



Waste Management Cost and Financial Performance of Oil and Gas Companies in Nigeria: An Empirical Analysis

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ABSTRACT

It is argued that if vital environmental issues and activities are not disclosed, financial statement cannot be said to reveal state of a true and fair view of affairs. Yet there is paucity of awareness of environmental costing principles and methodology and hence the need to address this problem especially in Nigeria. This study therefore investigated the effect of waste management cost on financial performance of quoted oil and gas companies in Nigeria for the period of 2011-2018. Waste Management cost served as dimension and return on investment as measure of financial performance. Positivism and interpretive Philosophy was adopted while explanatory and correlational research design were adopted for the study. The population of the study was 10 quoted oil and gas companies listed in Nigerian Exchange. Data was sourced from annual reports and accounts of the companies available at Nigerian Exchange website. Descriptive statistics regression analysis and correlations coefficient guided by a regression model were used for data analysis and testing of hypotheses. The result of the study showed that waste management cost, has a negative, weak but significant effect on return on investment (financial performance) of quoted oil and gas companies in Nigeria. It is concluded that waste management cost has a significant effect on performance of Oil and Gas Company in Nigeria. The study recommended among others that Government and regulators should ensure that there is enforcement for adequate environmental cost (especially the waste disposal cost) disclosure and proper reporting by the oil and gas companies. This way investors can make better decisions based on their show of responsibility towards reduction on environmental damage through their operations

Key words: Financial Performance, Nigeria, Oil and Gas companies, Return on Investment, Waste Management cost

1. INTRODUCTION

It is argued that if vital environmental issues and activities are not disclosed, financial statement cannot be said to reveal state of a true and fair view of affairs. It is necessary too, to note that ethical investors will only invest in ethical companies and therefore, will watch out for these ethically responsible companies. Ethical companies have marketing advantage if they strategically position themselves environmentally. Ethical companies also stand at advantage for corporate financing. In addition, the challenge of cost and valuation for damage, depletion and degradation of the environment externalities is a critical problem which continues to demand attention. Yet there is paucity of awareness of environmental costing

principles and methodology and hence the need to address this problem especially in Nigeria (Arong et al., 2014).

Furthermore, current requirement for reporting on environmental issues is voluntary in Nigeria, it is observed from most financial statements of corporate organizations that it has engendered disclosures of information which totally exclude environmental issues. At best where reported, are grossly inadequate. Environmental disclosures have become critically important to uninformed public and financial stakeholders. This is particularly critical for the downstream oil sector in Nigeria which impact heavily on the environment in Nigeria. The oil and gas sector of Nigeria are recognized as causing heavy degradation on the environment. Yet, Nigerian business environment has not embraced or recognize environmental management cost for environmental information and issues of raw materials, energy consumption and use of natural resources which have systematically depleted the environment (Hassan, 2017). This is expected to facilitate effective and efficient costs management, measurement and reporting for corporate decision making. In the light of increasing environmental attention and the fact that the oil and gas industry have profound production impact on the environment, there is need for environmental cost disclosure and management. Management efforts made in environmental accounting comprise a part of these environmentally conscious business activities, thus these costs incurred in the management of the environment tend to be huge. This makes companies at times want to shy away from it. Environmental costs are not only used by companies or other organisations internally, but are also made public through disclosure in environmental reports (Arong et al., 2014). Consequently, frantic efforts are put in by managers of companies towards ensuring that corporate performances of their companies are improved upon. One way this is done is through adequate management of environmental costs. Environmental issues affect different areas of an organisation's operation such as, manufacturing, raw material procurement, energy usage, marketing, product management, disposal and waste management (Banerjee, 2009). However, the challenge has been how to determine and manage these costs so that its impact on corporate performance could be minimized. One of such disclosures is the waste management cost. These demands have created the need for an accounting systems that will make it easier to separate these cost and make cost allocation easier and easily understood by the various stakeholders. However as argued by several scholars, inspite of these demands, the traditional accounting system has continued to lump some environmental costs into overhead accounts where they are arbitrarily allocated to products causing distortions in product cost, price and return on investment. Environmental costs if not separated are obscured in overhead accounts. Environmental costs, whether in the form of capital expenditure or operating expenditure, increase dramatically day after day and unfortunately are not clearly reported in the accounts. Management, therefore, require financial data about these expenditures for planning purposes and to make strategic decisions (Nwaiwu & Oluka, 2018).

