

Economic & Social Sustainability Reporting and Financial Performance of Listed Oil and Gas Firms in Nigeria

Ogah, Inalegwu, Dr. Lambe, Isaac, Professor. Aza, Mangba Solomon

Department of Accounting, Bingham University, Karu, Nasarawa State

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ABSTRACT

The continuous and ever-increasing awareness that being socially and environmentally responsible can facilitate long-term growth, goals, raise productivity and optimize shareholder value has made sustainability issue a major concern for businesses of all sizes to preserve capital for future generations. This study examines the effect of economic and social sustainability reporting on return on capital employed of listed oil and gas firms in Nigeria. The ex-po facto research design was adopted and secondary data from annual report of listed oil and gas firms. The purposive sampling techniques was employed in selecting the 9 firms out of 10 oil and gas firms in Nigeria for 2011-2022 financial year. Panel regression estimation and fixed effect was used to analyze the result. The finding revealed that both economic and social sustainability reporting has negative significant effect on return on capital employed of oil and gas firms in Nigeria. The study concludes that economic and social sustainability reporting has a negative insignificant effect on return on capital employed of listed oil and gas firms in Nigeria. The study recommends that management of listed oil and gas firms in Nigeria should improve voluntary compliance with Economic sustainability reporting and social sustainability reporting and should not be compelled for sustainability reporting disclosure because of the negative multiplier effect on return on capital employed of oil industries in Nigeria.

Keywords: Economic Sustainability Reporting, Social Sustainability Reporting, Return on Capital Employed, Investor, Firm Age

INTRODUCTION

Financial performance as a tool that measures how well a company uses its resources in generating profit thus make it a vital tool to several stakeholders in a company (Jensen & Meckling,1976). The financial performance of many organizations has been largely linked to their sustainability accounting over time as it provides funding through owner's equity. Normally, every business organization is saddled with the responsibility of making returns. This responsibility is important since the ability of a firm to make returns in the competitive market determines to a large extent its ability to survive in the future. Financial performance therefore is crucial to any business organization's survival and continuous patronage by investors, potential investors, creditors, and other stakeholders in the business world. It is commonly believed that profit maximization is one of the main objectives of a firm, thus profitability of a firm has become the major decisive factor in determining its financial performance. Particularly, investors are concerned with the profitability of the company; hence they try to involve themselves in the affairs of the firm by various ways. However, in modern turbulent or unstable business environment, investors (owners) have to recruit managers as their agents to play essential roles on their behalf (Chinwe, 2013).

The increasingly numerous and varied human activities have impact on the natural environment. People in meeting their daily needs can have impact on the environment (Olatunde et al, 2021). Environmental impacts occur because humans tend to exploit natural resources from the environment in an excessive manner, for maintaining the necessities of life. As a result of these human activities, the environment is business susceptible to damage and environmental damage is getting worse. The development of technology companies

brings with it environmental degradation and the attendant negative effects on human life. Environmental management efforts aim to estimate the impact that will arise from operations, evaluate, and find appropriate solutions to overcome them. Sustainability reporting is a type of reporting that attempts to factor environmental costs into the financial results of operations. It has been argued by Emmanuel (2021), that gross domestic product ignores the environment and therefore decision makers need a revised model that incorporates green accounting. Environmental pollution is one of the problems facing the world today, due to its impact on society, nature and performance (Khan & Ghouri, 2011). The phenomenon of environmental pollution has received increasing attention in recent times, especially in light of the industrial progress in the contemporary world and the diversity of sources of pollution, and the attempt of industrial companies, particularly oil and gas firms to get rid of its waste is harmful to the environment and people (Chinwe, 2013). People all over the world express considerable concern about the damage to the environment by companies and its effects on their lives. The realization that being socially and environmentally responsible can facilitate long-term growth goals, raise productivity and optimize shareholder value has made sustainability issue a major concern for businesses of all sizes to preserve capital for future generations (Oprean-Stanet et al,2020). This consciousness has led increasing number of firms to provide sustainability reports in addition to the traditional reporting framework. For this reason, the following null hypotheses were formulated, and will be brought under close examination.

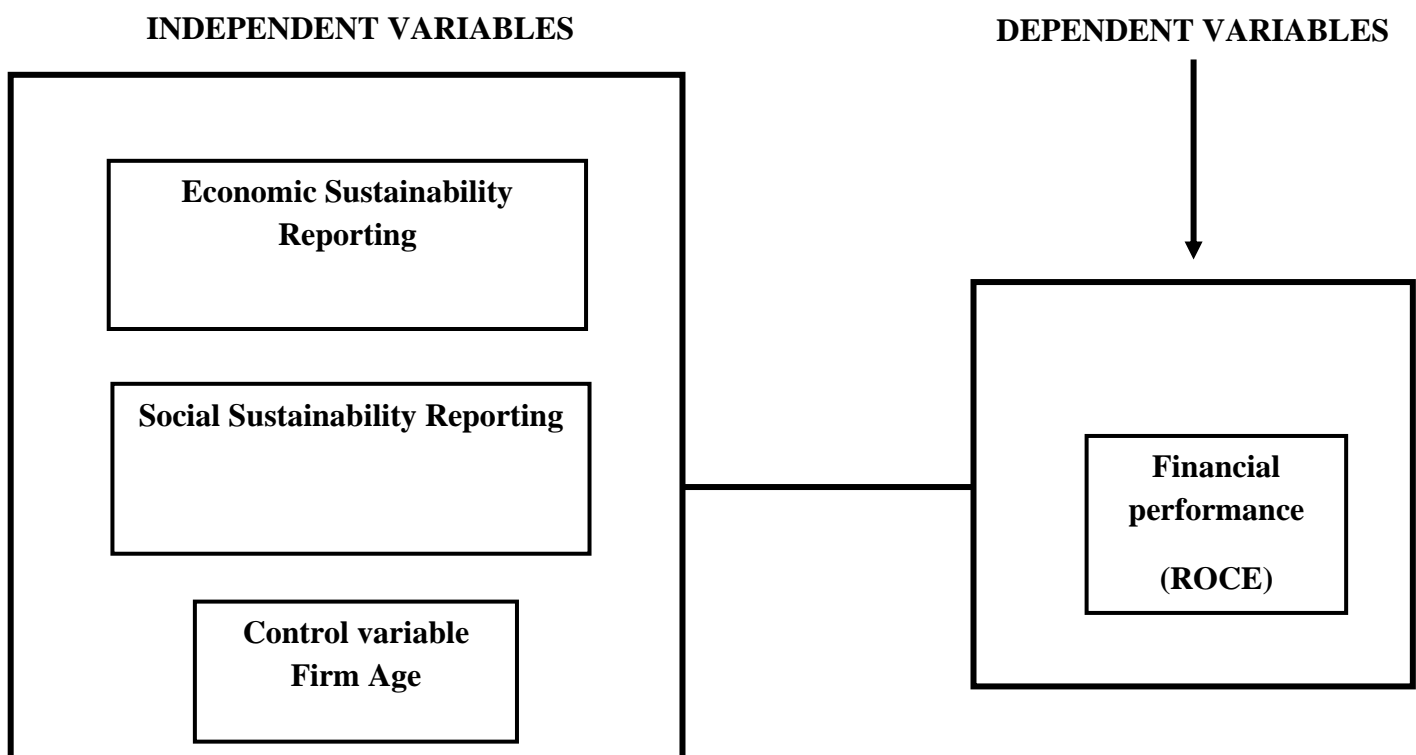
H₀₁: Economic sustainability reporting index has a negative effect on return on capital employed of listed oil and gas firms in Nigeria.

