < 0.05$), ROCE ($F = 9.54$; $p < 0.05$), and EPS ($F = 32.40$; $p < 0.05$), while their effect on ROE was insignificant ($F = 1.26$; $p = 0.2933 > 0.05$). The study concludes that CSR disclosures are key determinants of financial performance, particularly in enhancing ROA, ROCE, and EPS. Based on the findings, it is recommended that regulatory authorities in Nigeria's oil and gas sector encourage firms to invest more in CSR-related ventures, as they have proven financial benefits. Furthermore, oil and gas companies should scale up in size and capital employed while advocating for greater CSR transparency to enhance overall financial performance.

Keywords: Corporate Social Responsibility Disclosures, Financial Performance, Oil and Gas Companies, Nigeria

1. INTRODUCTION

Over the last decades, the issue associated with corporate social responsibility disclosures has become major interesting issues. This is because, even when scholars try to propose and conceptualize corporate social responsibility disclosures and at the same time outline its usefulness to various stakeholders, many researchers, even till date still finds it difficult to agree that corporate social responsibility disclosures are value additive especially in highly competitive and high-cost driven business environment. Arguably, the contention is that, firms' disclosures of its corporate social responsibility activities may not necessarily result to higher profitability as against the conventional view that it does.

Another issue which also motivated the study lies in the fact that, though some Nigerian listed companies report corporate social responsibility information in their annual reports, but the levels of this information is lower than expected. In like manner, Onuorah et al. (2022) are of the view that, the countless cases of some corporate firm's involvement in high level of dishonesty, over reporting, account falsification, account manipulation posed great question on the direction of relationship between corporate reputation and corporate social responsibility disclosures. Specifically, the argument here again that drew our attention into looking at the subject matter is, if corporate social responsibility disclosures is motivated by the desire to improve corporate reputation or the desire to gain public acceptance/legitimacy, why are most firms in Nigeria oil and gas industries yet to fully disclose their involvements in corporate social responsibility activities? These critical questions lie between the direction of relationship between corporate reputation and corporate social responsibility disclosures in the Nigerian Oil and Gas industry informed the study.

Furthermore, even though, there are avalanche of studies on the effect of each of the independent variables on corporate social responsibility disclosures, studies on determinants are relatively few yet contradictory and are not mostly domiciled in Nigeria. Even the few corporate social responsibility disclosures determinants studies like the studies of Kukreja et al. (2022); Umoren et al. (2017); Mohammed et al. (2016) did not individually looked at the interactive roles of how CSR disclosures (disclosures on the local community and social donations and gifting) determine financial performance (return on assets, return on equity, return on capital employed, and earnings per share). Hence, the motivation behind this study was to explore the effects of disclosing corporate social responsibility on the financial performance of publicly listed oil and gas firms in Nigeria. The key financial metrics under examination include profitability ratios like return on assets, return on equity, earnings per share, and return on capital employed.

The following research questions were formulated:

- a. To what extent do corporate social responsibility disclosures affect return on assets of quoted oil and gas companies in Nigeria?
- b. To what degree has corporate social responsibility disclosures influence return on equity of quoted oil and gas companies in Nigeria?
- c. To what magnitude has corporate social responsibility disclosures affect return on capital employed of quoted oil and gas companies in Nigeria?

2. LITERATURE REVIEW

2.1. Corporate Social Responsibility Disclosures

When a company publicly shares their actions to improve society, they are participating in corporate social responsibility disclosures. According to Gololo (2019), corporate social responsibility disclosures involve intentionally providing information on the financial, social, and environmental activities of a company. In essence, it is about sharing details on both monetary and non-monetary aspects of the company's resources and societal impact. Additionally, Tilt (1994) implies that when companies make a conscious decision to share information about their social and environmental impact with stakeholders, it is a demonstration of corporate social responsibility.

In Gololo's (2019) research, it was explained as a way for management to engage with the wider community in order to shape how their organisation is viewed externally. It is also seen as a commitment by a company to work in a financially and environmentally responsible manner, considering the interests of all stakeholders. Moreover, communicating about corporate social responsibility is seen as a useful way to communicate a company's social, financial, and environmental accomplishments to different stakeholders within and outside of society. Ngoc et al. (2019) described corporate social responsibility disclosures as the voluntary act of companies sharing how they have adhered to environmental, labour, and business regulations based on both local and international laws, all while ensuring mutual benefits and sustainable development. As a rule, the disclosures of corporate social responsibility are used by companies to demonstrate their commitment to addressing the diverse needs of different stakeholders, covering areas such as social, economic, educational, environmental, health, and charitable needs, all for the improvement of the wider community. This could also be seen as a means for businesses to proactively contribute to society and acknowledge the vital role played by stakeholders.

Furthermore, Nireesh and Silva (2018) noted that, when considering corporate social responsibility disclosures, most firms disclose corporate social responsibility activities for various reasons. While some may be for quest to have better financial and non-financial performance, some others may be for obtaining competitive advantage. Again, some others may be for the need to be relevant in the eye of the government, or gaining goodwill. Therefore, company's success depends on its responsibilities to the society. Corporate social responsibility disclosures is built on economic, legal, ethical, and philanthropist/discretionary responsibilities .