Studies in the past such as (Beredugo, 2012; Eze et al., 2016; Okafor, 2018; Iheduru & Chukwuma, 2019) have focused on environmental accounting and performance generally thereby leaving out the need to study the environmental management cost with emphasis on waste management cost (a very critical aspect that manages or reduced the impact of the activities on the environment), thereby creating a research gap. Therefore, this study is aimed at ascertaining the extent at which waste management cost has affected the performance of oil and gas companies in Nigeria.

Conceptual Framework

Based on research objectives and questions, two variables are apparent. They are environmental management costs which serve as the independent variable and financial performance serving as the dependent variable. The researcher used the diagram in figure 1.1 to illustrate the interaction of independent variables (Environmental Management Cost (EMC) and the dependent variable Financial Performance (FPF).

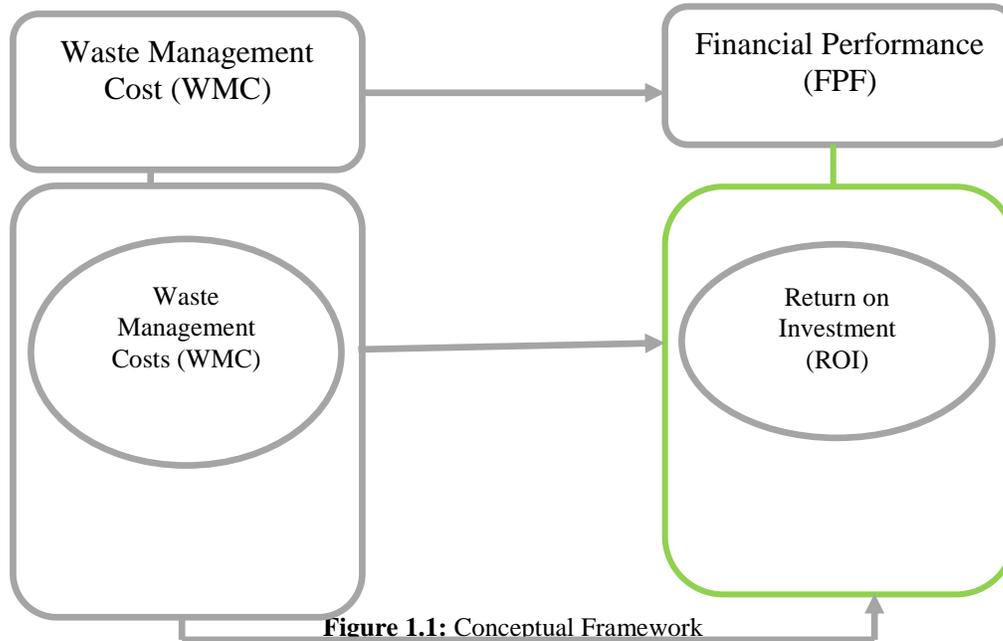


Figure 1.1: Conceptual Framework

Study Objective

The main objective of the study is to:

- Ascertain the effect of waste management costs on return on investment of quoted oil and gas companies in Nigeria

Research Question

- What is the effect of waste management costs on return on investment of quoted oil and gas companies in Nigeria?

Research Hypothesis

HO₁ waste management cost does not have a significant effect on Return on investment of quoted oil and gas companies in Nigeria.