H₀₂: Social sustainability reporting and return on capital employed has a negative relationship in listed oil and gas firms in Nigeria.

LITERATURE REVIEW

Conceptual Framework

Under the conceptual framework, literature for key concepts which relate to both dependent and independent variables are discussed.



Source: Researcher Compilation (2024)

Economic Sustainability Reporting

Economic sustainability aims to keep the capital intact. If social sustainability focuses on improving social equality, economic sustainability aims to improve the standard of living. In the context of business, it refers to the efficient use of assets to maintain company profit over time. The UK Government (Annual Report 2020, January 2021) posited that maintaining high and stable levels of economic growth is one key objective of sustainable development, hence, abandoning economic growth is not an option. Sustainable development is more than just economic growth and the quality of growth matters as well as the quantity. Critics of this model acknowledge a great gap in modern accounting practices which do not include the cost of damage to the earth in market prices (Umoren et al, 2018). A more recent approach to economics acknowledges the limited incorporation of ecological and social components in the model. New economics is inclusive of natural capital (ecological systems) and social capital (relationships amongst people) and challenges the mantra of capital that continual growth is good and bigger is better if it risks causing harm to the ecological and human system (Osemeneet al., 2016).

Economic Sustainability Index

End with the mathematical Expression of the index.

Social Sustainability Reporting

Social sustainability includes improving human resource related practices for instance employees' training and development, employees' health and safety, diversity, equal opportunity and wage discrimination issues), addressing consumers' issues such as customers' health & safety, product labelling, communication practices, customers' complaints and compliance with product laws), protecting human rights such as freedom of association, removing child labour issues, nondiscrimination and other safety measures, etc.), and addressing other issues of broader stakeholders and community concerns such as involving the local community, reducing corruption, showing public policy concerns, discouraging anti-competitive behaviour, and complying with the law (GRI 3.1 2011). The concept gained prominence as a result of the ethical perspective of the organizations which recognized the value of social responsibilities in addition to their prime objective of wealth maximization. Social sustainability can be described as a company's commitment to behave socially and environmentally responsibly while striving for its economic goals. It includes the company's relationship with all its stakeholders, from market-related stakeholders (customers, share owners, suppliers) to internal (employees, board of directors) or societal stakeholders (government, Non-Governmental Organizations). It is measure by social sustainability reporting index.

Social Sustainability Index

End with mathematical expression of social Sustainability Index.

Return on Capital Employed.

Return on capital employed (ROCE) is a financial ratio that measures a company's profitability and the efficiency with which its capital is employed. ROCE is calculated as: Earnings before Interest and tax divided by capital employed. "Capital Employed" as shown in the denominator is the sum of shareholders equity and debt liabilities; it can be simplified as (Total Assets Less Current liabilities. Instead of using capital employed at an arbitrary point in time, analyst and investors often calculate ROCE based on "average capital employed" which takes the average opening and closing capital employed for the time period (Arafat et al, 2012). A higher ROCE indicates a more efficient use of capital. ROCE should be higher than the company's capital cost, otherwise it indicates that the company does not employ its capital effectively and does not generate shareholder value. Adjustments may sometimes be required to get a truer depiction of ROCE. A company may occasionally have an inordinate amount of cash at hand, but since such cash is not actively employed in the business, it may need to be subtracted from the "capital employed" figure to get a more accurate measure of ROCE. In general, investors tend to favour companies with stable and rising ROCE numbers over companies where ROCE is volatile and bounces around from one year to the other (Bassey et al, 2013). ROCE is

especially useful when comparing the performance of companies in capital – intensive sectors such as utilities and telecoms. This is because unlike return on equity (ROE) which only analyses profitability related to a company’s common equity, ROCE considers debt and other liabilities as well. This provides a better indication of financial performance for companies with a significant debt. Return on capital employed is calculated as earnings before interest and tax divided by total asset minus current liabilities

Firm Age

Firm age is defined as the number of years of incorporation of the company (Lawrence, 2022). In line with legitimacy theory, for a company to carry out business activities in a community depends on the acceptance of the society where they operate. As is obvious, businesses can be impacted by society and also have an impact on society. Hence, legitimacy theory is deemed to be an important resource determining organizational survival (Emmanuel, 2021). Based on this, aged firms with longer societal existence may have taken relatively more legitimacy and may have gained more goodwill and involvement of societal responsibility than newly incorporated firms. Generally, aged firms disclose more information than new ones. In other words, companies quoted on the stock exchange have enough experiences to disclose vital information considering the reaction of market for appropriate disclosure. Some studies have reported that level of disclosure of quoted companies significantly influence their capital market listing status.

Empirical Review

Faith and Grace (2022), examined the effect of environmental sustainability disclosure on financial performance of listed oil and gas companies in three countries within sub-Saharan Africa: Nigeria, Namibia, and Kenya. Ex-post facto research design and panel data was collected from fifteen (15) oil and gas listed firms in all three countries of interest within a nine (9) year time frame (2011 to 2019) were utilized. The study employed Robust Least Square Regression analyses technique to test the stated hypotheses. Findings showed that biodiversity and water disclosure significantly affect performance measures of return on equity (positively) and gross profit after tax margin (negatively). The study recommended that environmental sustainability disclosure compliance should be made mandatory for listed oil and gas companies and the guidelines for environmental assessment should be established to compel companies to accommodate environmental disclosure. The study result cannot be generalized for green accounting of oil and gas in Nigeria because its scope is limited by 9 years

Ezejiyor and Emeneka (2022), examined the effect of Leverage on Social Sustainability Reporting of listed Oil and Gas firms in Nigeria. Based on the nature of the study, Ex-Post facto research design and content analysis method were adopted. Seven (7) listed Oil and Gas firms in Nigeria constituted the sample size of this study for the years 2010 and 2020. Secondary data were extracted from the annual reports and accounts of the sampled firms and extracts from the annual reports were analyzed using descriptive statistics and inferential statistics such as Pearson Correlation, Panel Least Square (PLS) regression analysis and Hausman test through E-Views 10.0 statistical software. Findings from the empirical analysis showed that Leverage had significant effect on Social Sustainability Reporting in Nigeria. The study recommended that firms should intensify efforts to understand the role of sound environmental practices and disclosures in reducing the cost of debt and enhancing financial performance. If the study used better proxies than leverage it could result in a better conclusion and recommendation.

