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ACCOUNTING PRACTICE AND EARNINGS PERSISTENCE OF NIGERIAN OIL AND GAS SECTOR

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Abstract
The work investigated accounting practice and earnings persistence in the Nigerian oil and gas industry. The specific objective was to determine the effect of full cost and successful efforts accounting on earnings persistence. Secondary data was sourced from the director's reports of annual financial statements for the sampled companies studied. The ex-post facto research design was adopted to determine the effect for 8 oil and gas companies purposively selected for the period of 2006-2025. The panel regression model estimation technique was employed using the STATA computer software version 21.0 for statistical analysis. Findings revealed that full cost accounting had a significant effect on earnings persistence while successful efforts accounting had an insignificant effect on earnings persistence. It was recommended that oil companies operating in Nigeria should adopt full cost accounting for their operations and practice.

Keywords: Earnings Persistence, Full Cost Accounting, Successful Effort Accounting, Earnings Management, Accounting Choice, Earnings Quality

Introduction

Globally, Earnings Quality is used in a wide range of empirical research to examine the relationship between Earnings Quality and the cost of capital as well as demonstrate trends over time and assess how financial accounting rules have changed. Schipper and Vincent (2003) for example deduced EQ from the theory of economic income, and Dechow and Schrand (2004) defined EQ as a gauge of how accurately profits represent a company's real performance. In most of these studies, the concept of earnings quality has been proven quite vague, despite repeated attempts to refine it and offer a theoretical underpinning. Earnings persistence is a key proxy for EQ. Earnings Persistence as a measure of earnings quality is based on the view that more sustainable earnings are of higher quality and thus more useful in the process of decision making (Bellovary et al., 2005). Bellovary et al. (2005) and Francis (2006) states that the slope coefficient estimate, from a first-order auto regression model for annual split-adjusted earnings per share X k,t is used to quantify earnings persistence. It is a widely held belief in extant literature that, the selection of a specific accounting practice (accounting policy choice) affects its reported earnings thereby, affecting its earnings persistence (Bandyopadhyay, 1994). Any choice made with the primary intent of influencing (either directly or indirectly) the output of the accounting system is referred to as an accounting choice (Fields et al., 2001). This study therefore, sought to investigate the effect of accounting practice on earnings persistence in the Nigerian oil and gas industry.

Objectives of the Study

The broad objective of the study was to ascertain the effect accounting practice has on earnings persistence in the Nigerian oil and gas industry.

The specific objectives included the following:

(1) To examine the effect of full cost accounting on earnings persistence in the Nigerian oil and gas industry
(2) To analyze the effect of successful efforts accounting on earnings persistence in the Nigerian oil and gas industry

Hypotheses of the Study

Ho1: The choice of full cost accounting method does not significantly affect earnings persistence in the Nigerian oil and gas industry.

Ho2: Earnings persistence of the Nigerian oil and gas companies are not significantly affected by the choice of successful efforts accounting.

Literature Review

Empirical Review

Akpaka, *et al* (2024) examined the effect of fair value accounting on earnings quality of deposit money banks in Nigeria. The study comprised of all the thirteen listed deposit money banks in Nigeria. The independent variable of the study being fair value accounting was proxied by the fair value gains/losses through profit or loss and fair value gains/losses through other comprehensive income while earnings quality was measured using total accruals. The research design employed in this study was ex post facto. Data employed was analyzed using robust regression technique. The findings of the study revealed that fair value gains or losses through profit or loss has significant positive effect on earnings quality; fair value gains or losses through other comprehensive income has significant positive effect on earnings quality. It was concluded that fair value accounting has significant effect on earnings quality of listed deposit money banks. It was therefore recommended that deposit money banks should enhance their risk management strategies to mi gate the volatility introduced by fair value changes in assets and liabilities.

Bello *et al* (2023) analyzed the effect of fair value gains and losses (FVGL) and other comprehensive income (OCI) on the quality of earnings reported by deposit money institutions in Nigeria from 2016 to 2021. Thirteen banks formed the adjusted population and sample of banks for the study. Persistence, predictability, variability, and smoothness were used as the response variables while reported net gains (losses) through net income (NI), i.e., the P & L account (FVTPL), and other comprehensive income (OCI) accounts (FVTOCI) served as the predicting variables. Bank size and financial leverage were included in the model as control variables. The study used a correlational research and multiple regression methodology. The results showed a positive and substantial correlation between the fair value gains/losses recorded in net income and the earnings quality reported by Nigerian deposit money banks. In contrast, fair value gains/losses in other comprehensive income were not significantly associated with the earnings quality reported by listed Nigerian deposit money banks.