2. REVIEW OF RELATED LITERATURE

Waste Management Cost

Waste Management Cost is the cost associated with disposal of waste generated by the companies via their activities (both liquid and gaseous waste). Investments in production equipment might be made in order to reduce environmentally hazardous emissions. Such investments are considered environmental costs. Most investments however are not made solely for environmental purposes but also to increase the utilization capacity. These investments are not considered as entirely environmental but also as regular investments. In these cases the environmental costs only consist of the part of the investment considered an environmental investment. Waste produced by a process often has to be processed before being released to the environment. Some of the waste can be handled by the company itself, other waste is better handled by external waste treating companies. Handling of the waste causes environmental costs either way. The cost of waste transportation is also considered an environmental cost to include depletion of natural resources, noise and aesthetic impacts. Residual air and water emissions, long-term waste disposal. Thus, accounting became concerned with achieving new goals such as measuring and evaluating potential or actual environmental impacts of projects on organizations' performance. These new goals are of great importance as they enable many users take different development decisions that are economically and environmentally sound (Bala &

Yusuf, 2003). They identified the main reasons of accounting interest in the environment to include; environmental costs which can be significantly reduced and eliminated as a result of business decisions, ranging from operational and housekeeping changes to investment in cleaner production, to redesign of processes/products. Also environmental cost (and, thus potential cost savings) may be obscured in overhead accounts or otherwise overlooked. For the above reasons, it is believed that accounting should be responsible for measuring, evaluating and disclosure of environmental performance in financial statements or in its attachments. No doubt that measuring environmental performance depends on accounting systems but needs data, other than the conventional accounting data, such as pollution ratios. Monetizing environmental issues may not be totally accurate but, economists and accountants have to give best estimates, according to the current level of knowledge, and techniques used (U.S. Environmental Protection Agency (EPA), 1995; Hamid, 2002).

As noted by Acti et al., (2013) within the Nigerian context an investigation was undertaken into the possible relationship between corporate performance and three selected indicators of sustainable business practices- Community Development Cost (CDC), Waste Management Cost (WMC) and Employee Health and Safety Cost (EHSC) were identified as key variables that are to be disclosed by firms in the oil and gas industry. The study revealed that sustainable business practices and corporate performance is significantly related. And sustainability may be a possible tool for corporate conflict resolution as evidenced in the reduction of fines, penalties and compensations paid to host communities of oil companies. Therefore, the researchers recommended that the management of oil companies in the Niger Delta States of Nigeria develop a well-articulated environmental costing system in order to guarantee a conflict free corporate atmosphere needed by managers and workers for maximum productivity and eventually improve corporate performance. These costs are utilized for the purposes of ensuring that environmental accounting and disclosures are carried out. Waste management cost are incurred and managed based on the performance indicators.

Environmental performance indicators on the other hand include indicators that show the impacts of the activities of the firms on the environment. The core indicators include- Spills and Discharges (looks at hydrocarbon spills, controlled discharges as well as effluent discharges); wastes and residuals; environmental management systems and Biodiversity. For example oil spill can be measured in terms of number and volume of hydrocarbon liquid spills greater than 1 barrel (159 liters) that reach the environment. Others are total number of hydrocarbon spills greater than one barrel; Barrels of hydrocarbon spilled (Conversion 1 barrel = 159 liters); total estimated amount spilled that reached the environment; total recovered hydrocarbons from the oil spill; land and water spill data (total spills to land and water); lower spill threshold, as well as Qualitative impacts reporting which is seen in terms of policies, programs and initiatives taken to remediate the impact of activities on the environment (Ironkwe & Ordu, 2016).

Worthy of note is that reporting can be done either in absolute terms or in normalized terms – to enable comparison amongst operators in the industry. However, it is advised that the measurement standards used for the reports should be indicated. In order words, information should be reported in terms that can be quantitatively measured. Reporting companies are encouraged to present data using generally accepted international units and provide standard conversion factors to enable conversions to other commonly used measurement units. However, not all indicators can be quantified, in which case the use of qualitative indicators (e.g., case studies, process or management system descriptions) is also encouraged. Similarly, the quality of the information reported must be taken into consideration. The ability of the companies to manage the costs that are associated with these indicators has the ability to affect the performance of the disclosing companies.