Lawrence (2022), examined the impact of sustainability reporting compliance on the financial performance of listed firms in Nigeria. Secondary data was collected from annual reports of a sample of fifty seven companies listed on the Nigerian Exchange Group. Simple disclosure index was used to score sustainability reporting Compliance using Economic (ECM), Environmental (EVM) Social (SOC) and Governance (GOV) disclosures in the annual reports of the sampled firms. The firms’ financial performance was evaluated based on Net Profit Margin (NPM) and Return on Capital Employed (ROCE). Using least square panel data analysis, the results show that listed companies in Nigeria have significantly complied with the sustainability disclosure guideline. The aggregate average sustainability Reporting Compliance (SRC) by all the firms examined was 75%. It was also found that there is a significant association between sustainability Reporting Compliance and Net Profit

Margin (NPM) as well as Return on Capital Employed (ROCE). It was recommended that companies, both local and international should adopt sustainability in their day-to-day policies to be legitimate in their daily activities on the planet and also enjoy better financial performance. The researcher believe that if a robust data analysis was used the finding could have given a good result and conclusion.

Emmanuel (2021), examined green accounting disclosure and its effect on financial performance of listed manufacturing firms in Nigeria. Particularly, the study examined the effect of green accounting disclosure on ROA, ROE and share price of manufacturing firms in Nigeria. The ex-post facto research design was employed. Data from the annual reports of forty out of the sixty-six manufacturing companies listed in the Nigerian Stock Exchange as at 31st December 2019 for the period spanning 2010 – 2019 were used. The descriptive statistics and the panel regression methods were employed for the data analysis. The Arellano and Bond (1991) GMM estimator which controls for potential endogeneity problem was employed to ensure robustness of the parameter. The study findings revealed that green accounting disclosure had a positive significant effect each on ROA and ROE. However, a negative effect subsists between green accounting disclosure and share price of manufacturing firms in Nigeria. The study recommends that manufacturing firms are encouraged to increase the extent of their green accounting activities for ease of assessment by stakeholders for investment decision making. The result cannot generalize for oil and gas because it focuses on manufacturing firm in Nigeria.

Nkwoji (2021) investigated the relationship between environmental accounting and profitability of selected quoted oil and gas companies in Nigeria in years 2012-2017. Specifically, it examined the relationship between environmental expenditure and the Net profit of quoted oil and gas companies in Nigeria. Correlational designs were adopted while secondary data were utilized for the study. The data were gathered from annual reports and accounts of the companies available on their websites and from the Nigerian Stock Exchange for various years. The data collected were from the period 2012 – 2017. The annual reports includes annual financial statements, annual sustainability reports and annual reports of global tax payment to nations by the quoted oil firms and annual returns submitted on the Nigerian Stock Exchange for the years under study. Regression was used for the data analysis and testing of the hypothesis. The result of the study showed that there was no significant relationship between environmental expenditure and net profit of the oil and gas companies in Nigeria under study. The study therefore recommended that among other things the managements of the oil and gas companies should channel efforts towards engaging in adequate environmental spending and its disclosure as a way of increasing stakeholders trust and showing more transparency in their operations. The scope and methodology are limited to 5 years and the data are obtained were too old to have meaningful bearing to current reality

Fakoya and Fakoya (2021) examined the effect of environmental accounting on the quality of accounting disclosure of shipping firms in Nigeria. They administered questionnaires to the staff of registered shipping firms in Nigeria and analysed the data using multiple regression. The findings showed that environmental accounting influenced the quality of accounting disclosure of shipping firms in Nigeria. They found a significant positive association between environmental accounting and the quality of accounting disclosure of shipping firms in Nigeria. The study concluded that firms need to recognize a liability in the statement of assets and liabilities once it was feasible that the economic benefit of an outflow of resources would offset a present obligation. They recommended that firms should decide, by discretion, which expenditure or cost should be included as environmental expenses or costs. The researcher observe that primary data are subjected to manipulation

Onajaet al (2021), evaluates how the Determinants of GRI affect Sustainability Reporting of listed Oil and Gas Firms in Nigeria and South Africa. The researchers used an ex-post facto study approach and a content analysis method. The sample size for this study was fourteen (14) listed oil and gas enterprises, with seven (7) listed oil and gas firms in Nigeria and seven (7) listed oil and gas firms in South Africa. Secondary data was retrieved from the sampled firms' annual reports and accounts, and extracts from the annual reports were examined with Panel Least Square (PLS) regression analysis via E-Views 10.0 statistical software. The results of the tested hypotheses revealed that there is a significant positive relationship between Stand-Alone Report, and Social Sustainability reporting, while, Sustainability Committee has a significant negative relationship

with Social Sustainability Reporting at 5% level of significance respectively in Nigeria. For South Africa, this study found that there is a significant positive relationship between Stand-Alone Report, and Social Sustainability Reporting. The study recommended that given the positive relationship between Stand-Alone Reports and Sustainability Reporting, Oil and Gas companies in both countries should continue to publish stand-alone sustainability reports, which can boost public confidence and improve the public image of oil companies both locally and globally. The result would have been more robust if more years are considered and a better sampling technique is applied.

