# Effect of Environmental Costs Accounting on the Earnings Performance of Oil & Gas Firms in Nigeria

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**Abstract**

**Research Objective**: This study examined the effect of environmental costs accounting on the earnings performance of oil and gas firms in Nigeria. Specifically, it evaluated the impact of environmental costs on retained earnings, earnings per share, and return on assets in oil and gas firms.

**Methodology**: A sample of three firms was selected from a population of eleven oil and gas firms listed on the Nigerian Stock Exchange during the study period. Secondary data were collected from the annual reports of these firms and analyzed using multiple regression analysis to assess the relationship between environmental costs and earnings performance.

**Findings**: The analysis revealed that environmental costs have a positive but insignificant effect on retained earnings of oil and gas firms in Nigeria. It was also found that environmental costs have a negative and insignificant effect on earnings per share. However, environmental costs were found to have a positive and significant effect on return on assets.

**Conclusion**: Environmental costs play a role in influencing the return on assets of oil and gas firms, although their impact on retained earnings and earnings per share was less significant. Firms that effectively manage environmental costs could see improved asset returns, but the broader effect on earnings performance remains inconclusive.

**Recommendation**: Firms should adopt uniform reporting and disclosure standards for environmental practices to enable better control and performance measurement. Smaller firms should be encouraged to disclose their environmental practices in annual reports, as this could enhance their competitiveness and contribute to better corporate performance. Furthermore, top management should ensure compliance with environmental laws, as this will foster sustainability and enhance long-term performance.

***Key words:*** *Environmental Costs, Earnings Performance, Oil and Gas Firms, Return On Assets, Corporate Sustainability.*

## 1.0 INTRODUCTION

### 1.1 Background of the Study

Over the years most African countries have not paid adequate attention to the issue of environmental accounting. In industrialized countries such as the US and the UK,serious attention has been paid to activities that degrade the environment. Proponents of environmental accounting argue that the use of environmental accounting is very important while others were of the opinion that it does not. Interestingly, Ali, (2017) acknowledges that the use of environmental accounting has gained consensus among the developed countries because it allows companies to reduce the level of degradations on the environment which in turn lead to the reduction in the level of penalties and fines, and other social costs. It makes companies to be socially responsible to the society. Available evidence suggests that the neglect of the environment in Nigeria has been enormous (Amahalu, Obi, Abiahu, and Okosuogwe, 2018). This according to Boyd, (2018) has necessitated local groups to declare force majeure on oil shipments and to engage in various heinous crimes such as oil theft commonly referred to as bunkering, pipeline damage, abduction of oil workers and forcing companies to shut in production. Deeegan, and Gordon, (2016) report shows that since December 2018, Nigeria has experienced increased pipeline vandalization, kidnappings and militants takeovers of oil facilities in Niger Delta. This is an attempt to seek for a redistribution of oil wealth since their environment is not taken care of by the company, and in most cases accuse the industry of abandoning the goose that lays the golden eggs. Moreover, kidnapping of oil workers for ransom and vandalisation of oil facilities are common, most of which arises because of the neglect meted on the environment from which these oils are extracted. EPA (2016) concurred with Awasthi when he noted that the oil industry in Niger-Delta had severally been blamed for polluting the environment. For instance, a research carried out by Guthrie, and Parker, (2018) indicated that oil and gas companies operating in Nigeria had been fined, and made to pay some compensations for outright neglect of the environment. Apart from pollution caused by oil, natural gas often associated with oil production is always flared to the environment and the damages to the ecosystem not accounted for by the company who are supposed to take financial responsibility for any damages done as a liability in their financial statements. Environmental Protection Agency (2016) summarized these costs in a model called Environmental Quality Reporting (EQR) model with the following components of costs Environmental operating expenditure (EOPEX), Environmental Externality Expenditure Cost (EEXTC) and Environmental Pollution Prevention Expenditure (POPREV).

Based on the foregoing, this study has set to investigate the extent to which Petroleum companies report the aforementioned costs and their effect on sustainable performance of firms in Nigeria. Stakeholders such as regulators and policy makers will find this research very interesting. The research also adds to literature on the area of environmental accounting in Nigeria. It will also help to reduce conflicts between the companies and stakeholders. This study is therefore aimed to determine the effect of environmental accounting practices on the sustainability of Nigerian oil & gas firms.