Financial Performance

Financial performance is a part of what is known as corporate performance of organizations. Also known as profitability, corporate performance is performance measurement by which organizational as well as management ability and efficiency can be measured. Wang (2002) describes firm's profitability as the ability to generate revenue in excess of the cost of generating such revenue. Essentially, the term is a relative measurable in terms of profit and its relation with other elements that can directly influence the

profit. However, profitability measures management efficiency in the use of organizational resources in adding value to the business. Kurawa (2011) further explains that, turnover in working capital variables will result in profit. The faster the turnover, the more the profit will grow. If the level or volume of current assets continues to grow, the associated costs will also grow and this will reduce the volume of profit. He further asserts that profitability can best be measured in term of Return on Assets, returns on Equity as well as Returns on Capital Employed.

For better assessment of performance of companies, it is argued that a combination of financial and non-financial performance indicators should be employed (Corrode, 2017; Zhang et al, 2011). Consequently, performance indicators such as return on capital employed (ROCE), Return on investment (ROI), Return on assets (ROA), Net profit, Net profit margin, return on equity (ROE) and dividend per share, Earnings per share, have been used by previous studies (Dwivedi, 2002; Uwigbe & Egbide; 2012, Zayol et al., 2017; Adewoye et al., 2018) to measure performance of firms, especially in the oil and gas operations hence this study adopts return on investment (ROI).

Return on investment (ROI)

Rees (1990), asserts that return on investment (ROI) is made up of capital gain or loss and the dividends or coupons received from the investment throughout the holding period. Ituwe (2006) defined ROI as a measure of the rate of productivity of assets in providing returns to both ordinary shareholders and long-term creditors. The higher the return the more efficient is the utilization of assets. Pandey (1999) referred to ROI as the ratio of earnings after interest and taxes to total capital employed. Achuchaugu (2002) defined ROI as the profitability of the firm measured in relation to the amount of investment. The term investment here may refer to total assets, capital employed or the owners' equity. Njoku and Jombo (2003) saw ROI as a measure of the company's percentage returns on its capital investment which consists of shareholders' funds and long term debts. They submit that the percentage return which represents financial returns must always be on the increase. Ihesiulo (2005) stated that ROI is a measure of the success of the firm in earning a net return on investment and it should be on the increase. Return on investment (ROI) is a financial ratio used to calculate the benefit an investor will receive in relation to their investment cost. It is most commonly measured as net income divided by the original capital cost of the investment. The higher the ratio, the greater the benefit earned (corporate finance institute (CFI), 2020). There are several versions of the ROI formula. The two most commonly used are shown below

ROI = Net Income / Cost of Investment or

ROI = Investment Gain / Investment Base

The first version of the ROI formula (net income divided by the cost of an investment) is the most commonly used ratio. The simplest way to think about the ROI formula is taking some type of benefit and dividing it by the cost. The Use of the ROI Formula Calculation ROI calculations are simple and help an investor decide whether to take or skip an investment opportunity. The calculation can also be an indication of how an investment has performed to date. When an investment shows a positive or negative ROI, it can be an important indication to the investor about the value of their investment. Using an ROI formula, an investor can separate low-performing investments from high-performing investments. With this approach, investors and portfolio managers can attempt to optimize their investments (CFI, 2020)

Waste Management cost and Financial Performance

Umuren et al. (2018) in their study investigated oil Companies Performance and Environmental Accounting Reporting in Nigeria. The objective of the study was to investigate the nature of relationship existing between environmental accounting reporting and Oil companies' performance in Nigeria. Eleven (11) quoted oil companies were randomly selected from the Nigerian Stock Exchange. The secondary data used were from the audited financial statements of the Oil companies. Environmental accounting reporting was measured by the costs of air pollution, water pollution, land degradation, staff welfare, community welfare, and litigations. The performance of the Oil companies was measured using return on capital employed (ROCE); net profit margin (NPM), dividend per share (DPS) and earnings per share (EPS). The statistics used in testing the hypothesis was multiple linear regression. The results of the

analysis showed insignificant relationships between environmental accounting reporting and performance variables, that is, return on capital employed, net profit margin earnings per share, and dividend per share. The study recommended that government should make environmental disclosure compulsory and also impose sanctions on the violation by any Oil company in Nigeria; compliance by the Oil companies should be taken seriously so that the environment will be safe for economic growth and development.