Indriastuti and Chariri (2021) explained the effect of carbon and environmental performances on a sustainability report with financial performance as an intervening variable. The population of the study comprised mining companies listed on the Indonesia Stock Exchange in 2015-2019. The total samples obtained were 80 companies for five years. All the data related to the research variables were processed using the structural equation modelling method. The results of the study indicated that carbon performance had a positive effect on financial performance. Meanwhile, the environmental performance had a negative effect on the financial performance. On the other hand, carbon and environmental performances did not affect the sustainability report. Financial performance variables could not mediate the variables of carbon and environmental performances on the sustainability report. It is however notable that beside the fact the study was conducted in an Indonesia country; the finding might not be applicable in Nigeria context

Oraka (2021) ascertained the effect of environmental costs on the financial performance of oil and gas companies on the Nigerian Stock Exchange. The specific objectives were to: ascertain the effect of environmental remediation cost on Tobin's Q of oil and gas companies listed on the Nigeria Stock Exchange and evaluate the effect of compliance cost on Tobin's Q of oil and gas companies on the Nigerian Stock Exchange. The ex post facto research design was adopted for the study. The data were gathered from the published financial statements of the eleven (11) oil and gas companies for eleven (12) years period. The study found that compliance cost and environmental remediation cost had a significant effect on Tobin's Q of oil and gas companies listed on the Nigeria Stock Exchange. The study recommended that since environmental remediation cost and financial performance were positively related, then oil and gas firms should be environmentally friendly to enable them to gain a competitive advantage, high liquidity and reduced environmental cost in the long run. The researcher believe that if a robust data analysis was used the finding could have given a good result and recommendation

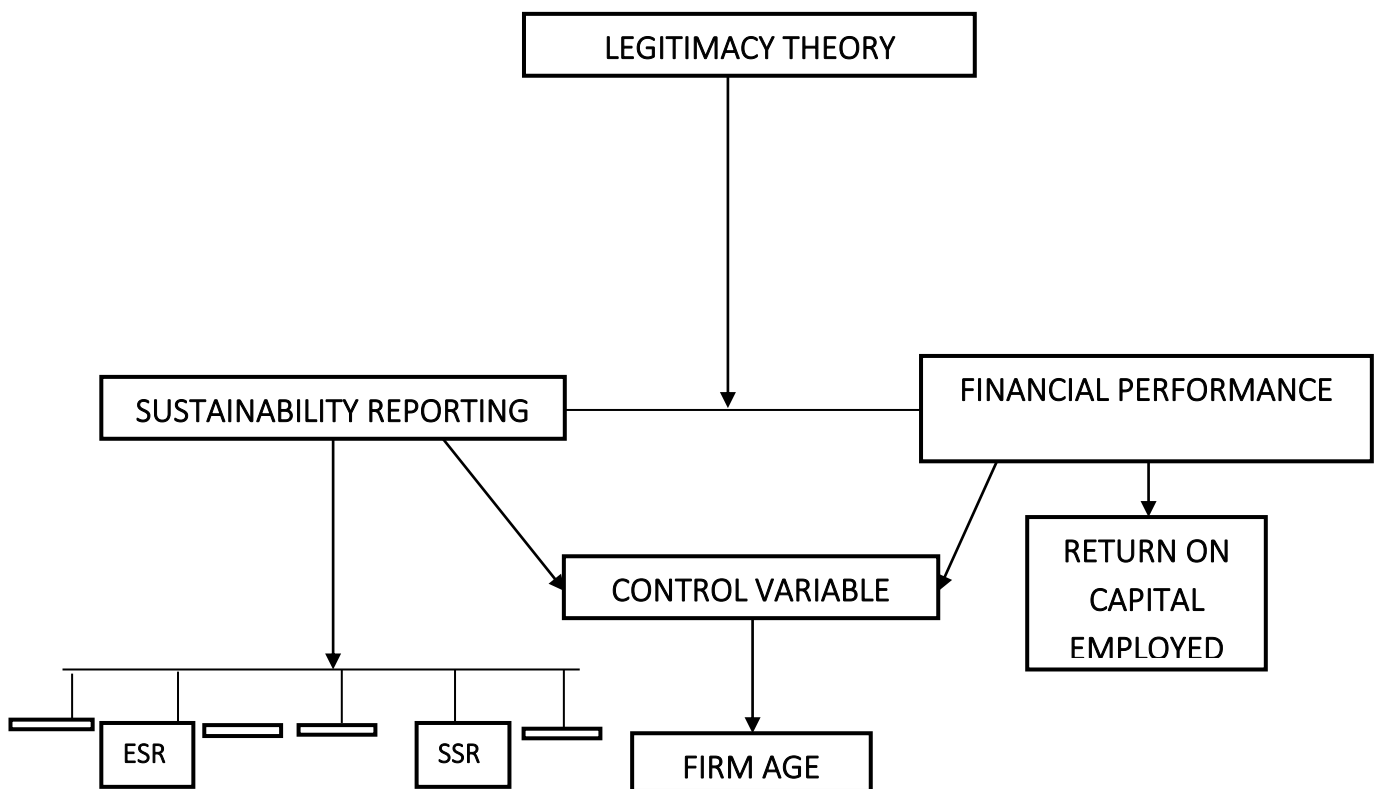
Yazid et al (2021), examines the effect of sustainability reporting on financial performance of quoted Nigerian oil and gas firms. The population of the study comprises 12 listed oil and gas firms in Nigeria. Census sampling technique was adopted and filter was used. The firm must also publish their annual reports for the relevant period of the study. Based on these, five firms that failed to meet the set criteria were filtered out. This study makes use of Return on Asset to measure financial performance. Secondary source was used to collect the relevant data. Data in relation to sustainability reporting were extracted from the firm's annual reports as well as standalone sustainability reports. However, data in relation financial performance were collected from the firm's annual reports. Data for this study were analyse using STATA 13 statistical software. The regression result revealed that economic sustainability has a positive insignificant effect on ROA; environmental sustainability has a positive significant effect on ROA while social sustainability has a positive insignificant effect on ROA. Based on the findings, this study therefore, concludes that sustainability reporting has a significant effect on the financial performance of listed oil and gas firms in Nigeria. This study therefore, recommends among others that, listed Nigerian oil and gas firms should emphasize more on reporting their sustainability activities as it is capable of improving their financial performance. The researcher believe that if a robust data analysis was used the finding could have given a good result and conclusion.

Lei and Heng (2021), examined environment, social or governance (ESG) on firm performance, there was still no consensus. Especially for China, a representative country in emerging markets whose corporate ESG activities were still in their infancy, and related systems and regulatory measures not complete, its theoretical and practical circles more urgently needed to get an accurate answer to that question. Therefore, they took China's Shanghai and Shenzhen A-share listed companies which had ESG rating data from 2015 to 2019 as samples and found that corporate ESG activities had a significantly negative impact on firm performance. The

authors concluded that further research showed that compared with state-owned enterprises and environmentally sensitive enterprises, non-state-owned enterprises and non-environmentally sensitive enterprises provided stronger evidence to support the above conclusions. The study was done in China in which result and conclusion cannot be generalized for Nigeria oil and gas firm.