### 1.2 Statement of Problems

The response of firms to environmental liabilities has brought about the reconfiguration of corporate performance indices in a larger context under the subtle influence of environmental and social factors, in order to develop a holistic panorama of an entity's performance. This has led to a growing demand from various stakeholders for measurement of a company's environmental practices and subsequent public disclosure of this information. As a result, a new area of accounting has emerged regarding environmental accounting. The interest of accounting in the environment emerged from the reality that management needed financial data on environmental expenditures as a result of the increasing needs of different stakeholders such as; government, investors, lenders, general public, customers, etc to have financial data on environmental performances of different organizations reported in financial statements (Guthrie, and Parker, 2018). Consequently, the absence of comprehensive and verifiable information on environmental practices of companies may signal a practice where companies can pollute the environment and yet appear more economically efficient than others which incur costs to protect the environment. It is against this backdrop that the researcher has decided to examine the effect of environmental costs accounting on the earnings performance of oil & gas firms in Nigeria.

**1.3 Objectives of the Study**

The aim of this research work is to examine the effect of environmental costs accounting on the earnings performance of oil & gas firms in Nigeria Specifically, the objectives of this research work includes the following;

1. To examine the effect of environmental cost on the retained earnings of oil & gas firms in Nigeria
2. To ascertain the effect of environmental cost on the earnings per share of oil & gas firms in Nigeria.
3. To determine the effect of environmental cost on the return on assets of oil & gas firms in Nigeria.

**1.4 Objectives of the Study**

The researcher asked the following question;

1. What are the effects of environmental cost on the retained earnings of oil & gas firms in Nigeria?
2. How does environmental cost affect earnings per share of oil & gas firms in Nigeria.
3. What are the effects of environmental cost on the return on assets of oil & gas firms in Nigeria?

**1.5 Statement of Hypotheses**

*The following null hypotheses were developed to guide the study;*

Ho: Environmental cost does not have significant effect on the retained earnings of oil & gas firms in Nigeria

Ho: Environmental cost does not have a significant effect on the earnings per share of oil & gas firms in Nigeria.

Ho: Environmental cost does not have a significant effect on the return on assets of oil & gas firms in Nigeria.

### 1.6 Scope of the Study

This study focused on the effect of environmental costs accounting on the earnings performance of oil & gas firms in Nigeria. The study focused on the following independent variables: Retained Earnings (RE), Earnings Per Share (EPS) and Return on Asset (ROA) while environmental cost is the dependent variables, the study is limited a period of ten (10) spanning through 2014 to 2023

### 1.7 Significance of the Study

The study will be of significance to stakeholders of oil and gas firms in Nigeria among whom are; oil and gas firm managers, public investors, oil and gas firm host communities and academic researchers.

**Stakeholders:** The study will be of great importance to the stakeholders in the oil and gas sector as the study will help them to ascertain the relationship between corporate performance and environmental accounting disclosure in order to evaluate the future performance of the sector. Public Investor: Investors will also benefit from the finding of this study as it helps them to determine the level of investment they will be committed to in the sector.

**Firm managers:** Firm managers in the oil and gas industry will find this study important in promoting the cordial relationship between their firms and the host communities. It will enable firm managers to ascertain how much their firms have invested in the environment and how the investment is impacting the host communities. This will enable the managers to determine the needs of host communities and how best to address those needs to promote cordial relationship between corporate performance and environmental accounting disclosure. **Host communities**: On the other hand, the host communities of the oil and gas firms will find the study significant in assessing the performance of oil and gas firms operating in their communities and how the resources generated from the activities of the oil firms are being utilized to improve the living standards of community members.

**Academics and other researchers**: Academics and other researchers will no doubt find this study of importance. The study will serve as resource materials that will be referred to in an attempt to conduct further research in this area of studies.

