



Environmental Liability Provisions and Earnings Persistence of Oil Firms in Nigeria

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Authors' contributions

This work was carried out in collaboration among all authors. Author GJC designed the study, performed the statistical analysis and wrote the initial draft of the manuscript. Author HRI managed the conceptual review and empirical review. Author MMA wrote the theoretical framework of the study and discussion of the results. All authors read and approved the final manuscript.

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ABSTRACT

The purpose of this study is to examine whether provision for environmental liability is associated with earnings persistence of oil firms in Nigeria. The study also examines whether changes in provision for environmental liability is associated with earnings quality. Data from four oil firms for the period 2012 to 2018 were analysed using ordinary least square regression with robust standard errors. Two hypotheses formulated for the study were tested by regressing future earnings on current earnings and other variables. Results showed that environmental liability provisions were not significantly related to earnings persistence. Changes in these provisions were also insignificantly related to earnings quality. The evidence supports institutional theory as basis for explaining the relationship between environmental liability provisions and earnings quality in Nigeria; indicating that the relationship is not driven by ethical considerations or stakeholder concern. There is need for a legal framework for environmental financial reporting in Nigeria to ensure that the environmental obligations of all polluting firms are adequately accounted for, and earnings numbers are ethically reported.

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1. INTRODUCTION

Waste dumping, carbon emissions, oil spillage and similar environmentally irresponsible behaviours have occurred severally in Nigeria, provoking law suits, serial community reactions, and international condemnations. The operation of oil and gas firms in Nigeria has devastated the ecosystem and impoverished oil-bearing communities in the Niger Delta region. Protests over the destruction of the environment have often pitched the community against the government, sometimes leading to the death of some protesters, or massive destruction of their communities [1,2]. Given this context oil firms in Nigeria present themselves as socially responsible and interested in preserving the environment in which they operate. The importance of corporate social responsibility (CRS) in ensuring business success has motivated voluminous research on what drives CRS and how it affects corporate performance.

One line of research examines the relationship between CRS and earnings quality. The evidence provided on this relationship is mixed, with some studies reporting that firms with high CRS have low quality earnings as they engage in earnings management, while other studies find insignificant or significant positive relationship between CRS disclosures and earnings quality [3-15]. CSR reporting sometimes include a discussion on how the entity has burdened the environment and the actions taken to reduce pollution, as well as plans to use natural resources efficiently and promote green production.

Firms operating in jurisdictions where environmental laws compel restoration of polluted environment usually provide for environmental liabilities in respect of their obligation to remedy the polluted environment. International Accounting Standards 37 (IAS 37) *Provisions, Contingent Liabilities and Contingent Assets*, also requires firms whose operations may lead to future remediation cost to estimate the amount of future liabilities and recognize the estimated amount in their financial statements. Also, IFRIC Interpretation 1, an *Interpretation* that deals with changes in estimates of environmental liabilities, requires firms that recognise provisions

for environmental liabilities to account for changes in estimated future environmental obligations, and recognise the value of these changes in their financial statements.

As noted earlier, a number of studies have examined how environmental and social activities are associated with the quality of reported earnings [3-15]. However, only few studies have examined how estimates of environmental liabilities are associated with earnings. Related studies include Chukwu, Idamoyibo and Akunna [16] who examined how environmental liability estimates are associated with market value in the Nigerian oil industry. Other related studies examine how environmental disclosures are associated either with earnings quality [14,17,18] or firm performance [19], and how potential environmental liabilities affect earnings quality in advanced economies [20]. There is currently no known Nigerian study which has addressed the relationship between provisions for environmental liabilities and the quality of reported earnings. By examining how estimates of environmental liabilities are associated earnings quality, and how changes in provisions for environmental liabilities are related to earnings persistence, the current paper fills gap in literature.

The quality of earnings reported by a firm indicates the health of the firm and how the entity respects the desires of its investors and other stakeholders. Firms that care for their stakeholders report high quality earnings even as they engage in social and environmental reporting. Given the many environmental challenges raised by oil drilling in Nigeria, and the carefree attitude of oil firms operating in the country towards various stakeholders [16,20], it is necessary to examine whether oil firms that provide for environmental liabilities also fulfil stakeholders' desire by reporting high quality earnings.

The paper is structured as follows. Section 2 reviews related literature on environmental, social issues and earnings quality. The research methodology is presented in Section 3 while section 4 presents empirical results and discussion of the result. The paper is concluded in Section 5.