Utile et al. (2017), examined corporate environmental reporting and the financial Profitability of listed manufacturing firms in Nigeria. The study investigates the effect of environmental reporting on the financial Profitability of listed manufacturing companies in Nigeria. The study aims at determining the effect of erosion control reporting (ECI), waste management reporting (WMI) and air pollution reporting (API) on the financial Profitability of listed manufacturing firms in Nigeria. The study adopted an ex-post facto research design using the random effect regression analysis as the major technique for data analyses. The sample of the study was drawn from ten manufacturing firms listed on the Nigerian Stock Exchange. It was found that both erosion control reporting and air pollution reporting has significant effect (0.002) and (0.026) respectively with firm financial Profitability while waste management reporting has negative but significant effect (0.000) on firm financial Profitability of companies under investigation. The major conclusion reached by this study is that environmental reporting has significant effect on firm financial performance. The study recommends that the Environmental Regulation Agency should collaborate with the Financial Regulation Council of Nigeria to make environmental reporting a necessity in annual reports of listed firms in Nigeria.

Theoretical Framework

Stakeholder Theory

In an organization, there are basically two types of stakeholders (Internal and external). Most internal stakeholder includes management, employee and board while external stakeholders include shareholders, communities, creditors, debtors/customers, government agencies, and environment (Johnson-Rokosu & Olanrewaju, 2016). Stakeholders Theory was first developed and modeled by R Edward Freeman in 1984, in USA (Freeman, 1984; 2010) and since then has gained the attention of researchers and business owners – the need to act while taking into consideration all stakeholders in the business or operations of the company. Stakeholders theory is one of the theories that seeks to explain the practice of presenting social information, centered on the role it can play in relations to organizations, governments, individuals, associations and society in general (Gray et al., 1998; Magnaghi & Aprile, 2014). Gray et al.(1998) informed that from an organizational point of view, the theory of interested parties is based on a model of responsibility for all actors, who have normative, descriptive or explanatory power in the context of CSR, and includes the responsibilities of the company and the transparent nature of its activities.

A crucial element that the company can use to manage relations with stakeholders is precisely the information (financial, sustainability or both) obtained to obtain the support and approval of the business strategy by the interested parties, without presenting an objection. Voluntary disclosure is largely justified by the theory of the interested parties and, consequently, by the theory of legitimacy which is considered an appropriate means of maintaining and developing relationships between the various interest-generating groups and society Furthermore, interested parties provide another theoretical framework to explain the relationship between the various stakeholders and the management; and potentially useful for reviewing or influencing corporate social communications or sustainability reports for organization in annual corporate reports.

Basically, Stakeholder Theory is based on proposition that a firm 's success or otherwise depends on a successful management of all the relationships that a firm has with its stakeholders (Uwuigbe & Jimoh, 2012). It is argued that stakeholder theory is one of the theories that seeks to explain the practice of presenting social information, focused on the role it can play in relations between organizations, governments, individuals, associations and societies in general (Gray et al., 1998; Magnaghi & Aprile,

2014). The justification of this theory is that while the companies in an effort to justify their operations within the nation as well as appease all stakeholders, it would engage in voluntary disclosure that would involve the disclosure of environmental activities and cost associated with managing the environmental impacts of their operations. This disclosure would benefit all stakeholders especially the investors as well as host communities