## 2.0 REVIEW OF RELATED LITERATURE

### 2.1 Conceptual Framework

**Environmental Costs**

Environmental costs are costs incurred by companies in order to protect the environment, prevent environmental problems and minimize damages to the environment. They are those costs incurred in compliance with, or prevention of breach of environmental laws, regulations and company policies. However, the true environmental costs to a firm can be far broader, including costs of resources both those directly related to production and those involved in general business operations, waste treatment and disposal costs, the costs of poor environmental reputation and the cost of paying an environmental risk premium. The U.S. Environmental Protection Agency (2016) defines environmental costs as those costs that have a direct financial impact on a company (internal costs), and costs to individuals, society and the environment (external costs). Any activity conducted by enterprises in their environments leads to the emergence of environmental costs. Some of the environmental costs arise as a result of actions taken to protect the environment and occur as a result of the use of environmental resources. Another part of these costs arises due to environmental pollution caused by these companies. Environmental costs can be divided into three different groups: reduction costs, operating costs and damage costs (Guthrie, and Parker, 2018).

**Retained Earnings**

Retained earnings refer to the portion of the earnings left with the company after the distribution of dividend to its shareholders. Retention of earnings is from the profits of the business for a financial year. A company cannot pay dividends or retained earnings in the case of net loss in any financial year.

In the case of profits, a company can use them to distribute dividends and provide a return to the shareholders. They can retain the balance portion of the earnings by transferring to reserves. The retained earnings add funds for expansion and build capital for the company. A company can reinvest a portion of its earnings into its business expansion plans.

The shareholders of a company invest, expecting a return on their investment. Certain shareholders expect a dividend from the company as a return on their investment. In other cases, investors who trade in shares or invest for capital appreciation also expect dividends from the company.

**Earnings Per share**

Earnings per share (EPS) is calculated as a company's profit divided by the outstanding shares of its common stock. The resulting number serves as an indicator of a company's profitability. It is common for a company to report EPS that is adjusted for extraordinary items and potential share dilution. It is also a company's net profit divided by the number of common shares it has outstanding. EPS indicates how much money a company makes for each share of its stock and is a widely used metric for estimating corporate value. A higher EPS indicates greater value because investors will pay more for a company's shares if they think the company has higher profits relative to its share price. EPS can be arrived at in several forms, such as excluding extraordinary items or discontinued operations, or on a diluted basis.

**Return on asset**

Return on Assets (ROA) is a type of return on investment (ROI) metric that measures the profitability of a business in relation to its total assets. This ratio indicates how well a company is performing by comparing the profit (net income) it's generating to the capital it's invested in assets. The higher the return, the more productive and efficient management is in utilizing economic resources. Below you will find a breakdown of the ROA formula and calculation.

## 2.2 Theoretical Framework

This study is anchored on the Efficient Market Hypothesis, theory propounded by Eugene Fama in 1970. Fama while working on Random Walk Hypothesis (RWH) in the University of Chicago Graduate School of Business developed the Efficient Market Hypothesis (EMH) as academic concept of study through his published Ph.D thesis in 1965 and later in 1970 modified it into theory with three basic assumptions. He also looked at flaws in the RWH, by focusing on the issue of market leptokurtosis which he called EMH. EMH theory states that if available information relating to a product is given, actual prices at every point in time will represent very good estimates of intrinsic values.

## 2.3 Empirical Review

In Australia, Tilt (2017) studied the pattern of environmental disclosure among Australian firms. Evidence gathered in the study shows that even where a firm has a specific corporate environmental policy, they place a low priority on reporting environmental performance data to external parties. This implies that Australian firms prefer to disclose their activities and specific programs, rather than their research and development, capital expenditure, policies or performance.

Also, in the Australian context, Cowan and Gadenne (2018) conducted a study which employed content analyses in interpretation of the financial statement information disclosure. Their research found a tendency by their sampled Australian firms to disclose higher levels of positive environmental news. Further in 2016, Mitchell, Percy and MCkinlay examined the environmental disclosures of twenty Australian firms subject to a successful EPA prosecution between 1994 and 1998 using content analysis. Results reveal that the disclosures made by the sampled firms were predominantly positive in nature.

In Canada, Bewley and Li (2010) examined the environmental disclosures of Canadian manufacturing firms. Their study relied on voluntary disclosure theory and used Wiseman index to measure the 1993 annual report disclosures of 188 firms. Industry membership was also used to proxy for pollution propensity. The study found that firms with a higher pollution

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propensity and greater media coverage of their environmental performance are more likely to disclose general environmental information.