2. LITERATURE REVIEW

2.1 Empirical Review

The demand for CSR is increasing as society expects businesses to respond to societal needs. This is more so in crises periods such as times of global health challenges and natural disasters when people, communities and nations need to build resilience [21,22]. It has also been documented by prior studies that expressions of care for the needs of the people and the environment they depend on may affect the fortunes of the business [19,23].

Firms that demonstrate care for the society are expected to present high quality financial information except where CSR investment is merely intended to secure an image in the space of environmentally responsible firms. Investors and other users of accounting reports need useful information on the performance of reporting entities to make informed decision and allocate their resources optimally.

A number of studies have examined the relationship between CSR and the quality of earnings reported by firms in different sectors of the economy. Earnings quality is often measured using a number of proxies such as earning persistence, accrual quality, earnings predictability, income smoothness, timeliness, conservatism, and value relevance [24]. These proxies are also used in measuring earnings management which is interpreted as high when earnings quality is low and vice versa.

A large number of studies have documented a positive relationship between CSR and earnings quality. Kim et al. [10] compared the financial reporting behaviour of firms categorised as socially responsible and other firms regarded as less socially responsible. The study specifically examined whether high CSR firms report high quality earnings. Findings showed that the firms that are socially responsible are driven by ethical concerns which constrain them to report high quality earnings. Similarly, Hong and Anderson [9] found that firms that are socially responsible report high quality accruals and are less involved with cutting spending and taking other unusual business actions to achieve earnings target.

Bozzolan [3] investigated the CSR orientation of over 1000 firms in 24 countries, and whether such orientation affects the reporting behaviour of the firms in terms of earnings management.

Findings of the study showed that firms with strong CSR orientation are less likely to engage in the form of earnings management that alters a firm's underlying real operations. Also, Yip et al [15] who studied the CSR-earnings relationship in the oil and gas industry found that corporate social reporting is significantly and negatively associated with earnings management. The authors argued that this association is influenced not so much by ethical considerations as by the political environment.

Scholtens and Keng [13] investigated whether CSR reporting is associated with earnings smoothness and earnings aggressiveness. Findings showed that firms with good CSR reporting are less involved in earnings management, compared to firms with low CSR reporting. The study concluded that CSR reduces earnings management and thereby enhances earnings quality. Choi, Lee and Park [25] examined how CSR is related to earnings quality in Korean firms and found a significant negative correlation between CSR and earnings management, indicating that CSR has a positive association with earnings quality. The study, however, noted that for firms with high concentration of ownership, the reverse is the case as ownership concentration affects the relationship between CSR and earnings quality.

Lassaad and Khamoussi [26] examined how environmental and social disclosures are associated with earnings persistence. The study used a sample of 250 French firms with data from 2005 to 2009. Findings showed that the disclosure of environmental and social information is positively associated with earnings persistence. Gras-Gil et al. [7] argued that CSR is related to moral and ethical behaviour of firms and this behaviour improves the satisfaction of stakeholders and enhances corporate reputation. The study analysed data from Spanish firms and found that CSR had a negative effect on earnings management.

Chih et al. [4] investigated the relationship between CSR and earnings quality, using data from 1653 firms located in 46 nations. Earnings quality was measured using earnings aggressiveness, earning smoothness and avoidance of earnings decreases and losses. The findings showed that CSR is negatively associated with earnings quality when measured by earnings aggressiveness. With regard to the other measures, the study showed that CSR enhances earnings quality. Patten et al. [12] also

found that firms with higher levels of environmental disclosures exhibited less earnings management through discretionary accruals.

A number of studies have documented negative relationship between CSR reporting and earnings quality, leading to the assertion that firms with low quality earnings use social and environmental reporting to disguise their earnings management practices. Prior, Surroca and Tribo [27] argued that earnings management adversely affects stakeholders' interest hence, managers involved in earnings manipulations attempt to deal with stakeholders reactions by engaging in CSR practice. To examine this assertion, the study analysed data from 593 firms drawn from 26 countries during the period 2002 to 2004. Findings confirmed that CSR reporting and earnings management had a positive relationship.