Onuorah et al. (2022) noted that, economical responsibility being the essence of a firm is the most fundamental responsibility of a firm. This is premised on the fact that; firm can only succeed if they make profit. Carroll (1979) suggested that in addition to focusing on making a profit, companies should also pay attention to their legal obligations which include operating within the boundaries of the law, treating

consumers, employees, shareholders, and the community fairly and justly, as well as respecting and safeguarding the moral rights of their stakeholders. Businesses might consider getting involved in philanthropic endeavours in their neighbourhoods, focusing on projects that enhance the well-being of the local population. Taking part in these voluntary activities could enhance the firm's competitive edge over time.

2.2. Corporate Social Responsibility Disclosures in Nigeria

In Nigeria, corporate social responsibility practices have their roots in the efforts of multinational corporations in the Oil and Gas industry. These companies are mainly concerned with reducing the negative effects of their operations on the surrounding environment. Additionally, in Nigeria, corporate social responsibility is understood as the responsibility of companies to tackle social issues that have been neglected by the government. The concept is based on the belief that companies benefiting from public support should contribute to addressing social issues. Therefore, the Nigerian government introduced Decree 58 of 1988 to create the Federal Environmental Protection Agency (FEPA) to monitor the environmental and social impacts of industrial activities (Famiyeh, 2017).

Therefore, the companies offer services such as providing water, hospitals, schools, and scholarships, among others. These efforts are often spontaneous and not consistently maintained. Many Nigerian banks have realised the importance of integrating social responsibility with business success to remain competitive and attract customers. In May 2008, the Federal Executive Council gave the green light for a policy on corporate social responsibility to encourage ethical behaviour among Nigerian businesses.

Dr. Sanusi Daggash, who serves as Minister of the National Planning Commission, shared details from the memorandum, highlighting the significance of companies embracing ethical behaviour for the greater good of society. He highlighted the need for organizations to go beyond legal requirements and engage in activities that give back to communities. The policy aims to enhance corporate governance, ethics, health and safety, human rights, human resource management, as well as measures to prevent bribery and corruption. Nigeria is looking to adopt global best practices in order to develop a robust corporate social responsibility disclosure policy.

2.3. Financial Performance

It is interesting to observe that financial performance measures are often based on facts, while non-financial performance measures are more based on opinions, such as how managers view the company's success in terms of market share, employee wellbeing, and innovation. The subjective perceptions of senior managers on non-financial performance seem to complement the hard data on financial performance, indicating a holistic approach to evaluating company performance.

While the exact relationship between corporate social responsibility and profits is still not fully understood, numerous research studies have indicated a favourable association between the two. This indicates that many view corporate social responsibility as a strategic method for attaining financial objectives. Taking an instrumental approach to corporate social responsibility means that the social goals are in harmony with the business goals, and CSR projects are utilised as instruments for promoting the company's financial interests.

Managers predict a notable increase in the profits of the company as a result of improving relations with stakeholders. It is suggested that companies with high profits are under greater public and political scrutiny and therefore require more social acceptance. In the same vein, improvement in performance has a tendency to augment firm's ability to invest in corporate social responsibility towards stakeholders. Therefore, it is proposed that highly profitable banks engage more in corporate social responsibility activities in order to make sure the public sees the organization as legitimate. With respect to corporate social responsibility and performance, three schools of thought exists which include:

1. A link has been found between corporate social responsibility and performance, with some believing that investing in CSR activities can enhance the overall value of a company.
2. Some researchers have discovered a neutral relationship between CSR and firm performance, highlighting the need to consider various factors that may influence the outcome.
3. On the contrary, there are those who argue that focusing on maximising profits without investing in CSR can lead to a negative impact on a company's overall performance.

In this study, we evaluated financial performance by analysing four (4) indicators: return on assets, return on equity, return on capital employed, and earnings per share. Below is a concise overview of these parameters:

a. Return on Assets (ROA)

Various indicators have been utilised in corporate social responsibility studies to gauge a company's profitability, including firm size, profitability, return on equity, EBIT, asset age, and return on sales. Among these, ROA is frequently cited as the most reliable indicator of profitability for a company. Unlike metrics like return on equity or return on sales, ROA is not influenced by varying levels of leverage across different sectors.

As the stock price is influenced by ROA in a positive manner, a higher ROA indicates greater shareholder value. Additionally, within industries reliant on assets like manufacturing, ROA serves as a more accurate gauge of a company's success. The literature indicates that ROA has an inverse (positive or negative) link with CSR; this finding informs the inclusion of ROA as a financial performance variable in its empirical model. Thus, we hypothesized that CSR exert no significant effect on ROA of publicly quoted oil and gas companies in Nigeria.

b. Return on Equity (ROE)

Shareholders are more interested in a company's return on equity (ROE) rather than its levels of debt. ROE is a key factor that shareholders consider when evaluating the effectiveness of a company over time (Nnamani & Nnaemake, 2020). From the perspective of shareholders, it is believed that using retained earnings as a source of funds is more favourable than seeking external financing. The reasoning behind this is that if retained earnings are insufficient, companies will resort to taking on debt. For this reason, Return on Equity (ROE) is considered an important measure of corporate performance, reflecting the percentage of net income returned in relation to shareholders' equity.