Review of Empirical Literature

Obara and Nangih (2017) study investigated the extent to which Accounting practices affect the profitability of Oil and Gas companies in Nigeria, particularly those in the upstream sector. The specific objectives were to determine the effect of accounting practices on Return on Assets (ROA) and Return on Capital Employed (ROCE) of Oil and Gas Companies in Nigeria. The study objectives guided the empirical review. The Researchers used Stratified Sampling Design approach. The target population comprised of Oil and Gas Companies in Nigeria. A total of 84 respondents were drawn from the population. Both primary and secondary data were used in the study. Primary Data were collected using questionnaires drawn using the Likert's Scale with five points ranging from very great extent to no extent, while secondary data were sourced from already published materials. Hypotheses were formulated and data were analyzed using SPSS Software and other Descriptive statistical tools such as; percentages and tables. The result of the study showed that accounting practices had a significant relationship with performance of Oil and Gas Companies, particularly, the Return on Assets and Return on Capital Employed. It was recommended that proper and best accounting practices should be adopted by Oil and Gas companies to ensure better performance on one hand and fair, transparent and reliable financial reports on the other hand.

Oti, and Mbu-Ogar, (2018) examined the impact of environmental and social disclosure on the financial performance of quoted oil and gas companies in Nigeria. Time series data for five years were collected and analyzed using the ordinary least square regression technique. The theoretical framework was hinged on stakeholder and legitimacy theories which describe the tie between organizations and the social/societal strata need for disclosure and financial performance. Results from the statistical analysis revealed that disclosure on employee health and safety and community development do not significantly affect financial performance while disclosure on waste management had a positive and significant effect on firm's financial performance. The study recommended that oil and gas companies should constantly review their waste management strategy and employ bespoke technology in waste management to mitigate their impact on the environment. Furthermore, Oil and gas companies should improve on employee health and safety as part of their mission and vision statement for enhanced firm value. Companies should also ensure sustained development of their host communities to avoid youth restiveness.

Eze et al. (2016) in their study identified environmental accounting issues and the effects of these environmental factors on the life of Nigerians. It was discovered that environmentally friendly organizations who voluntarily disclose their environmental activities enjoy high level of competitiveness. Environmental accounting motivates organizations to track their greenhouse gas emissions and other environmental elements against reduction or elimination point. It was recommended that companies should adopt acceptable and uniform standards for the purpose of control and measurement of performance, and should design products which generate less waste or emission during their life cycle.

3. METHODOLOGY

The research design of this study is explanatory, historical and correlational in nature. The focus of an explanatory research design is to effectively explain the characteristics of a population or a social phenomenon (Saunders et al., 2007). This is usually effective where a quantitative framework is adopted for the study, where it is possible to establish the relationship or influence on one variable on the other. The study would be establishing whether or not a relationship exists between the variables of

environmental management cost and financial performance of quoted oil and gas companies in Nigeria. Furthermore, the correlational method adopted, involves the use of regression analysis, which helps to measure the relationship between two variables. It helps to ascertain whether or not a variable has an influence on the other.

The study population comprises of Thirteen (13) quoted oil and gas companies in Nigerian stock exchange as at December, 2019, according to available data from Nigerian Stock Exchange, Port Harcourt office, and the period was from 2011 -2018. Purposive sampling technique where by Ten (10) of the quoted companies were chosen for the study. These are based on the companies that have been quoted earlier than 2013 when more indigenous companies were added to the list of the quoted oil and gas companies in Nigeria. Secondary sources of data are used as the main data collection sources. The relevant data for this study is collected from the annual reports and accounts of the companies available from Nigerian Exchange (various years). The data collected are from the period 2011 – 2018. The Annual reports includes Annual financial statements; annual sustainability reports where environmental costs details are found in the statements submitted at Nigerian Exchange for the years under study. The data collected were analyzed using Regression Analysis guided by a regression Model to analyze the relationship of the variables identified as well as ascertain whether or not they have influence over one another. This helped in testing the hypotheses

Models Specification

Dependent variable is the Financial Performance (FPF), whilst the independent variable is the Waste Management Cost), Furthermore, the ROI, is proxied for Financial Performance. In view of the above, the following model is developed for this study

$$FPF = f(WMC) \text{ ----- (1)}$$

$$ROI = f(WMC) \text{ ----- (2)}$$

In the linear form, Equation (2) converts to

$$ROI = b_0 + b_1(WMC) + e$$

Where b_0 = is coefficient of regression parameters, e = error term.