Muttakin, Khan and Azim [11] also explored the relationship between CSR and earnings quality (using accruals quality as measure of earnings quality). Results showed a negative relationship between CSR disclosure and earnings quality as managers that provided more CSR disclosure were also more involved in earnings management. The study further documented that in firms with a strong presence of influential shareholders, CSR had a positive association with transparent financial reporting.

Heltzer [28] investigated the relationship between environmental concern and earnings management among U.S firms, using discretionary accruals as a measure of earnings management. Findings showed that firms with one environmental concern exhibited more earnings management than firms without any environmental concern. Firms with several environmental concerns exhibited more earnings management than firms with a single environmental concern. In other words, the more the environmental concern a firm has, the more likely it will report low quality earning numbers.

Gargouri, Shabou and Francoeur [6] also assessed how corporate social performance is associated with earnings management. The study used data drawn from 109 firms in Canada for 2004 and 2005, and found a positive association between corporate social performance on environmental issues and the level of earnings management, suggesting that

environmental performance is negatively associated with earnings quality.

Some studies have documented an insignificant relationship between environmental disclosures and earnings quality. Sun et al. [14] investigated whether environmental disclosure is associated with earnings quality. The study used data from 245 UK firms, and OLS regression to analyze the data. Findings indicate an insignificant association between environmental disclosure and discretionary accruals. Alipour et al. [17] also investigated how environmental disclosures are associated with earnings quality, using accruals quality and earnings persistence as measures of earnings quality, and data from 107 firms in Iran. Results showed that environmental disclosure is not significantly related to earnings persistence. Grougiou et al. [8] also found an insignificant relationship between banks' CSR commitment and proxies of earnings management. Heltzer [28] also examined how environmental strength is associated with earnings management, and found that environmental strength is not significantly associated with earnings quality.

The empirical reviews above show that environmental performance and reporting may be positively, negatively or insignificantly associated with earnings quality, suggesting that the evidence is mixed. Importantly, none of these studies examined how environmental liability provision is associated with earnings quality in Nigeria. A related study in Nigeria by Chukwu et al. [16] examined how environmental liability estimates are associated with market value (not earnings quality) in Nigeria. In the absence of any known Nigerian study that has examined the relationship between estimates of environmental liabilities and earnings quality, there is a gap in literature. By examining how environmental liability provisions recognised by oil firms are associated with earnings quality, and how changes in these provisions are related to earnings quality, this study fills gap in literature.

2.2 Hypotheses Development

One of the frequently used measures of earnings quality is earnings persistence. It has been argued that earnings persistence relies on the fundamental performance of firms as well as the measurement system adopted in financial reporting [5]. Thus, a firm with persistent earnings will likely have a sustainable future earnings stream. This attribute of earnings

persistence makes it a good measure of earnings quality and a useful input for equity valuation.

García-Sánchez and García-Meca [5] investigated whether environmental and social reporting is associated with earnings quality, using data from 159 banks selected from 9 countries. Findings showed that commitment to CSR is associated with earnings persistence as well as predictability of cash flows. The authors concluded that environmental, social and ethical conduct is a strong driving force for reporting high quality earnings.

Mahjoub and Khamoussi [18] also studied how environmental and social disclosures are associated with earnings persistence, using data from 128 firms in France. The study also found that firms with higher levels of environmental and social commitment are better motivated to communicate earnings that are persistent and useful to investors. It has also been documented that investment in environmental protection increases earnings persistence [29].

To ensure that firms account for future environmental occurrence, IAS 37 requires firms to estimate and recognize liability to decommission and restore the environment that has been negatively impacted by installations and other business operations. Recognition of provision for environmental restoration is required under IAS 37 when there is legal or constructive obligation to decommission and restore the environment. Constructive obligation arises when an entity's actions indicate that the entity is willing to accept certain responsibilities, and these actions create expectation that the entity will fulfil the responsibilities. Large firms in polluting industries usually comply with the requirements of accounting standards and are likely to recognise provisions for future environmental liabilities in accordance with IAS 37. Each year, the provisions will be reviewed and the accounts will be adjusted for changes in provision. This will ensure that the earning reported by the firm is not noisy [30].

The empirical review above has shown that environmental and social performance may be positively, negatively or insignificantly related to earnings quality. Given the Nigerian context where the environmental burden caused by oil firms far outweighs the efforts of the firms to protect the environment, it may be farfetched to expect that environmental liability provisions will be strongly associated with earnings persistence.

Therefore, the following hypotheses have been formulated for this study.