Moreover, the return on equity (ROE) metric shows the level of profitability that a company achieves with the funds provided by its shareholders. The calculation for this indicator involves dividing the post-tax profit by the company's equity or overall capital. Research has indicated a connection, whether good or bad, between ROE and Corporate Social Responsibility (CSR), resulting in the integration of ROE as a measure of financial performance in research studies. Consequently, our assumption is that CSR does not have a substantial effect on the ROE of oil and gas companies listed on the Nigerian stock exchange.

c. Return on Capital Employed (ROCE)

Shareholders generally favour a greater return on capital employed (ROCE) over borrowing money. ROCE serves as a crucial measure for shareholders to assess a company's effectiveness in the long run. Insider shareholders believe that retaining earnings is a more reliable source of funding than seeking external financing; this is because companies would turn to debt if their retained earnings are insufficient. Therefore, ROCE serves as a gauge for companies' financial performance.

Moreover, the return on capital employed (ROCE) measures the percentage of net income that is given back to shareholders in relation to their equity. This metric assesses the profitability of a company in relation to the funds provided by shareholders. Previous research has shown a connection between corporate social responsibility (CSR) and ROCE. For instance, the literature suggests that ROCE has an inverse (positive or negative) relationship with CSR; this finding informs the inclusion of ROCE as a financial performance variable in its empirical model. Hence, we hypothesized that CSR exert no significant effect on ROCE of publicly quoted oil and gas companies in Nigeria.

2.4. Empirical Studies

Wulan et al. (2022) studied the effect of corporate social responsibility disclosures on financial performance moderated by profitability. The study examined 68 manufacturing companies in the consumer goods industry sector that are listed on the Indonesia Stock Exchange for the period of 2018-2019. Data analysis was carried out using Moderated Regression Analysis (MRA) with the help of Statistical Product and Service Solution (SPSS). The findings indicated a significant and positive impact of corporate social responsibility disclosures on the financial performance of these companies during the specified time frame. Furthermore, the analysis of moderating variables revealed that profitability does not have a significant effect on the relationship between corporate social responsibility disclosures and financial performance.

Kepramareni et al. (2022) analyse how corporate social responsibility disclosures and the disclosure of information can be influenced by examining the manufacturing sector, which is one of the largest sectors in the stock market. Research was conducted on 112 companies and analysed through multiple linear regression. The findings reveal that the 112 companies sampled do disclose corporate social responsibility in their financial statements, but this does not represent all manufacturing companies in the stock market. As a result, there are still numerous manufacturing firms that do not disclose their corporate social responsibility practices.

Yakadi (2022) conducted a study on how profitability can be influenced by corporate social responsibility disclosures. The study looked at factors such as earnings per share (EPS), return on assets (ROA), and return on equity (ROE) to measure profitability, and all expenses incurred by the company for a specified period to measure corporate social responsibility. The research employed a quantitative methodology and relied on secondary data from the annual financial reports of selected banks. Access Bank Plc, Guaranty Trust Bank (GTB), United Bank for Africa (UBA), and Zenith Bank Plc were the banks whose reports were examined, all of which are listed on the Nigerian Stock Exchange (NSE). The research utilized a combination of random and non-random sampling methods to choose from a total of twenty-two banks in Nigeria. These specific banks were chosen based on their reputation for active involvement in corporate social responsibility. Information was extracted from the yearly financial reports of the four selected banks over a seven-year period from 2015 to 2021 using E-views 8 software for simple linear regression analysis. The findings indicated a correlation between corporate social responsibility and return on assets (ROA) as well as return on equity (ROE). However, there was no significant relationship found between corporate social responsibility and earnings per share (EPS).

Voinea et al. (2022) examined the impact of a company's financial success and a CEO's multiple roles on the level of corporate social responsibility reporting was investigated within the setting of Chinese state-owned enterprises listed on the A-share market. The findings show that there is an adverse correlation between the CEO holding multiple roles and disclosing corporate social responsibility information. Our research has shown that companies that perform well are more likely to disclose corporate social responsibility information consistently and with better quality compared to companies with weaker financial performance.

Khuong et al. (2022) researched the effects of corporate social responsibility (CSR) disclosures and profitability in publicly traded companies on the stock market in Vietnam. Information was gathered from 76 companies with disclosed financial statements, annual reports, and CSR information in the Vietnamese stock market from 2014 to 2017. Used the Generalized Method of Moments (GMM) regression technique to analyse the connection. Discovered that CSR and AC have a beneficial influence on EP. The research contributes to the examination of prior research on the link between CSR disclosures, AC, and EP in emerging nations. Also, offers some policy recommendations for regulators and companies on transparency in information disclosure to boost AC and CSR while maintaining EP.