In the UK, Murray, Sinclaire, Power and Gray (2016) investigated the relationship between UK companies' social and environmental performance disclosure and their financial market performance. The sample of the study was made up of 100 of the UK's largest companies. Social and environmental disclosure was measured by the total number of pages of voluntary and mandatory social and environmental disclosure by the companies in their annual reports over a period of 10 years using cross-sectional analyses. Findings reveal a convincing relationship between consistently high returns and high levels of social and environmental disclosure while low market returns are also found to be associated with low social and environmental disclosure practices.

In Malaysia, Malcolm (2017) examined the extent to which the environmental disclosures in annual reports of companies listed on the Kuala Lumpur Stock Exchange are associated with corporate characteristics. A rating system for environmental disclosures was developed, based on a review of previous studies, embracing industry membership, financial performance, share price fluctuations, political cost proxies, dependence on debt and the capital market. The findings suggested that environmental disclosure is negatively associated with company financial performance.

In Indonesia, Setyorini and Ishak (2017) examined corporate social and environmental disclosure from a positive accounting theory viewpoint. The study used descriptive research design with secondary data. The population of the study was listed companies on the Indonesian stock exchange from 2018-2019. The study applied a sampling method on the sectors of the listed companies in the Indonesian stock exchange. There were approximately 336 to 398 companies' listed on the Indonesian stock exchange. The findings reveal that when the association is driven more by political cost considerations, it can be expected that corporate social and environmental disclosure is positively associated with earnings management.

In Bahrain, Juhmani (2019) conducted a study which aimed to ascertain the extent of social and environmental reporting among listed companies in various economic sectors. The results of their study among others showed that while over 50% of the sample of listed companies provided social and environmental information in their 2017 annual reports and their websites, Commercial banks and insurance companies made the most disclosure of social and environmental accounting. The study further found that the least disclosure was made by companies in the hotels and tourism sector and industrial sector even though firms in tourism and industrial sectors generate more waste than their counterparts in financial institutions.

In Pakistan, Ahmad, Waseer, Hussain and Ammara (2018) investigated the relationship between environmental accounting and non-financial firms' performance listed in Pakistan stock exchange, Pakistan. This study used regression analysis technique (REM), using companies' annual data from 2016-2016. The empirical analysis showed a significant positive relationship between environmental accounting and firm's size. While, earning per share and return on capital employed statistically turned out to be insignificant.

In the Nigerian scene, Okoye and Ezejiofor (2016) conducted an appraisal of the relationship between sustainability environmental accounting and corporate performance of Nigerian firms using simple correlation analytical techniques. Primary data was used for the study as gathered using questionnaires distributed to 25 respondents from finance sections of the two manufacturing companies judgmentally selected as Innoson Nigeria plcNnewi and Nigerian Bottling company plc Enugu. Findings reveal that there is a relationship between sustainable environmental accounting and increase in corporate productivity to enhance corporate growth and there is a relationship between sustainable environmental accounting and economic performance of a corporate organization.

Adediran and Alade (2016) investigated if there is any significant relationship between environmental accounting and corporate performance in Nigeria using Return on Capital Employed (ROCE); Net Profit Margin (NPM) Dividend per share (DPS) and Earnings per Share (EPS). Data for the study were secondary data generated from Annual Reports and Accounts of Fourteen (14) randomly selected companies quoted on the Nigerian stock exchange for the year 2010 and analysed using multiple regression analysis . Result shows that there is a significant negative relationship between environmental accounting and Return on Capital Employed (ROCE) and Earnings per Share (EPS) and a significant positive relationship between Environmental Accounting and Net Profit Margin and Dividend per Share.

Olayinka and Oluwamayowa (2019) investigated the aggregate and individual impact of corporate environmental disclosure on market value using descriptive research design and secondary data. The sample constituted 50 companies on Nigerian Stock Exchange purposively selected while hypotheses were tested using correlation coefficient. Their study revealed that the inclusion of environmental information will enhance market value.