H1: Environmental liabilities estimates are not associated with earnings persistence in Nigeria.

H2: Changes in provision for environmental liabilities are not associated with earnings quality in Nigeria.

2.3 Theoretical Framework

Studies on environmental reporting often rely on agency theory, stakeholder theory, legitimacy theory, ethical theory and institutional theory. For this study, institutional theory is used to explain the relationship between environmental accounting and earnings quality. Institutional theory emphasises that a reporting entity depends on its environment for its communication behaviour. In other words, the institutions within which a reporting entity operates affect the reporting behaviour of the organisations. There are values, norms and legal requirements within the environment of a reporting entity which the entity must answer to. In other words, some of the institutional pressures that reporting entities respond to derive from regulations and industry practice. Thus, if the accounting standard setting body issues a new standard, the entities that adopt the standards must comply with the requirements of the standard. Also, if firms in the oil industry recognise future remediation obligations based on certain assumptions, a newly established oil firm will most likely conform to the reporting norm, irrespective of the absence of a legal requirement to do so. Reporting decommissioning liability based on the requirement of a mandatory standard is to comply with institutional requirement which may or may not be associated with the quality of earnings reported by the firm.

3. METHODOLOGY

3.1 Design, Population and Sample

The *ex post facto* design is used in this study as future earnings are matched with environmental liability proxies extracted from published annual reports of oil firms in Nigeria. This design is suitable where observations can be categorized into two groups which are matched *ex post* [31].

Estimating environmental liabilities is difficult especially in the beginning stage of the

environmental restoration plan because of uncertainty associated with the nature and timing of the event [32], and this discourages some firms from making such estimates, especially when there is no legal obligation compelling them to do so. This is possibly why, of the nine oil firms listed on the Nigerian stock exchange, only four firms provided for decommissioning and restoration cost. These four firms constitute the sample for this study.

The choice of oil firms for this study is because these firms are notorious for polluting the environment, and in some cases neglecting the polluted environment, thereby degrading the ecosystem of oil bearing communities in Nigeria. For this reason, firms in this industry are more likely than other firms to provide for decommissioning liabilities and to pursue activities that legitimise their operations and satisfy the welfare of their stakeholders.

The provision for decommissioning cost by some of these firms commenced in 2012, following the adoption of IFRS by public interest firms in Nigeria [33]. One of the firms in our sample, Seplat Petroleum, listed on the Nigerian Stock Exchange in 2013 therefore, data for this company were accumulated for six years (2013 – 2018) while that of the other three firms were for seven years (2012 to 2018), leading to 27 firm year observations. The model used for this study matched current earnings with future earnings. This reduced the firm year observations to 23.

3.2 Variables and Models

3.2.1 Decommissioning liability

Oil firms (and some other businesses) use a variety of assets. Some of these assets are installed underground and may damage the environment in which they are located. When an entity is legally required to dismantle such structures and restore the site, or by its practice has publicised that it will dismantle the assets and restore the site where the dismantled asset was installed, the entity has a decommissioning liability. Under IAS 37, the entity is required to recognize a provision for decommissioning liability as soon as the obligation to decommission arises, and this will normally be when the installation commences. Such liability should be recognized whether the obligation is required by law or by the entity's past actions or published policies. Oil firms in Nigeria provide for decommissioning liability for a number of events

including dismantling of oil production assets constructed or installed by the oil firms, removal of underground storage tanks, and the removal of drainages and pumps from service station of dealers. In recognizing the provision, the oil firms use the best estimate of the liability generated through internal experience or with the help of consultants [33-37].

IFRIC Interpretation 1, *Changes in Decommissioning, Restoration and Similar Liabilities*, requires entities with decommissioning obligation to recognize changes in provision for decommissioning liabilities. Such changes may arise from changes in the estimated amount required to dismantle the property and restore the site or the timing of the dismantling and restoration activity. The changes are recognized by oil firms in Nigeria taking into consideration changes in estimated resource outflow discounted in accordance with the requirements of IFRIC I [33,34,35,36].

3.2.2 Earnings persistence

The quality of earnings reported by a firm is useful in assessing how well the reporting entity has utilized its resources to benefit the shareholders and sustain the existence of the firm. Existing researches on earnings quality have used various measures because of different perspectives in the understanding of the construct. One of the attributes of earnings used in measuring earnings quality is how current earnings persist over time. Earnings persistence is a measure of the extent to which current earnings are repeated in the future. It indicates whether current earnings are stable and can be sustained in the future; therefore, high persistence shows high quality of earnings [38]. Earnings persistence is a good measure of earning quality because it depends on the fundamental performance of the firm as well as the system of accounting measurement employed [5].