Na et al. (2022) explored the link between the caliber of corporate social responsibility disclosures and financial leverage, with a focus on the impact of chief executive officer power in Chinese listed companies. The study analysed data from a wide-ranging sample of 3,248 firms over the period of 2014-2020, drawn from the Shenzhen and Shanghai Stock Exchanges. Employing STATA 15 software, the researchers conducted pooled ordinary least squares (OLS) regression analysis on the Chinese companies. To address potential endogeneity issues, a 1-year lagged regression and two SLS regressions were also employed in the study. The unbalanced dataset was obtained from the CSMAR website, which is a major resource for information on Chinese companies that are listed publicly. Information regarding corporate social responsibility and media coverage is gathered through manual compilation. The research findings indicate that companies that actively disclose their corporate social responsibility practices experience positive effects on financial performance. Additionally, it was found that greater CEO authority has a detrimental impact on the quality of corporate social responsibility disclosures and their influence on financial performance.

Kukreja et al. (2022) looked into what drives insurance companies in Gulf Cooperation Council (GCC) countries to disclose their corporate social responsibility (CSR) activities using specific criteria from the Global Reporting Initiative (GRI). They divided these drivers into three groups: financial attributes like ROA, corporate governance attributes such as board size and gender diversity, and company-specific attributes like international presence, audit firm size, and company size. The researchers studied 84 out of 89 insurance companies listed from 2016 to 2020 by examining data from Thomson Reuters database and annual reports.

They used regression analysis and correlation matrix to determine which factors affect the level of CSR disclosures. The findings revealed that board size, along with company-specific and financial attributes, had a positive relationship with CSR disclosures. However, corporate governance characteristics (board gender diversity) negatively correlated with corporate social responsibility disclosures.

Permatasari and Sasongko (2022) conducted a study to examine how profit, company size, disclosure of corporate social responsibility, and debt impact the value of a company. The study used quantitative methods and multiple linear regression analysis with SPSS software. The research focused on manufacturing companies listed on the Indonesia Stock Exchange between 2018 and 2020. The sample included 204 manufacturing companies selected through purposive sampling. The findings revealed that profit and company size both influence firm value, while corporate social responsibility disclosure and leverage do not have a significant impact on company value.

3. RESEARCH METHODS

This research utilised the ex post facto methodology. The research sample includes ten (10) oil and gas firms that are listed on the Nigerian Exchange Group Limited as of 31st December, 2023 (The Nigerian Exchange Group website, 2024). The choice of selected companies was based on conformity of the publicly quoted oil and gas companies who have disclosed CSR data from 2014-2023. The study sampled all ten (10) publicly quoted oil and gas companies on the floor of the Nigerian Exchange Group Limited as at 31st December, 2023 (See Appendix); this suggests that both the sample size and population were equal. Considering the fact that, both the sample size and population were equal, the census sampling technique was adopted. The choice of census sampling technique lies in the fact that it involved a complete enumeration of the sampling units

The research gathered information from the yearly financial statements of the oil and gas companies that are publicly traded, studied between 2014 and 2023. The decision to utilise secondary data was influenced by the greater credibility that quantitative data provides in comparison to qualitative data. The factors that were taken into account included corporate social responsibility (CSR) disclosures related to the local community, contributions and gifts, financial achievements such as return on assets, return on equity, return on invested capital, and earnings per share, as well as a control factor (company size). The data obtained were deemed reliable and valid given that they have been audited by professional auditors and accepted by relevant frameworks governing publicly quoted companies in Nigeria.

4. RESULTS AND DISCUSSION

4.1. Model Specification

The study to examined the factors that corporate social responsibility disclosures influence, using simple linear regression model. Accordingly, the study is modelled after the empirical works of Kukreja et al. (2022) though with little variations. It appears that their model highlighted CSR disclosures in comparison to factors such as return on assets, board size, board gender diversity, internationalization, audit firm size, and company size. In contrast, this research analysed CSR disclosure in relation to return on assets, return on equity, return on capital employed, and firm size. Therefore, the revised empirical model was formulated as:

$$\text{roait} = \beta_0 + \beta_1 \text{csrdlcit} + \beta_2 \text{csrdsdgi} \beta_2 \text{fsizeit} + \text{uit} \quad \text{equation 1}$$

$$\text{roeit} = \beta_0 + \beta_1 \text{csrdlcit} + \beta_2 \text{csrdsdgi} \beta_2 \text{fsizeit} + \text{uit} \quad \text{equation 2}$$

$$\text{roceit} = \beta_0 + \beta_1 \text{csrdlcit} + \beta_2 \text{csrdsdgi} \beta_2 \text{fsizeit} + \text{uit} \quad \text{equation 3}$$

In this study, we examine the impact of Corporate Social Responsibility Disclosure on the local community, as well as on social donations and gifting. We also consider financial indicators such as Return on Assets, Return on Equity, and Return on Capital Employed. Additionally, we look at firm size as a factor. The variables in our model include a constant term, parameter estimates, and a disturbance error term. Our sample includes individual oil and gas companies over a given period of time.