THEORETICAL FRAMEWORK

There exist many theories that relate with green sustainability accounting and financial performance which are: the political economy theory and signaling theory which are closely brought under scrutiny as shown below



Source: Researcher Compilation (2024)

Stakeholders Theory

Stakeholder theory was developed by Freeman (1984) who argue that organizations are accountable to the shareholders as well as other stakeholders which in contrary to the traditional view that shareholders were the only stakeholders of the firm. Stakeholders are groups of individuals who may benefit or be harmed by activities of the firm. These stakeholders have contracting interest which have to be taken into account when releasing the audit reports. This is important because their varying interests can affect the firm’s ability to achieve its objectives (Freeman, 1984). The stakeholder theory is defined by (Freeman 1984) as any group or individual who can influence or is influenced by the achievement of the organization’s objectives. So (Carroll 1993) add that the term stakeholder may, therefore, include a large group of participants, in fact anyone who has a direct or indirect stake in the business. Examples for direct stakeholders are the shareholders, employees, investors, customers and suppliers, all whose interests are aligned with the interests of the firm, on the other side, the indirect stakeholders are those who are indirectly affected by the functions of the firm and an example for the is the government (Kiel & Nicholson 2003). In addition to that, it is argued that due to the large number of stakeholders with many different needs, a huge burden on the managers is created this was documented by (Sundaram and Inkpen 2004) who also add that managers should only care about creating value for the shareholders as it is proposed that this will affect the decision making process and eventually enhances the outcomes for the stakeholders.

Most of the management theories tend to link the firm's profits and responsibilities to the shareholders like the agency theory as stated by (Schilling 2000) while the stakeholders' theory emphasizes that the managerial activities should be constantly growing and maintaining the stakeholders relationship not just the shareholders' (Jensen, 2001). Leuz 2003 suggest that in order for the managers to maintain a strong relationship with the stakeholders, they should try to produce as much value as possible for stakeholders. Prior studies that have used this theory in their studies are Faith & Grace (2022) and Osemene et al (2016).

Legitimacy Theory

Legitimacy theory was developed by Dowling and Pfeffer (1975). The theory holds that organisations always ensure that their operations are within the bounds and norms of the respective societies they operate in. In adopting a legitimacy theory perspective, an organisation would voluntarily report on the activities its management perceive as been expected by the communities in which it operates. Legitimacy theory relies on the notion that there is a 'social contract' between a company and the society in which it operates (Deegan 2000; Deegan 2002; Mathew 1993; Patten 1991; 1992). Legitimacy theory suggests that whenever managers consider the supply of a particular resource as vital to their organization's survival, they should pursue the strategies necessary to ensure the continued supply of the resource. Such strategies may include targeted disclosures, or perhaps, controlling or collaborating with other parties who in themselves are considered to be legitimate. Companies need to be fair in their environmental dealings and therefore, legitimacy theory provides disclosing approaches that organizations may apply to improve their existence in the most possible and best way.

Although all the three theories (agency, stakeholder and legitimacy) provide a logical clue regarding the effect of green accounting on environmental reporting, this paper is hinged on agency theory. This is because managers as agents are saddled with the task of running a company, putting the interest of the shareholders (principals) as a topmost priority. Corporate governance mechanisms are instruments that ensure the overall interest of the company is upheld at all times. Since the practice and reporting of environmental issues, a managerial function is perceived to be beneficial to shareholders, green accounting are meant to ensure its realization and sustainability at all times.

Legitimacy theory underpinning this study because it voluntarily report on the activities its management perceive as been expected by the communities in which it operates. Legitimacy theory relies on the notion that there is a 'social contract' between a company and the society in which it operates and ensure its realization and sustainability

METHODOLOGY

The study adopted ex-post facto research designs to evaluate the effect of sustainability reporting on financial performance of oil and gas firms in Nigeria. The design is considered appropriate for the study since it is an after the fact design that explains the relationship between the variables after their occurrence. The population of the study consists of all the 10 firms listed on the Nigerian Exchange Group from 2011 to 2022, while the sample size is 9 firms. Panel regression technique was used to establish the relationship between sustainability reporting and financial performance. The model used to empirically test the hypotheses is adopted from Yazid et al (2021) and the functional relationship between the variables is represented below:

$$ROCE = \beta_0 + \beta_1ESR + \beta_2SSR + \beta_3FA + \epsilon_{it} \dots \dots \dots (i)$$

Where:

β_0 = The autonomous parameter estimate (Intercept or constant term)

$\beta_1 - \beta_3$ = Parameter coefficient of Sustainability Reporting

ROCE= Return on Equity

ESR= Economic Sustainability Reporting

SSR= Social Sustainability Reporting

Firm Age

ϵ_{it} = Stochastic Error term

β_0 = Intercept

β_1 to β_3 = Regression Coefficients

Table 3.1: Variable Definition and Measurement

| Variable Name | Variable Type | Measurement | Source | Apriori Expectation |
|-----------------------------------|---------------|---|----------------------|---------------------|
| Return on Capital Employed | Dependent | Earnings before interest & tax divided by total assets minus current liabilities | Lawrence (2022) | |
| Social Sustainability Reporting | Independent | GRI G4 social disclosure criteria for scoring: where any criteria is disclosed by a company, a score of 1 is assigned; 0 otherwise. The average is obtained by dividing Actual social disclosure by Expected social disclosure. | Wilson et al. (2020) | Positive (+) |
| Economic Sustainability Reporting | Independent | GRI G4 Index: Actual economic environmental disclosure divided by Expected Economic environmental disclosure | Lawrence (2022) | Positive (+) |
| Firm Age | Control | Company listing age at the Nigerian Exchange Group (NGX) | Emmanuel (2021) | Positive (+) |

Source: Author’s Compilation (2024)

RESULT AND DISCUSSION

Descriptive Statistics

Descriptive statistics gives a presentation of the mean, maximum and minimum values of variables applied together with their standard deviations obtainable.