Earning persistence is often measured as the coefficient of the current period earnings in a regression of one-period-ahead earnings on current earnings [5,29]. Following Mahjoub and Khomoussi [18] we define earnings as *earning per share* (EPS). Therefore *earnings persistence* is the coefficient of $EPS_{i,t}$ in the following regression:

$$EPS_{i,t+1} = \beta_0 + \beta_1 EPS_{i,t} + \varepsilon_{i,t}$$

The higher the value of the coefficient β_1 , the higher the level of earnings persistence. For clarity of symbols, we will label $EPS_{i,t}$ (current earnings) as CE, while one-period-ahead earnings ($EPS_{i,t+1}$) will be labelled FPE (future period earnings).

To test whether the provision for environmental decommissioning and restoration cost affects earnings persistence, the following regression model is used:

$$FPE_{i,t+1} = \beta_0 + \beta_1 CE_{i,t} + \beta_2 DL_{i,t} + \beta_3 CE_{i,t} * DL_{i,t} + \beta_4 NAPS_{i,t} + \varepsilon_{i,t} \quad \text{Model 1}$$

Where

$CE_{i,t}$ = current earnings
 $FPE_{i,t}$ = Future period earnings (i.e. earnings one-period-ahead)
 $DL_{i,t}$ = provision for decommissioning liability
 $CE * DL$ = interaction term for earnings and decommissioning liabilities
 $NAPS$ = net asset per share
 $\varepsilon_{i,t}$ = error term
 $\beta_1, \beta_2, \beta_3, \beta_4$ = coefficients
 β_0 = Intercept

The interaction term in model 1 ($CE * DL$) is used to test the effect of provisions for decommissioning liability (DL) on earnings persistence. If DL positively affects earnings persistence the coefficient on the interaction term ($CE * DL$) will be positive and significant. If the effect is negative, the coefficient on the interaction term ($CE * DL$) will be negative and significant. If the coefficient on the interaction term is insignificant, then the effect of provision for decommissioning liability (DL) on earnings persistence is insignificant.

Model 2 is used to test whether changes in provisions for decommissioning liability affects earnings persistence.

$$FPE_{i,t+1} = \beta_0 + \beta_1 CE_{i,t} + \beta_2 CDL_{i,t} + \beta_3 CE_{i,t} * CDL_{i,t} + \beta_4 NAPS_{i,t} + \varepsilon_{i,t} \quad \text{Model 2}$$

Where

$CE_{i,t}$ = current earnings
 $FPE_{i,t}$ = Future period earnings (i.e. earnings one-period ahead)
 $CDL_{i,t}$ = change in provision for decommissioning liability

$CE * CDL$ = interaction term for earnings and change in decommissioning liabilities

$NAPS$ = net assets per share

$\varepsilon_{i,t}$ = error term

$\beta_1, \beta_2, \beta_3, \beta_4$ = coefficients

β_0 = Intercept

The interaction term in model 2 ($CE * CDL$) is used to test the effect of changes in provision for decommissioning liability (CDL) on earnings persistence. If CDL positively affects earnings persistence the coefficient on the interaction term ($CE * CDL$) will be positive and significant. If the effect is negative, the coefficient on the interaction term ($CE * CDL$) will be negative and significant. If the coefficient on the interaction term is insignificant, then the effect of changes in provision for decommissioning liability (CDL) on earnings persistence is insignificant.

The profitability of a firm depends on the assets deployed by the firm. Therefore, net asset per share (NAPS) was included in the model as a control variable.

4. RESULTS AND DISCUSSION

4.1 Descriptive Statistics

In Table 1, the mean of environmental liability provision and earnings are provided. Decommissioning provisions (DL) range from N24m to N55bn, with a mean value of N8.4b indicating that oil firms provide huge amount of money for future decommissioning and restoration activities. The mean of changes in decommissioning provision (CDL) is N3,6bn, showing that substantial changes occur in the re-estimation of environmental provisions. The mean value of current earnings (CE) per share is 753k. This compares favourably with the mean value of EPS of banks which is approximately 160k in the period 2012 to 2013 [39]; the mean EPS of the most profitable breweries amounting to approximately 600k in the period 2008 to 2017 [40]; and the mean EPS of insurance firms amounting to 8k in the period 2012 to 2017 [41]. The mean value of future earnings (FPE) is 1,085k which is greater than that of current earnings, indicating that in the period covered by these analyses the earnings of oil firms increased. The minimum value of NAPS is N136 per share. This suggests that oil firms deploy huge value of assets relative to their issued share capital.