Nze, Okoh and Ojeogwu (2016) assessed the effect of corporate social responsibility on earnings of two quoted Nigerian Stock Exchange oil and gas firms (2010-2019). Data for the study were sourced from the published annual financial statement of companies and the analyses done using simple linear regression technique. Results revealed corporate social responsibility has a positive and significant effect on earnings.

More recently, Eboh and Chukwuka (2018) conducted an empirical investigation into the effect of green business practices on organizational performance of selected manufacturing firms in Nigeria. Simple random sampling technique was used in selecting the 10 manufacturing firms with a sample size of 543 respondents was determined from the population of 5705 drawn from management, middle and lower cadre of the selected manufacturing firms using Cochran (1977) statistical formula. Data were analyzed and the hypotheses were tested using linear regression analysis. Findings revealed that green business initiatives had significant and positive effect on the selected manufacturing firms' productivity, which indicates that the implementation of green business practices, principles and processes will lead to very positive outcomes that will be visibly manifested in the organization and the environment.

Iliemena and Ijeoma (2019) examined the effect of Sustainability reporting on financial performance of manufacturing firms quoted on the Nigerian stock exchange using secondary data from annual reports and accounts of 24 sampled quoted manufacturing companies. The study period ranged from 2017 to 2018 which represents IFRS reporting period in Nigeria. The three hypotheses formulated were tested using regression analyses at 5% level of significance. Findings reveal among others that there is no significant effect of environmental disclosure on return on capital employed (ROCE).

## 3.0 METHODOLOGY

The research design adopted for this study is the *ex-post facto* as the study relied on historic data. This research studied all the firms in the Nigerian petroleum industry quoted on the Nigerian Stock Exchange. However, for the analysis, the study focused on the oil and gas firms operating in Nigeria. The period of the study is 10 years, from 2011-2020.The nature of data for this study is secondary and sourced from the annual reports and accounts of sampled oil and gas firms for audit quality variables. Firm's annual statements and reports are deemed to be a reliable source of data since public firms are statutorily required to be audited by a recognized auditing firm and yearly performance made known to shareholders through the publication of annual statements of accounts. The population of the study consists of all the 14 firms classified under the Oil and Gas sector of the Nigerian Stock Exchange.

Secondary data is the source of data for the study. The data were sourced from the published annual financial statement of the selected oil and gas firms listed in the Nigeria Stock Exchange during the period of 2014 to 2023.

Eleven (11) oil and gas firms were listed on the Nigerian Stock Exchange during the period. These firms constituted the population of the study.

Only oil and gas firms whose shares are quoted on the Nigerian Stocks Exchange and which have complete data for the period under review were considered by the study. Out of the eleven (11) oil and gas firms, the researcher selected three (3) firms based on the need for availability, reliability and accuracy of data. The sampled firms include, ETERNA Oil Plc, MRS Oil Plc and OANDO Oil Plc. The basis for selecting three companies from the quoted fourteen firms is that the 3 selected firms have their complete annual reports and Account published.

## 4.0 DATA PRESENTATION AND ANALYSIS/DISCUSSION OF RESULT

Table 2 in appendix B indicates that any change in Retained earnings will increase environmental cost by 0.068869 while change in Return on asset will result in an increase of 0.459228 in environmental cost. However, any change in Earnings per share will decrease environmental cost by -0.025417. In summary, environmental cost is influenced positively by retained earnings and Return on asset while environmental cost is influenced negatively by earnings per share. The extent of effect of RE and ROA on ENVC are positive and significant, while the extent of the effect of Earnings per share is negative and insignificant.

The table also indicates that an increase in Retained earnings, earnings per share and return on asset of Nigerian Oil & gas firms will decrease environmental cost by 0.067365.This implies that environmental cost is affected by Retained earnings, earnings per share and return on asset of Nigerian Oil & gas firms. The Durbin-Watson statistic is 1.123617 which is not up to 2. In this case, the Durbin Watson statistic is closer to 2 than 0 which indicates the absence of autocorrelation in the series. The result indicates the absence of positive serial correlation in the time series data extracted from the annual report and accounts of the firms.