Table 1. Measurement of Study Variables

Variable	Denotation	Measurement	Nature	A-priori Expectation	Authors
Corporate Social Responsibility Disclosure on Local Community (Independent Variable)	CSRDLCL	1 for company that disclosed CSR and 0 if otherwise	Dummy Variable	Nil	Wulan et al. (2022); Kepramareni et al. (2022)
Corporate Social Responsibility Disclosure on Social Donations and Gifting (Independent Variable)	CSRDSGL	1 for company that disclosed CSR and 0 if otherwise	Dummy Variable	Nil	Yakadi (2022); Voinea et al. (2022)
Return on Assets (Dependent Variable)	ROA	Net Profit after Tax divided by Total Assets	Ratio	+	Na et al. (2022)
Return on Equity (Dependent Variable)	ROE	Net Profit after Tax divided by Total Equity	Ratio	+	Kukreja et al. (2022); Permatasari and Sasongko (2022)
Return on Capital Employed (Dependent Variable)	ROCE	Net Profit after Tax dividend by Total Capital Employed	Ratio	+	Gaio et al. (2023)
Firm Size (Control Variable)	FSIZE	Natural Logarithm of Total Asset	Ratio	+	Khoiriyah et al. (2022)

Source: Researcher's Compilation (2024)

4.2. Summary of Descriptive Statistics

Table 2. Summary of Descriptive Results

Variables	CSRDLCL	CSRDSGL	ROA	ROE	ROCE	EPS	FSIZE
Mean Value	0.5500	0.9600	7.1200	14.6408	12.2566	2.4892	6.9530
Max. Value	1.	1	108.90	255.660	123.320	22.910	9.3800
Min. Value	0	0	-179.92	-265.680	-179.520	-7.3200	5.2400
Std. Dev.	0.5000	0.1969	25.458	54.3356	28.5804	4.5694	1.0775
Obs.	100	100	100	100	100	100	100

Source: Author's Computation Using STATA 16.0

Table 2 provided a concise overview of the descriptive findings related to various factors such as corporate social responsibility disclosures on the local community and social donations and gifting. It also highlighted the results for key variables including return on assets, return on equity, return on capital employed, and earnings per share, as well as the control variable of firm size. As observed from the data, the average value for the amount of CSRDLCL by publicly quoted oil and gas companies is N55.00 but deviated by N50. Meanwhile, it has maximum and minimum values of one (1) and zero (0); an indication that there were some publicly quoted oil and gas companies that disclosed CSRDLCL while there were some that did not. This is expected since corporate social responsibility disclosures (CSR) is voluntary in Nigeria.

The average value for CSRDSGL by publicly quoted oil and gas companies is N96.00 but deviated by N19.7 Meanwhile, it has maximum and minimum values of one (1) and zero (0); an indication that there were

some publicly quoted oil and gas companies that disclosed CSRSDG while there were some that did not. This is expected since CSR disclosure on CSRSDG is still at its voluntary stage in Nigeria. The mean value for ROA stood at 7.12% meaning that, on the average CSR disclosures affects ROA of oil and gas companies by 7.12% but deviated by 25.5%. Furthermore, it detailed the highest and lowest percentages as 108.90% and -179.92% respectively. In addition, the average ROE was recorded at 14.6%, illustrating that CSR disclosures have an impact of 15% on oil and gas companies' ROE on average, with a deviation of 54%. Additionally, it indicated the maximum and minimum figures as 255.7% and -265.7% respectively.

On the other hand, the mean value for ROCE stood at 12.3% meaning that, on the average CSR disclosures affects ROCE of oil and gas companies by 12% but deviated by 28.6%. More so, it reported maximum and minimum values of 123.320% and -179.5% respectively. Also, the mean value for EPS stood at 2.5% meaning that, on the average CSR disclosures affects EPS of oil and gas companies by 3% but deviated by 5%. More so, it reported maximum and minimum values of 22.9% and -7.32% respectively. In addition, the size of a company calculated using the natural logarithm of total assets has an average of 6.9 with a deviation of 1.0775. This suggests that the size of the firm may not play a significant role in determining CSR disclosures, with a highest value of 9.38 and a lowest value of 5.24.

Table 3. Normality Results

Variables	CSRDL	CSRSDG	ROA	ROE	ROCE	EPS	FSIZE
Skewness	-0.2010	-4.6948	-3.3236	-0.6033	-2.1667	1.6015	0.9666
Kurtosis	1.0404	23.0416	33.063	13.8109	24.2128	6.7574	2.6782
Obs.	100	100	100	100	100	100	100

Source: Author's Computation Using STATA 16.0

The kurtosis values for CSRDL and FSIZE were both below 3, suggesting that these variables could lead to significant positive outcomes for financial performance. On the other hand, the kurtosis value for CSRSDG was above 3, indicating a higher likelihood of extreme negative events in financial performance. Overall, the model residuals for the sampled oil and gas companies in Nigeria showed a normal distribution. In addition, the Pearson correlation matrix was employed to explore the level of connection among the independent, dependent, and control variables. The correlation matrix results can be found in Table 4.