Table 2 presents the model summary from analysis of the data collected from the annual

reports of selected oil firms. The adjusted R^2 in model 1 is about 30 per cent suggesting that the independent variables explained about 30 per cent of the variations in future period earnings (the dependent variable). The adjusted R^2 for model 2 is 34 per cent, suggesting that the independent variables in model 2 (which deals with changes in decommissioning provision) explain the variations in future period earning by more than 30 per cent. The F value for model 1 is 3.168 while that of model 2 is 3.825; each of the models is significant at the 5 per cent level, showing that the models fit the data. The Durbin-Watson statistics for the models is within the acceptable range of 1.5 to 2.5, suggesting that auto correlation is not a concern in the study. Taken together, the Durbin-Watson statistic of 1.7 for model 1 and the R^2 of 41 per cent, do not provide any indication of spurious regression. Similarly, the modest R^2 value of 46 per cent, in conjunction with the DW statistics of 1.95 reported for model 2, does not suggest that the regression results for model 2 is spurious. This is because an indication of spurious regression can be assured when a regression results shows a high R^2 value, and at the same time, a low Durbin-Watson statistics [42]. The variance inflation factor (VIF) values range from 1.3 to 4.7. Since none of the VIF values is up to 10 the

numbers are within the acceptable limit, therefore, the issue of collinearity is of less concern in this study.

The net asset value is scaled by number of ordinary shares outstanding at year end, while decommissioning liability is scaled by total assets. Scaling of variables assists in ensuring that wrong inferences are not drawn. The use of robust standard errors in the regression results reported in Tables 3 and 4 ensures that the results are not affected by the problem of heteroscedasticity and autocorrelation.

Table 3 presents the regression of future period earnings (FPE) on current earnings (CE), book value (NAPS), provision for decommissioning liability (DL), and the interaction term for current earnings and decommissioning liabilities. The coefficient on interaction term (CE*DL) is used to determine the effect of environmental liability provisions on earning persistence. If the coefficient on the interaction term is significant and positive, then provision for decommissioning and restoration cost has a positive effect on earnings persistence. Table 3 shows that the t statistics for the interaction term (CE*DL) is positive but insignificant at all the conventional levels.

Table 1. Descriptive statistics

Variables	Minimum	Maximum	Mean	Obs
Prov. for Decommissioning Liabilities (DL)	23,548	55,098,042	8,437,085	23
Change in prov. for decom. liabilities (CDL)	-1,222,000	30,613,000	3,558,943	23
Future period earnings (FPE)	-7,900	14,398	1,085	23
Current earnings (CE)	-7,900	14,398	753	23
Net assets per share (NAPS)	422	81,210	13,656	23

Source: Analysis of data extracted from financial statements of selected oil firms in Nigeria

Table 2. Model summary

	Model 1	Model 2
R Square	0.413	0.459
Adjusted R Square	0.283	0.339
Std. Error of the Estimate	2.185	2.097
R Square Change	0.413	0.459
F value	3.168	3.825
Significance	0.039	0.020
Durbin-Watson	1.687	1.951
Variance Inflation Factor		
CE	2.531	2.476
NAPS	1.411	1.341
DL	4.062	
CDL		3.502
CE*DL	4.743	
CE*CDL		4.287

Source: Summary of regression analysis

Table 3. Results of regression analysis (Model 1)

Variables	Coef.	Robust Std. Error	T	P> t	Summary	
CE	-.422	.391	-1.08	0.295	Number of obs	23
NAPS	2.928	2.824	1.04	0.314	F(4, 18)	12.37
DL	-.121	.060	-2.02	0.058	Prob > F	0.000
CE*DL	.024	.015	1.58	0.131	R-squared	0.413
Constant	6.866	2.009	3.42	0.003	Root MSE	2.185

Source: regression output from STATA version 12

Table 4. Results of regression analysis (Model 2)