Table 4.1: Descriptive Statistics Result

| Statistic | ROCE | ESR | SSR | FA |
|-----------|----------|----------|----------|-----------|
| Mean | 0.982324 | 0.422167 | 0.251694 | 22 |
| Median | 0.765 | 0.4165 | 0.24 | 22 |
| Maximum | 4.2 | 0.916 | 0.588 | 37 |
| Minimum | -2.2 | 0.083 | 0.035 | 8 |
| Std. Dev. | 1.205056 | 0.201931 | 0.153757 | 7.143749 |
| Skewness | -0.04525 | 0.622255 | 0.367828 | -0.024076 |
| Kurtosis | 2.708573 | 2.468527 | 1.908626 | 2.186073 |

| | | | | |
|--------------|----------|----------|----------|----------|
| Jarque-Bera | 0.419041 | 8.240707 | 7.79529 | 2.991582 |
| Probability | 0.810973 | 0.016239 | 0.02029 | 0.224071 |
| Sum | 106.091 | 45.594 | 27.1829 | 2383 |
| Sum Sq. Dev. | 155.3812 | 4.363037 | 2.529601 | 5460.546 |
| Observations | 108.00 | 108 | 108 | 108 |

Source: E-View 12 Output (2024)

Table 4.1 presents the descriptive statistics of the economic sustainability reporting and social sustainability reporting on return on capital employed with firm age as a control variable of listed oil and gas firms in Nigeria during the period of 2011 to 2022. The table shows that return on capital employed (ROCE) has a mean of 0.98232, with a standard deviation of 1.20505 as well as a minimum value of -2.20000 and maximum value of 4.20000 respectively. Given that the range between the minimum and maximum is quite wide, it implies unstable return on capital employed as the standard deviation indicated that there is no much slightly wide dispersion of the data from the mean value. For the other measure of economic sustainability reporting and social sustainability reporting shows a mean of value of 0.4221 and 0.2516 with standard deviation of 0.2019 and 0.1537 with a minimum and maximum value of 0.0830, 0.0350, 0.9160 and 0.5880 respectively. This implies economic sustainability reporting and social sustainability reporting witnessed a marginal increase during the study period, as the standard deviation is so large compared to the mean, together with the high range between the minimum and maximum values. Similarly firm age as control variable has mean of 22.0648 with the minimum and maximum value of 8.00000 and 37.00000 respectively.

Correlation Analysis

Correlation analysis measure relationship values between dependent and independent variables and the correlation among the independent variables themselves.

Table 4.2: Correlation Matrix

Covariance Analysis: Ordinary

Date: 01/04/24 Time: 19:28

Sample: 2011 2022

Included observations: 108

| Variable | ROCE | ESR | SSR | FA |
|-------------|----------|----------|----------|-------|
| ROCE | 1 | | | |
| Probability | ----- | | | |
| ESR | 0.030658 | 1 | | |
| Probability | 0.7528 | ----- | | |
| SSR | -0.01921 | 0.249781 | 1 | |
| Probability | 0.8436 | 0.0091 | ----- | |
| FA | -0.04613 | 0.111756 | 0.300721 | 1 |
| Probability | 0.6354 | 0.2495 | 0.0016 | ----- |

Source: E-View 12 Output (2024)

In table 4.2 correlation analysis, which is used to quantify the association between two continuous variables. In correlation analysis, the study estimate a sample correlation coefficient, more specifically the Pearson Product Moment correlation coefficient. The sign of the correlation coefficient indicates the direction of the association. The analysis continues in this section in determining the degree of linear association between the sustainability reporting variables in pairs employing E-views 12 Statistical package. The result presented above confirms that economic sustainability reporting has positive correlation of 0.030658 and social sustainability reporting negative correlation of -0.019210, and firm age -0.046130 have a weak negative correlation with return on capital employed.

Multicollinearity Test (VIF)

The Multicollinearity test was carried out to check if there is strong correlation among the independent variables that may produce misleading result. The low magnitude of the correlations among the independent variables is an indication that multicollinearity may not be a problem for the sampled dataset. The result of collinearity diagnostics test is presented in table 4.3 below:

Table 4.3: Multicollinearity Test (VIF)

Variance Inflation Factors

Date: 01/04/24 Time: 19:30

Sample: 2011 2022

Included observations: 108

| Variable | Coefficient Variance | Uncentered VIF | Centered VIF |
|----------|----------------------|----------------|--------------|
| C | 0.191146 | 13.86762 | NA |
| ESR | 0.364468 | 5.780871 | 1.07 |
| SSR | 0.682502 | 4.296551 | 1.159763 |
| FA | 0.0003 | 11.70438 | 1.101158 |

Source: E-View 12 Output (2024)

***Decision rule:** Centred VIF of less than 10 is an indication of absence of multi-collinearity, while the centred VIF of more than 10 is an indication of presence of multi-collinearity.

As encapsulated above, the decision rule for the multicollinearity test using the variance inflation factor is that Centred VIF of less than 10 shows the absence of multi-collinearity, while the centred VIF of more than 10 is an indication of presence of multi-collinearity. Table 4.3 above clearly shows that there is absence of multicollinearity among the independent variables, given that all the independent variable (ESR, SSR and FA) have a center VIF that is less than 10.

Heteroskedasticity Test

In order to validate the robustness of the estimates, the Heteroskedasticity test was conducted as a diagnostic check. Heteroskedasticity happens when the standard errors of a variable, monitored over a specific amount of time, are non-constant

Table 4.4: Heteroskedasticity Test

Panel Cross-section Heteroskedasticity LR Test

Null hypothesis: Residuals are homoscedastic

Equation: Untitled

Specification: Roce C Esr Ssr Fa

| Test Statistic | Value | df | Probability |
|------------------------|---------------|-----------|-------------|
| Likelihood Ratio | 11.25791 | 9 | 0.2584 |
| LR Test Summary | Value | df | |
| Restricted LogL | - 172.6916 | 104 | |
| Unrestricted LogL | - 167.0626 | 104 | |

Source: E-View 12 Output (2024)

Table 4.4 shows the results of the panel cross-section Heteroskedasticity regression test. The decision rule for the panel cross-section Heteroskedasticity test is stated thus:

***Decision Rule: At 5% level of Significance**

H₀: No conditional Heteroskedasticity (Residuals are homoskedastic)

H₁: There is conditional Heteroskedasticity

The null hypothesis of the test states that there is no Heteroskedasticity, while the alternate hypothesis states that there is Heteroskedasticity. The null hypothesis is to be rejected if the P value is greater than 5% level of significance. From the result in table 4.4 above with a ratio value of 11.25791 and a corresponding probability value of 0.2584 which is less than 5%, the study therefore posits that, there is reason to accept the null hypothesis, while the alternative hypothesis that states there is conditional Heteroscedasticity problem is not accepted. Consequently, based on the diagnostic probability 0.2584 the null hypothesis is rejected, thus there is conditional heteroskedasticity, indicating that residuals are homoskedastic and as such the samples does give a true reflection of the population.