Using Statistical Package for Social Sciences (SPSS) software, the variable was subjected to complementary statistical test and the result was used for analysis and for hypothesis verification.

4. RESULTS AND ANALYSIS

4.1 Descriptive statistics

Waste Management Cost as a Dimension of Environmental Management Cost

The descriptive summary of waste management cost as a dimension of environmental management cost is shown in table 4.1.

Table 4.1: Descriptive statistics for Waste Management Cost (n=80)

<i>Statistic</i>	<i>WC</i>
Mean	3.505
Maximum	3.376
Minimum	3.276
Std. Dev.	2.234553
Skewness	1.573
Kurtosis	4.24331
Jarque-Bera	30.22254
Probability	0.000000

Source: E Views window output, 2021

From table 4.1, the mean value of 3.505 indicates that average waste management cost for the oil companies is 3.505% of the industry, with a record high of 3.376% and a low record of 3.276%. The skewness coefficient of 1.573 indicates that the distribution of pooled waste management cost data is skewed to the right. This suggests that there are more data points to the right of mean than to the left of mean. The Kurtosis coefficient of 4.24331 indicates that the height of distribution of waste management cost is taller than that of the theoretical normal distribution. The theoretical bell shaped (normal) distribution has a kurtosis value of 3 and a skewness coefficient of zero. The non-normal distribution of the pooled waste management cost data is confirmed by the Jarque-Bera test which rejects the normality hypothesis (p-value = 0.0000) at less than 1% level of significance. Thus, there are more data extremes in the dataset which adversely affected its distribution.

Return on Investment

Table 4.2 shows the descriptive summary of return on investment as a measure of financial performance.

Table 4.2: Descriptive Statistics for Return on Investment (n=80)

<i>Statistic</i>	<i>ROI</i>
Mean	3.472465
Maximum	23.70964
Minimum	-54.13764
Std. Dev.	11.46404
Skewness	-2.006456
Kurtosis	7.764252
Jarque-Bera	116.5035
Probability	0.000000

Source: E Views Window output, 2021

From table 4.2, the mean value of 3.472 indicates that the average return on investment ratio of the oil companies is 3.472%, with high variability (standard deviation =11.464). The skewness coefficient of -2.00 indicates that the distribution of pooled return on investment data is skewed to the left while the Kurtosis coefficient of 7.764 indicates that the distribution of pooled data is leptokurtic. This implies that the distribution of the return on investment data is non-normal. The non-normality of the profitability data is confirmed by the Jarque-Bera test which rejects the normality hypothesis (p-value = 0.0000) at less than 1% level of significance.

4.2 Testing of Hypothesis

Test of Hypothesis 1

HO₁: Waste Management cost does not have a significant effect on Return on Investment of quoted oil and gas companies in Nigeria.

Where $ROI = F(WC)$

Table 4.3: Regression Analysis showing the effects of Waste Management Cost on Return on Investment

Dependent Variable: LROI

Method: Panel Least Squares

Date: 29/12/21 Time: 07:08

Sample: 2010 2018

Periods included: 8

Cross-sections included: 10

Total panel (balanced) observations: 57

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.567568	0.807467	2.768080	0.0022
WC	-0.696593	0.358876	-1.606708	0.0006
R-squared	0.076483	Mean dependent var		1.005862
Adjusted R-squared	0.075896	S.D. dependent var		0.740134
S.E. of regression	0.538020	Akaike info criterion		1.550305
Sum squared resid	15.35649	Schwarz criterion		1.796367
Log likelihood	-50.75183	Hannan-Quinn criter.		1.841357
F-statistic	1.568464	Durbin-Watson stat		1.453506
Prob(F-statistic)	0.240559			

Source: E Views window output, 2021

Estimated model from the e-view shows that the model is linear and given as

$$ROI = 2.567568 + -0.696593WC.$$

WC is negatively related to ROI. It means that, decrease in WC will lead to decrease in ROI.