Variables	Coef.	Robust Std. Error	t	P> t	Summary	
CE	-.440	.390	-1.13	0.274	Number of obs	23
NAPS	2.576	2.146	1.20	0.246	F(4, 18)	49.84
CDL	-.380	.157	-2.42	0.026	Prob > F	0.000
CE*CDL	.060	.035	1.73	0.100	R-squared	0.459
Constant	7.532	1.646	4.58	0.000	Root MSE	2.097

Source: Regression output from STATA version 12

In Table 4, the interaction term for change in decommissioning liability and current earning (CE*CDL) is also positive but insignificant at the five percent level ($P < 0.05$). These results indicate that the provision for decommissioning liability (DL) and changes in provision (CDL) are not significantly associated with earning persistence. Accordingly, hypothesis 1 and 2 are supported by the results.

The results of this study are not consistent with García-Sánchez and García-Meca [5] who found a positive relationship between CSR practices and earnings persistence. CSR practices in the study comprised environmental and social issues. The authors argued that responsible firms focus not just on improving profitability but also on building up good relationship with their stakeholders on social and environmental performance. Results of this study do not also agree with Zhaig [29] who found that environmental protection activities increased earning persistence among Chinese firms. The author suggested that the finding is because good ecological practices assist in stabilizing the operations of the firms, and will in the long run make the earnings of the firm more persistent.

Results of this study are consistent with a number of studies that found an insignificant relationship between environmental disclosures and earnings quality. These studies include Sun et al. [14] who found an insignificant association between environmental disclosure and discretionary accruals, Grougiou et al. [8] who

reported an insignificant relationship between banks' CSR commitment and proxies of earnings management, and Alipour et al. [17] whose results showed an insignificant relationship between environmental disclosure and earnings persistence.

Zhaig [29] has argued that good ecological practices assist in stabilizing a firm's operations, which in the long run lead to more persistent earnings. Drawing from this argument, firms that do not so much care about the environment may not obtain stabilised operations that will in the long run lead to more persistent earnings. Oil firms in Nigeria are not known to show so much concern about the environment in which they operate [16,20], and this has led to series of conflicts between oil firms and host communities. This situation does not support business stability that will in the long run lead to persistent earnings. This is probably why the recognition of environmental liability provisions is not associated with earnings persistence, and changes in these provisions are not related to earnings quality. The theoretical framework that explains the result of this study is institutional theory. Firms in the oil industry in Nigeria recognise provisions for environmental liability because of the requirements of accounting standard and the need to conform to the practice in the industry; not because of their concern for the environment and the need to report their environmental burden, or the ethical consideration about the quality of earnings reported to stakeholders.

5. CONCLUSION

Oil firms install a wide range of facilities; sometimes underground, to enable their activities. In many cases, these facilities hurt the environment in which they are installed. IAS 37 requires reporting entities to recognize provision for decommissioning liabilities if the firm has a legal or constructive obligation to dismantle the facilities and restore the environment at the end of the production. Oil firms in Nigeria are not legally obligated to remove installations and restore the environment at the expiration of the life of installed facilities. Several studies have examined the relationship between CSR and earnings quality. Some of these studies suggest that CSR firms manipulate earnings to enhance their reputation, while other studies have documented that the firms interested in environmental and social reporting are motivated by ethical concerns to report high quality earnings. Not many studies have considered the relationship between provision for decommissioning liability and earnings quality, and how changes in remediation estimates are associated with earnings quality.

To fill this gap in literature, this study analysed data from listed oil firms that provided for decommissioning liability, using earnings persistence (as proxy for earnings quality) and OLS regression method. Findings showed that provision for decommissioning liability is positively, but insignificantly associated with earnings persistence. Also, changes in decommissioning provisions have positive but insignificant relationship with earnings persistence. This result may be attributed to the fact that oil firms in Nigeria are generally not very environmentally responsible given the low level of environmental effort applied by them to address the burden placed on the environment by their operations. Firms that provide for decommissioning liabilities do so to fulfil the requirement of accounting standards and to conform to the practice in the oil industry, not so much for their concern about the environment or the need to report ethically. The result of this study is therefore explained by institutional theory.

Further studies may extend this study to other polluting industries, such as the chemical industry, and examine whether the relationship between a firm's environmental burden and earnings quality is affected by the environmental efforts of the firm.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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