Hausman Test

The Hausman test is a test for model specification in panel data analysis and this test is employed to choose between fixed effects model and the random effects model. Due to the panel nature of the data set utilized in this study, both fixed effect and random effect regressions were run. Hausman specification test was then conducted to choose the preferred model between the fixed effect and the random effect regression models. Thus, the decision rule for the Hausman specification test is stated thus; at 5% Level of significance:

Table 4.5: Hausman Test

Correlated Random Effects - Hausman Test

Equation: Untitled

Test cross-section random effects

| Test | Chi-Sq. Statistic | Chi-Sq. d.f. | Probability |
|----------------------|-------------------|--------------|-------------|
| Cross-section random | 15.057222 | 3 | 0.0018 |

Source: E-View 12 Output (2024)

The Result of Hausman test shows that chi-square statistics value is 15.05722 while the probability values of it is 0.0018. This implies that there is enough evidence to accept the alternate hypothesis which states that fixed effect is most appropriate for the Panel Regression analysis. It thus stands that error component model (random effect) estimator is not the most appropriate because the random effects are well correlated with the regressors. Thus, the most consistent and efficient estimation for the study is the fixed effect cross-sectional model. Consequently, the result suggests that the fixed effect regression model is most appropriate for the sampled data because the Hausman test statistics as represented by corresponding probability value is less than 5%.

Fixed Effect Likelihood Ratio Test

The Fixed Effect Likelihood Ratio test is a test for model specification in panel data analysis and this test is employed to choose between pooled effect model and the fixed effects model. Due to the panel nature of the data set. Fixed effect likelihood ratiospecification test was then conducted to choose the preferred model between the pooled effect and the fixed effect regression models. The test basically checked if the error terms were correlated with the regressors. Thus, the decision rule for the fixed effect likelihood ratiospecification is stated thus; at 5% Level of significance:

H₀: Pooled effect is most appropriate for the Panel Regression analysis

H₁: Fixed effect is not appropriate for the Panel Regression analysis

As stated above, if the p-value is greater than 0.05 the decision rule is to reject the null hypothesis which states that pooled effect is most appropriate for the Panel Regression analysis (meaning that the preferred model is fixed effects). Similarly, if the p-value is less than 0.05 the decision rule is to accept the null hypothesis which states that pooled effect is most appropriate for the Panel Regression analysis (meaning that the fixed effect model is to be rejected).

Table 4.6: Fixed Effect Likelihood Ratio Table

Redundant Fixed Effects Tests

Equation: Untitled

Test cross-section fixed effects

| Test | Statistic | d.f. | Probability |
|--------------------------|-----------|---------|-------------|
| Cross-section F | 3.00106 | (8, 96) | 0.0048 |
| Cross-section Chi-square | 24.107133 | 8 | 0.0022 |

Source: E-View 12 Output (2024)

Table 4.7: Panel Regression Result (Fixed Effect)

Dependent Variable: ROCE

Method: Panel Least Squares

Date: 01/04/24 Time: 19:53

Sample: 2011 2022

Periods included: 12

Cross-sections included: 9

Total panel (balanced) observations: 108

| Regression Output | | | | |
|---------------------------------------|--------------------|-------------------|--------------------|--------------------|
| Variable | Coefficient | Std. Error | t-Statistic | Probability |
| C | -0.382543 | 0.786647 | -0.486295 | 0.6279 |
| ESR | 1.106058 | 0.599752 | 1.84419 | 0.0682 |
| SSR | 0.001294 | 0.948328 | 0.001365 | 0.9989 |
| FA | 0.04068 | 0.031581 | 1.288107 | 0.2008 |
| Effects Specification | | | | |
| Metric | Value | | | |
| Cross-section fixed (dummy variables) | | | | |
| R-squared | 0.50 | | | |
| Adjusted R-squared | 0.511631 | | | |
| S.E. of regression | 1.135806 | | | |
| Sum squared resid | 123.8452 | | | |
| Log likelihood | -160.638 | | | |
| F-statistic | 2.222316 | | | |
| Prob(F-statistic) | 0.119055 | | | |
| Mean dependent var | 0.982324 | | | |
| S.D. dependent var | 1.205056 | | | |
| Akaike info criterion | 3.197001 | | | |
| Schwarz criterion | 3.495015 | | | |
| Hannan-Quinn criter. | 3.317835 | | | |
| Durbin-Watson stat | 2.194179 | | | |

Source: E-View 12 Output (2024)

From table 4.7 above, the coefficient of multiple determinations (R^2) is 0.5029 and in line with the panel nature of the data used in this study, the regression model shows that the range of values between adjusted R^2 and R^2 falls between 50%, and 51% respectively. This indicates that about 50% of the total variations in return on capital employed (ROCE) is explained by the variations in the independent variables (ESR and SSR), while the remaining 50% of the variation in the model is captured by the error term, which further indicates that the line of best fit is highly fitted. The panel regression result for the sampled oil and gas firms as presented in table 4.7 above showed that there is a negative relationship between economic sustainability reporting, social sustainability reporting and return on capital employed with a corresponding P-Value of 0.0682 and 0.9989. However, respective probability values, the parameter estimate for economic sustainability reporting and social sustainability reporting is statistically insignificant, given that the individual probability is 0.0682 and 0.9989

which is greater than 5%. However, when taken collectively, the regressors (ESR and SSR) against the regressed return on capital employed (ROCE), the value of F-statistic is 2.2223 and the value of the probability of F-statistic is 0.119055. This result implies that the overall regression is both negative and statistically insignificant at 5%.

DISCUSSION OF FINDINGS

This study examined effect of economic sustainability reporting and social sustainability reporting on return on capital employed of listed oil and gas firm in Nigeria. Therefore, the findings of this study is on the basis of formulated hypotheses, models and analysis carried out.

Firstly assess of economic sustainability reporting and return on capital employed of listed oil and gas firms in Nigeria revealed that a negative significant effect on listed oil and gas firm in Nigeria. The findings of this study agree with the findings Nkwoji (2021), who documented evidence of a negative between environmental reporting and financial performance of a firm. But the finding of Emmanuel (2021) do not agree with study because a positive result was discovered by its study.

Secondly, examine effect of social sustainability reporting and return on capital employed have a negative effect on listed oil and gas firms in Nigeria. The result agrees with the findings of Onajaet al (2021), who found a negative association between social sustainability reporting and performance of the firms. But the finding of Ejejiofor & Emeneka (2022) contradict with the study because a positive result was discovered by its study. The implication is that both economic and social sustainability reporting has negatively improve return on capital employed of listed oil and gas firms in Nigeria because of its negative effect of the oil industries. Apriori expectation of independent variable are not met because it show negative with return on capital employed of listed oil and gas firm in Nigeria.