Table 4. Pearson Correlation Results

Variables	CSRDL	CSRSDG	ROA	ROE	ROCE	EPS	FSIZE
ROA	1.0000						
ROE	0.4128	1.0000					
ROCE	0.9832	0.4640	1.0000				
EPS	0.4247	0.2809	0.3832	1.0000			
FSIZE	0.1754	0.0545	0.1650	0.6814	1.0000		
CSRDL	-0.1983	-0.2010	-0.2122	-0.0082	0.0241	1.0000	
CSRSDG	0.4589	0.0103	0.4225	0.2746	0.0601	-0.1846	1.0000

Source: Author's Computation Using STATA 16.0

The Pearson correlation matrix, found in Table 4.3, indicated a positive relationship between FSIZE and CSRSDG with financial performance variables such as ROA, ROE, ROCE and EPS. This suggests that as FSIZE and CSRSDG increase, so do ROA, ROE, ROCE and EPS for oil and gas companies in Nigeria. However, CSRDL showed a negative correlation with ROA, ROE, ROCE and EPS, although this relationship is considered weak as the correlation coefficient is less than 0.5%. Overall, none of the independent and control variables displayed a high correlation coefficient above 0.9, indicating a lack of multi-collinearity. To support this claim, the model underwent a variance inflation factor (VIF) analysis, with the results presented in Table 5.

4.2.1. Post-Estimation Statistics

Table 5. Variance Inflation Factor (VIF) Results

Variables	VIF	1/VIF
CSRSDG	1.04	0.9617
CSRDL	1.04	0.9646
FSIZE	1.00	0.9951

Mean VIF	1.03
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Source: Author's Computation Using STATA 16.0

The data for this study was tested for multicollinearity as reported in Table 4.4. As observed, the mean VIF value of 1.03 is far below the benchmark of 10.0; this is an indication of an absence of multicollinearity among the variables, thus there would be possibility of no problem of unstable parameter estimates in the regression line.

Table 6. Heteroskedasticity Results (Nigeria)

Variables	Fitted Values of Dependent Variables
Chi2(1)	235.53
Prob. > Chi2	0.0000

Source: Author's Computation Using STATA 16.0

From the Table 6, the P-value of the chi-square which stood at 0000 indicates that there is none of the study variables that were omitted since it is significant at 5%. On this note, the study boldly states the model is reliable and fit for prediction. Having ascertained that the model is homoscedastic and that none of the study variables are omitted, the main regression result can be relied upon. The result further implies that the sample used in the panel regression does not contain unequal variance and as such, there is evidence that the results are valid.

Table 7. Ramsey RESET Test Result

Ho	Model has no Omitted Variables
F(3, 93)	22.59
Prob. >F	0.0000

Source: Author's Computation Using STATA 16.0

In Table 7, the RESET test was used to check for errors in the regression model due to omitted variables and the accuracy of the response variable predictions. The findings demonstrated that the F statistic (3, 93) was 22.59, with a significant probability value of 0.0000, suggesting that the null hypothesis was upheld and the alternative hypothesis was dismissed. This suggests that the empirical model of the study has no omitted variables, thus the models do not suffer from functional form misspecification.

Table 8. Cameron & Trivedi's Decomposition of IM-Test Result

Sources	Chi2	df	p
Heteroskedascity	51.39	6	0.0000
Skewness	17.70	3	0.0005
Kurtosis	2.31	1	0.1288
Total	71.40	10	0.0000

Source: Author's Computation Using STATA 16.0

Cameron and Trivedi conducted a decomposition analysis of the information matrix (IM) test, as detailed in Table 4.7, to determine if the models adhere to the principles of panel regression. The results showed that the heteroskedasticity and skewness tests were statistically significant (Chi2 = 51.39, p-value = 0.0000; Chi2 = 17.70, p-value = 0.0005 respectively), indicating potential violations of the regression axioms. In contrast, the kurtosis test was not statistically significant (Chi2 = 2.31, p-value = 0.1288). However, when considering the total values (Chi2 = 71.40, p-value = 0.0000), we reject the null hypothesis and accept the alternative hypothesis that the model does not violate any panel regression axioms.

4.2.2. Test of Hypotheses

In order to guarantee the reliability, validity, and accuracy of the statistical findings for the research, this section showcases the outcomes of two different estimation techniques/models: the Random Effect Model (REM) and the Fixed Effect Model (FEM) were implemented. Additionally, Hausman cross-sectional tests were performed to determine the most suitable model to utilise, and the findings were detailed in Tables 9-11.

H01: Corporate social responsibility disclosures have no significant effect on return on assets of quoted oil and gas companies

Table 9. Corporate Social Disclosures and Return on Assets (ROA)

Estimators	Fixed Effect Model (FEM)		Random Effect Model (REM)	
	Coefficient	Prob. Value	Coefficient	Prob. Value
Variable				
CSRDLCL	-8.3345 (-1.47)	0.147	-6.6392 (-1.39)	0.166
CSRDSGL	65.508** (5.12)	0.000	57.974** (4.91)	0.000
FSIZE	3.4152 (1.65)	0.102	-69.650 (1.73)	0.083
_Constant	-74.930** (-3.99)	0.000	-69.650** (-3.81)	0.000
F-value	11.31	0.000		
R-Squared (within)	0.2806		0.2798	
R-Squared (between)	0.1547		0.1509	
R-Squared (overall)	0.2460		0.2471	
Wald Ch2			33.01	
Prob. Ch2			0.000**	
Hausman Test	Chi2(2) = 2.40		Prob>Chi2= 0.4932	