Coefficient of Determination (R₂)

The R₂ was estimated as 07.64% which implies that 07.64 percent of the total variation found in ROI is explained by the variation of WC. By decision rule, it is agreed that there is a weak presence of WC in ROI.

Adjusted Coefficient of Determination (R₂)

The adjusted R₂ estimated as 0758% which implies that 0758percent of the total variation found in ROI is explained by the variation in WC. By the decision rule, it is agreed that there is a weak presence of WC in ROI.

Standard Error Test: The standard error test shows that standard error for WC is 0.358876 and it is found to be greater than its parameter found to be $-0.696593/2 = -0.3482965$. Going by the decision rule, that: if significant $b_1 \frac{1}{2} > S(b_1)$, the variables are statistically significant and if $b_1 \frac{1}{2} < S(b_1)$, the variables are statistically insignificant. This implies that WC is statistically insignificant with ROI.

Student's T- Test: The student's t-test estimates used to test the acceptability of the hypothesis, result shows that t-cal for WC is -1.606708 while its prob-value is 0.0006. By the decision rule: Accept null hypothesis (ho) if $b_i: t_c < t_f(0.025)n-k$ and Accept alternative hypothesis (hi) if $b_i: t_c > t_f(0.025)n-k$. From our result, we reject the null hypothesis and accept its alternative hypothesis that waste management cost has significant influence on return on investment of quoted oil companies in Nigeria.

F-Statistics

The F-Cal was found to be 1.568464 while the f-probe value is 0.0000. **Decision Rule:** If $F\text{-Cal} > F\text{-tab/prob-value}$, reject null hypothesis. If $F\text{-Cal} < F\text{-tab/prob-value}$, accept null hypothesis. From the result it implies that waste management cost has significant impact on return on investment of quoted oil companies in Nigeria.

4.3 DISCUSSION OF FINDINGS

Effect of Waste management cost on Return on Investment (ROI)

The result showed that waste management cost has a significant effect on return on investment of the quoted oil companies firms. In addition, the Adjusted R-squared of 0.076483 indicates that about 07.65% of the changes in financial performance in terms of return on investment of the selected firms are accounted for by the influence of the waste management cost, while on adjusted bases the return on investment was just (0.07589) 07.59% relative to waste management cost dimension of environmental management cost of the quoted oil companies. The coefficients of -0.696593 signify that waste management cost has a negative influence on return on investment. In other words, as the waste management cost reduces, the return on investment of the companies also reduces. The implication of this that a 1% fall in waste management cost would result in a -0.696593 percent reduction in ROI (return on investment) of the oil companies. This result here is in line with earlier works of (Ikpor, 2019; Nwaiwu & Oluka, 2018; Utile et al., 2017) whose study results indicated that adequate disclosure on environmental cost, compliance to corporate environmental regulations have significant effect on financial profitability measures.

5. CONCLUSION AND RECOMMENDATION

The study concludes that waste management cost has a negative but weak and significant effect on Return on investment of quoted oil and gas companies in Nigeria. Consequently, the study recommends that Government and regulators should ensure that there is enforcement for adequate environmental cost (especially the waste disposal cost) disclosure and proper reporting by the oil and gas companies. This way investors can make better decisions based on their show of responsibility towards reduction on environmental damage through their operations. Furthermore, Government as well as regulators should ensure that the International guidelines for environmental management cost and reporting framework are adopted by the companies where they are engaging in environmental impact disclosures and costing. This can be done by adopting and implementing the United Nations Environmental Management Cost Accounting (EMCA) guideline which will complement the International Financial Accounting Standards (IFRS) adopted in Nigeria that ensures harmonization and transparency.

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