CONCLUSION AND RECOMMENDATIONS

The study examine the economic sustainability reporting and social sustainability reporting on return on capital employed of listed oil and gas firms in Nigeria from 2011-2022 in Nigeria. The overall result has insignificant effect on the return on capital employed of listed oil and gas firms in Nigeria Therefore, study conclude that economic and social sustainability reporting has a negative insignificant effect on return on capital employed of listed oil and gas firms in Nigeria.

Based on the findings of this study and the conclusion made, the study recommend that management of listed oil and gas firms in Nigeria should voluntary compliance with social sustainability reporting and social sustainability reporting and should not be compel for sustainability reporting disclosure because of negative multiplier effect on return on capital employed of oil industries in Nigeria.

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DATA

| Company | Code | Year | ROCE | ESR | SSR | FA |
|----------------|------|------|------|-------|-------|----|
| Ardova Oil Plc | 1 | 2011 | 0.15 | 0.251 | 0.117 | 16 |
| Ardova Oil Plc | 1 | 2012 | 0.16 | 1 | 0 | 17 |
| Ardova Oil Plc | 1 | 2013 | 0.56 | 1 | 0 | 18 |
| Ardova Oil Plc | 1 | 2014 | 0.11 | 0.251 | 0.294 | 19 |

| | | | | | | |
|-----------------|------|------|-------|-------|-------|----|
| Ardova Oil Plc | 1 | 2015 | 0.18 | 0.417 | 0.294 | 20 |
| Ardova Oil Plc | 1 | 2016 | 0.61 | 0.417 | 0.294 | 21 |
| Ardova Oil Plc | 1 | 2017 | 0.15 | 0.333 | 0.235 | 22 |
| Ardova Oil Plc | 1 | 2018 | -0.18 | 0.667 | 0.235 | 23 |
| Ardova Oil Plc | 1 | 2019 | 0.05 | 0.417 | 0.233 | 24 |
| Ardova Oil Plc | 1 | 2020 | 1.03 | 0.511 | 0.176 | 25 |
| Ardova Oil Plc | 1 | 2021 | 0.1 | 0.333 | 0.174 | 26 |
| Ardova Oil Plc | 1 | 2022 | -0.07 | 0.333 | 0.117 | 27 |
| Capital Oil Plc | 2.00 | 2011 | 2.16 | 0.833 | 0 | 16 |
| Capital Oil Plc | 2 | 2012 | 0.03 | 0.25 | 0.12 | 17 |
| Capital Oil Plc | 2 | 2013 | 0.14 | 0.251 | 0.12 | 18 |
| Capital Oil Plc | 2 | 2014 | 0.12 | 0.251 | 0.29 | 19 |
| Capital Oil Plc | 2 | 2015 | 0.14 | 0.583 | 0.29 | 20 |
| Capital Oil Plc | 2 | 2016 | 3.15 | 0.251 | 0.117 | 21 |
| Capital Oil Plc | 2 | 2017 | 0.13 | 0.333 | 0.117 | 22 |
| Capital Oil Plc | 2 | 2018 | 0.14 | 0.416 | 0.116 | 23 |
| Capital Oil Plc | 2 | 2019 | 4.2 | 0.416 | 0.117 | 24 |
| Capital Oil Plc | 2 | 2020 | 0.21 | 0.417 | 0.352 | 25 |
| Capital Oil Plc | 2 | 2021 | 0.1 | 0.25 | 0.411 | 26 |
| Capital Oil Plc | 2 | 2022 | 2.11 | 0.166 | 0.411 | 27 |
| Conoil Plc | 3 | 2011 | 1.32 | 0.166 | 0.411 | 21 |
| Conoil Plc | 3 | 2012 | 0.34 | 0.25 | 0.411 | 22 |
| Conoil Plc | 3 | 2013 | 2.2 | 0.5 | 0.588 | 23 |
| Conoil Plc | 3 | 2014 | 2.1 | 0.25 | 0.117 | 24 |
| Conoil Plc | 3 | 2015 | 1.1 | 0.333 | 0.588 | 25 |
| Conoil Plc | 3 | 2016 | 2.65 | 0.25 | 0.117 | 26 |
| Conoil Plc | 3 | 2017 | 2.15 | 0.25 | 0.117 | 27 |
| Conoil Plc | 3 | 2018 | 0.23 | 0.333 | 0.176 | 28 |
| Conoil Plc | 3 | 2019 | 2.32 | 0.333 | 0.235 | 29 |
| Conoil Plc | 3 | 2020 | 2.54 | 0.417 | 0.294 | 30 |
| Conoil Plc | 3 | 2021 | 1.76 | 0.333 | 0.352 | 31 |
| Conoil Plc | 3 | 2022 | 2.56 | 0.416 | 0.294 | 32 |
| Eterna Plc | 4 | 2011 | 1.11 | 0.417 | 0.294 | 19 |
| Eterna Plc | 4 | 2012 | 2.12 | 0.417 | 0.291 | 20 |

| | | | | | | |
|----------------------------|---|------|------|-------|-------|----|
| Eterna Plc | 4 | 2013 | 0.13 | 0.25 | 0.117 | 21 |
| Eterna Plc | 4 | 2014 | 0.14 | 0.25 | 0.112 | 22 |
| Eterna Plc | 4 | 2015 | 0.11 | 0.583 | 0.058 | 23 |
| Eterna Plc | 4 | 2016 | 0.12 | 0.416 | 0.058 | 24 |
| Eterna Plc | 4 | 2017 | 0.11 | 0.166 | 0.058 | 25 |
| Eterna Plc | 4 | 2018 | 0.2 | 0.833 | 0.47 | 26 |
| Eterna Plc | 4 | 2019 | 0.1 | 0.916 | 0.176 | 27 |
| Eterna Plc | 4 | 2020 | 2.2 | 0.5 | 0.176 | 28 |
| Eterna Plc | 4 | 2021 | 0.3 | 0.583 | 0.176 | 29 |
| Eterna Plc | 4 | 2022 | 2.1 | 0.583 | 0.176 | 30 |
| Japaul Gold and Nature Plc | 5 | 2011 | 0.2 | 0.583 | 0.117 | 11 |
| Japaul Gold and Nature Plc | 5 | 2012 | 0.1 | 0.583 | 0.116 | 12 |
| Japaul Gold and Nature Plc | 5 | 2013 | 0.3 | 0.583 | 0.058 | 13 |
| Japaul Gold and Nature Plc | 5 | 2014 | 3.2 | 0.75 | 0.352 | 14 |
| Japaul Gold and Nature Plc | 5 | 2015 | 2.3 | 0.75 | 0.235 | |

Source: computation from financial statement firm (2023)