Source: Author's Computation Using STATA 16.0; *significant at 1% level; **5% level; Items in parentheses are t-ratios

In Table 9, the results of the Fixed Effect Model (FEM) and Random Effect Model (REM) regarding corporate social responsibility disclosures (CSRDLCL and CSRDSGL) and financial performance (ROA) for the entire dataset are shown. The initial model showed that corporate social responsibility disclosures had a notable impact on ROA at a 5% significance level. According to the results of the REM, the coefficients for CSRDLCL and CSRDSGL were calculated as -8.3345 and 65.508 respectively. This indicates that companies in Nigeria who partake in CSR activities could potentially see a 83% and 65% change in their ROA levels. Assessing the t-tests for CSRDLCL, CSRDSGL, and FSIZE, the values were recorded as (-1.47), (5.12), and (1.65) for FEM, and (-1.39), (4.91), and (1.73) for REM correspondingly.

The aim of the t-test was to assess the significance of each explanatory variable individually. In the t-test, any value below 2 is considered to be insignificant. The results of the t-test indicated that only CSRDSGL had a statistically significant impact on ROA, whereas CSRDLCL and FSIZE were found to be statistically insignificant in explaining ROA. However, R² is 0.2471 is higher than FEM; an indication that CSRDLCL, CSRDSGL and FSIZE jointly explained the dependent variable (ROA) by 24% while the unexplained variation is about 76%. The F-test yielded a statistic of 11.31, with a p-value of 0.000, indicating strong statistical significance. It measures the overall significance of all variables in the model. This finding suggests that there is likely a positive correlation between CSR disclosures and ROA in Nigerian oil and gas companies.

Moreover, the outcomes of the Hausman specification tests indicate that FEM is more effective than REM, with a Chi2(3) value of 2.40 and a p-value of 0.4932. The purpose of the Hausman specification test was to determine the model with the highest efficiency. The FEM results revealed that the subjects being studied have fixed characteristics, making the differences between companies in Nigeria irrelevant as the subjects and their variances are essentially the same. If the Probability (P) value is not significant, it means that FEM is more efficient than REM. Additionally, the Wald test assesses the model's adequacy through a likelihood-ratio test. When using STATA, the Wald test presents p-values instead of critical values. These p-values show the strength of the evidence against H₀, representing the highest level of significance at which the test can be carried out without rejecting H₀. In model1, the p-value is 0.000, indicating strong evidence to reject H₀ as the p-value decreases.

Judgment: Having an F-value of 11.31 and a p-value of 0.0000, which demonstrates considerable importance, the null hypothesis was contradicted in favour of the alternative hypothesis. This suggests that the presentation of corporate social responsibility by oil and gas firms in Nigeria greatly influences their return on assets.

H02: Corporate social responsibility disclosures have no significant effect on return on equity of quoted oil and gas companies

Table 10. Corporate Social Disclosures and Return on Equity (ROE)

Estimators	Fixed Effect Model (FEM)		Random Effect Model (REM)	
	Coefficient	Prob. Value	Coefficient	Prob. Value
Variable				
CSRDLCL	-26.208 (-1.84)	0.069	-22.644** (-2.05)	0.040
CSRDSGL	-11.281 (-0.35)	0.725	-8.7771 (-0.31)	0.754
FSIZE	2.9299 (0.57)	0.572	3.0956 (0.61)	0.539
_Constant	19.514 (0.42)	0.679	13.997 (0.32)	0.751
F-value	1.26	0.2933		
R-Squared (within)	0.0416		0.0414	
R-Squared (between)	0.1306		0.1319	
R-Squared (overall)	0.0448		0.0449	
Wald Ch2			4.51	
Prob. Ch2			0.2111	
Hausman Test	Chi2(2) = 0.22		Prob>Chi2= 0.9747	

Source: Author's Computation Using STATA 16.0; *significant at 1% level; **5% level; Items in parentheses are t-ratios

Table 10 displays the results of the Fixed Effect Model (FEM) and Random Effect Model (REM) in relation to corporate social responsibility disclosures (CSRDLCL and CSRDSGL) and financial performance (ROE) throughout the complete dataset. The findings from Model 2 indicate that the variables related to corporate social responsibility disclosures did not show any significance at a 5% level in relation to ROE. According to the results from the REM, the coefficients for CSRDLCL and CSRDSGL are -22.644 and -8.7771 respectively, suggesting that incorporating CSR practices in Nigeria could potentially result in a 23% and 87% alteration in their ROE. The t-tests for CSRDLCL, CSRDSGL, and FSIZE were recorded as (-1.84), (-0.35), and (0.57) in FEM, and (-2.05), (-0.31), and (0.61) in REM respectively.