The Adjusted R-squared is 0.760425. The adjusted $R^2$ reveals that only about 76% of the variations in environmental cost could be explained by Retained earnings, Earnings per share and Return on asset of oil & gas firms while about 24% could be explained by other factors capable of influencing environmental cost of oil & gas firms as well as the error term and the unexplained variables.

**4.3 Test of Hypotheses**

***Test of Hypothesis One***

The decision criterion is to accept $H_0$ if the probability of the t-Statistics > 0.05, otherwise reject. The probability of the t-Statistics of 0.3146> 0.05, therefore, we accept the alternative hypothesis while rejecting the null hypothesis to conclude that environmental cost has a positive and insignificant effect on the retained earnings of oil & gas firms in Nigeria

***Test of Hypothesis Two***

The decision criterion is to accept $H_0$ if the probability of the t-Statistics > 0.05, otherwise reject. The probability of the t-Statistics of 0.7520 < 0.05, therefore, we reject the alternative hypothesis while accepting the null hypothesis to conclude that environmental cost has a negative and insignificant effect on the earnings per share of oil & gas firms in Nigeria.

***Test of Hypothesis Three***

The decision criterion is to accept $H_0$ if the probability of the t-Statistics > 0.05, otherwise reject. The probability of the t-Statistics of 0.0005 > 0.05, therefore, we accept the alternative hypothesis while rejecting the null hypothesis to conclude that environmental cost has a positive and significant effect on the return on asset of oil & gas firms in Nigeria.

**4.4 Discussion of Result**

Finding from the test of hypotheses shows that environmental cost has a positive and insignificant effect on the retained earnings of oil & gas firms in Nigeria. This finding validates the findings of Al-Tuwaijri *et al.* (2019) which observed that the relations among environmental disclosure, environmental performance and economic performance are very significant.

The result of hypothesis two shows that environmental cost has a negative and insignificant effect on the earnings per share of oil & gas firms in Nigeria, this is in line with the studies of Bewley and Li (2010) appealed to voluntary disclosure theory to examine the environmental disclosures of Canadian manufacturing firms, which shows that firms with a higher pollution propensity and greater media coverage of their environmental performance are more likely to disclose general environmental information.

The result of hypothesis three indicates that environmental cost has a positive and significant effect on the return on asset of oil & gas firms in Nigeria, this is in line with the study of (Rajapakse, 2016; Surman& Kaya, 2016; Thompson & Zakaria, 2019; O'Donovan & Gibson 2010) on the relationship between corporate financial performance and corporate social and environmental disclosure shows that significant positive financial returns were measured for strong environmental management while significant negative financial returns were measured for weak environmental management.

## 5.0 FINDINGS, CONCLUSION AND RECOMMENDATIONS

### 5.1 Summary of Findings

Findings of the analysis shows that environmental cost has a positive and insignificant effect on the retained earnings of oil & gas firms in Nigeria.

It was also observed that environmental cost has a negative and insignificant effect on the earnings per share of oil & gas firms in Nigeria

The study equally revealed that environmental cost has a positive and significant effect on the return on asset of oil & gas firms in Nigeria

### 5.2 Conclusion

Environmental costs cover all costs incurred concerning environmental protection such as emissions treatment as well as wasted material, capital and labour which so-called 'non product output' as a result of inefficiency production activities. Different firms may consider different elements into environmental costs but it is important that all significant and relevant costs are incorporated for sound decision making purposes. The general picture, which emerges from current reporting, is that since the disclosures of environmental information are voluntary, there is a diversity of reporting practice. Large companies tend to report more environmental information in their annual reports than medium-scale businesses; and the disclosure tends to be more qualitative than quantitative despite the fact that there is a significant relationship between environmental Accounting and Corporate performance.

### 5.3 Recommendations

Based on the findings, the study recommends the following;

1. Firms should adopt uniform reporting and disclosure standards of environmental practices for the purpose of control and measurement of performance.
2. Firms (especially smaller ones), should be encouraged to disclose their environmental practices in their annual reports to enhance their competitiveness which would subsequently lead to high corporate performance.
3. Top management should ensure that they comply with the environmental laws of the nation as it will go a long way in enhancing sustainability.