The t-test confirms that only CSRDLCL is statistically significant in explaining ROE while variables of CSRDSGL and FSIZE were statistically insignificant in explaining ROE. However, R² is 0.0449 is higher than FEM; an indication that CSRDLCL, CSRDSGL and FSIZE jointly explained the dependent variable (ROE) by 4.5% while the unexplained variation is about 95.5%. The F-ratio is 1.26 with a p-value of 0.2933, indicating lack of significance. This could suggest that there is a potential link between CSR reporting and ROE in Nigerian oil and gas firms. The results of the Hausman specification tests reveal a Chi2 statistic of 0.22 with a p-value of 0.9747, suggesting that the Fixed Effects Model (FEM) is more effective than the Random Effects Model (REM).

Decision: With an F-value of 1.26 and a p-value of 0.2933, the results are deemed highly insignificant, leading to the acceptance of the null hypothesis and the rejection of the alternative hypothesis. This indicates that corporate social responsibility disclosures do not significantly impact the return on equity of quoted oil and gas companies in Nigeria.

H03: Corporate social responsibility disclosures have no significant influence on return on capital employed of quoted oil and gas companies.

Table 11. Corporate Social Disclosures and Return on Capital Employed (ROCE)

Estimators	Fixed Effect Model (FEM)		Random Effect Model (REM)	
	Coefficient	Prob. Value	Coefficient	Prob. Value
Variable				
CSRDLCL	-10.780 (-1.65)	0.103	-8.5805 (-1.58)	0.114
CSRDSGL	67.464** (4.58)	0.000	58.441** (4.33)	0.000
FSIZE	3.6164 (1.52)	0.132	3.8090 (1.61)	0.108
_Constant	-71.726** (-3.32)	0.001	-65.613 (-3.14)	0.002
F-value	9.54	0.000		
R-Squared (within)	0.2475		0.2465	
R-Squared (between)	0.1497		0.1461	
R-Squared (overall)	0.2169		0.2181	
Wald Ch2			27.66	
Prob. Ch2			0.000	
Hausman Test	Chi2(2) = 2.46		Prob>Chi2= 0.4820	

Source: Author's Computation Using STATA 16.0; *significant at 1% level; **5% level; Items in parentheses are t-ratios

Table 11 presents the results of both the Fixed Effect Model (FEM) and Random Effect Model (REM) in relation to the disclosure of corporate social responsibility (CSRDLCL and CSRDSGL) and the financial performance (ROCE) for all data included in the panel. When looking at Model 3, it was observed that the variables related to corporate social responsibility disclosures did not show significance in explaining ROCE at a 5% level. According to the REM findings, the coefficients for CSRDLCL and CSRDSGL were -8.5805 and 58.441 respectively, suggesting that when Nigerian companies partake in CSR, there could be around 85% and 58% alterations in their ROCE levels. The t-tests for CSRDLCL, CSRDSGL, and FSIZE were (-1.65), (4.58), and (1.52) in FEM, and (-1.58), (4.33), and (1.61) in REM.

The t-test confirms that only CSRDSGL is statistically significant in explaining ROCE while variables of CSRDLCL and FSIZE were statistically insignificant in explaining ROCE. However, R² is 0.2181 is higher than FEM; an indication that CSRDLCL, CSRDSGL and FSIZE jointly explained the dependent variable (ROCE) by 22% while the unexplained variation is about 78%. The F-test result is 9.54 with a p-value of 0.000, indicating significance. This indicates a possible positive connection between CSR disclosure factors and ROCE in Nigerian oil and gas companies. The results of the Hausman specification tests point to a Chi-squared value of 2.46 and a p-value of 0.4820, suggesting that the Fixed Effects Model (FEM) is superior to the Random Effects Model (REM).

Decision: The F-value of 9.54, along with a p-value of 0.000, indicates high significance. This resulted in rejecting the null hypothesis and embracing the alternative hypothesis, indicating that disclosures on corporate social responsibility have a considerable impact on the return on capital employed by oil and gas companies in Nigeria.

5. CONCLUSIONS

The main goal of this study was to investigate how the financial performance of oil and gas companies in Nigeria is affected by their disclosure of corporate social responsibility (CSR) activities. By employing a range of statistical methods, it was revealed that the disclosure of CSR initiatives has a significant effect on both return on assets (ROA) and return on capital employed (ROCE). However, there was no substantial impact observed on return on equity (ROE) as a result of CSR disclosures. Based on these findings, recommendations have been put forth for the management of reporting organisations. One of the suggestions is for regulatory bodies within the Nigerian oil and gas sector to promote multinational oil and gas corporations to focus on ventures that are asset-driven, as CSR disclosures appear to significantly affect ROA, an important performance metric. Secondly, management should consider financing operations with more

debt than equity, given the insignificant relationship found between CSR disclosures and ROE. Lastly, oil and gas companies are encouraged to grow in size and increase capital employed, especially when advocating for enhanced disclosure of CSR investments, as this has shown a positive influence on ROCE.

For future research, scholars are encouraged to expand the scope by including companies from other sectors or comparing indigenous and multinational firms. Additionally, incorporating qualitative assessments or stakeholder perception surveys could provide deeper insights into the strategic value of CSR disclosures beyond financial metrics.

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