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## APPENDIX A

**Logged data obtained from Oil & Gas firms**

| Company | Year | RE | EPS | ROA | ENVC |
|---|---|---|---|---|---|
| OANDO Oil | 2014 | 7.409943 | 2.531479 | 7.493115 | 7.106253 |
| | 2015 | 7.445761 | 2.567026 | 7.540742 | 7.167793 |
| | 2016 | 7.481903 | 2.603144 | 7.611166 | 7.210269 |
| | 2017 | 7.584716 | 2.705864 | 7.844234 | 7.28643 |
| | 2018 | 7.580271 | 2.701568 | 7.929143 | 7.381471 |
| | 2019 | 7.634279 | 2.755875 | 8.016865 | 7.422121 |
| | 2020 | 7.628596 | 2.749736 | 8.011714 | 7.450875 |
| | 2021 | 7.580349 | 2.683047 | 8.012639 | 7.379659 |
| | 2022 | 7.453269 | 2.553883 | 7.983715 | 7.341925 |
| | 2023 | 7.518636 | 2.61595 | 7.998406 | 7.337415 |
| Eterna Oil | 2014 | 7.074117 | 2.905256 | 7.489138 | 7.074117 |
| | 2015 | 7.131657 | 2.962843 | 7.413942 | 7.131657 |
| | 2016 | 7.137872 | 2.96895 | 7.456666 | 7.137872 |
| | 2017 | 7.25353 | 3.084934 | 7.537518 | 7.25353 |
| | 2018 | 7.166465 | 2.997823 | 7.54004 | 7.166465 |
| | 2019 | 7.074221 | 2.899273 | 7.559981 | 6.998141 |
| | 2020 | 6.98107 | 2.803457 | 7.548129 | 7.00053 |
| | 2021 | 6.89181 | 2.71433 | 7.586683 | 7.110107 |
| | 2022 | 6.304466 | 2.127105 | 7.504421 | 7.115528 |
| | 2023 | 6.284142 | 2.10721 | 7.521514 | 7.136392 |
| MRS Oil | 2014 | 7.628596 | 2.749736 | 8.011714 | 7.450875 |
| | 2015 | 7.580349 | 2.683047 | 8.012639 | 7.379659 |
| | 2016 | 7.453269 | 2.553883 | 7.983715 | 7.341925 |
| | 2017 | 7.409943 | 2.531479 | 7.493115 | 7.106253 |
| | 2018 | 7.445761 | 2.567026 | 7.540742 | 7.167793 |
| | 2019 | 7.481903 | 2.603144 | 7.611166 | 7.210269 |
| | 2020 | 7.074221 | 2.899273 | 7.559981 | 6.998141 |

| | | | | |
|---|---|---|---|---|
| 2021 | 6.98107 | 2.803457 | 7.548129 | 7.00053 |
| 2022 | 6.89181 | 2.71433 | 7.586683 | 7.110107 |
| 2023 | 7.628596 | 2.749736 | 8.011714 | 7.450875 |

**Source:** Author's Compilation from the annual report and accounts of oil and Gas firms studied, 2024

## Appendix B

## Multiple Regression Result

Dependent Variable: ENVC

Method: Panel Least Squares

Date: 03/04/24 Time: 17:56

Sample: 2014 2023

Periods included: 10

Cross-sections included: 3

Total panel (balanced) observations: 30

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| RE | 0.068869 | 0.066326 | 1.038336 | 0.3146 |
| EPS | -0.025417 | 0.079064 | -0.321475 | 0.7520 |
| ROA | 0.459228 | 0.104859 | 4.379478 | 0.0005 |
| C | 3.254254 | 0.625077 | 5.206165 | 0.0001 |

| | | | |
|---|---|---|---|
| R-squared | 0.798253 | Mean dependent var | 7.210428 |
| Adjusted R-squared | 0.760425 | S.D. dependent var | 0.137631 |
| S.E. of regression | 0.067365 | Akaike info criterion | -2.380516 |
| Sum squared resid | 0.072609 | Schwarz criterion | -2.181370 |
| Log likelihood | 27.80516 | Hannan-Quinn criter. | -2.341641 |
| F-statistic | 21.10235 | Durbin-Watson stat | 1.123617 |
| Prob(F-statistic) | 0.000008 | | |

**Source**: Eview output version 9.0