Aguguom and Salawu (2022) studied earnings smoothing and market share price: evidence from Nigeria. The reason for the study was that empirical studies of earnings smoothing revealed inconclusiveness as most corporate organizations considered earnings smoothing irresistible. A theoretical debate suggested that earnings smoothing happened as a strategic flattening of curves to remain afloat or intentionally to fix managerial incompetence. Following this argument therefore, the research investigated the impact of earnings smoothing on the market share price of listed companies in Nigeria. The study adopted ex post facto research design using data sourced from published financial statements of selected companies. The population comprised 173 listed companies in Nigeria, covering a period of 2009-2020 as of 31st December 2020. 51 companies were purposively selected. The reliability and validity of the data was based on financial statements audited by the external auditors. The panel data was employed for the estimation using the Unobserved Effects Model (UEM), and Hausman test results to choose between random effect and fixed-effect models. The study found that earnings smoothing had a positive effect on market share price. Introducing control variables, SMOTH exhibited a negative significant impact on MSP while LEV revealed a negative significant impact.

Solomon and Mamman (2022) carried out a study on the effect of debt covenant violation on accrual-based earnings management of listed consumer goods firms in Nigeria. The study examined the effect of debt covenant violation on accrual-based earnings management of listed consumer goods firms in Nigeria. The study used data extracted from the financial statement of 15 listed consumer goods firms in Nigeria for the period of 2011 to 2018. The study employed ex-post facto design and panel regression technique of data analysis. The study revealed that debt covenant violation has negative significant influence on accrual-based earnings management of listed consumer goods firms in Nigeria.

Macgregor and Ibanichuka (2021) examined accounting information quality and firm performance of quoted oil and gas companies in Nigeria. The aim of the study was to empirically analyze the relationship between accounting information quality and firm performance of oil and gas companies in Nigeria. Time series data on different types of accounting information quality and earnings per share from 2009-2018 were collected from central bank of Nigeria statistical bulletin, annual central bank of Nigeria reports, national bureau of statistics and Federal Inland Revenue Service. Ordinary Least Square regression analysis, Autoregressive Distribution Lag, Co-integration, Augmented Dickey-Fuller Unit root test, Serial Correlation and Heteroskedasticity test and Error Correction model with the aid of E-view version 10 were employed. The empirical results indicated that accounting information quality significantly relate to firm performance; explaining about 83.1% of total variation in earnings per share, audit lag and disclosure quality were each found to significantly relate to earnings per share. Anaekenwa and Rafiu (2019) using empirical data from Nigeria's publicly traded companies looked at the quality of earnings and firm book value. The study examined the relationship between earnings quality and the book value of Nigerian listed companies from 2000 to 2016. Out of the 173 companies that were listed on the Nigerian Stock Exchange during that time, a sample of 51 companies was purposefully chosen for the study. An ex-post facto research design was used in the study. Data was taken from the companies' published, audited financial accounts. The pooled OLS approach was used to analyze the data. Accruals quality (AQ), earnings persistence (EPERS), earnings predictability (EPRED), and earnings smoothness (ESMOTH) were the four distinct earnings variables used in the study to quantify earnings quality. Findings revealed that earnings quality significantly affected book value of the listed firms in Nigeria. Specifically, accruals quality (AQ), earnings persistence (EPERS) and earnings smoothness (ESMOTH) each were positive on book value while earnings predictability (EPRED) was negative.

Lugemwa (2014) considered upstream oil and gas companies in the United States adopted full costing accounting systems and were investigated for the quality of their earnings. Microsoft Excel and the Statistical Package for Social Sciences (SPSS) were used to analyze and interpret secondary data mostly taken from annual reports, journals, and textbooks. The study employed both qualitative and quantitative approaches. The developed hypotheses were put to the test using regression analysis. The analysis included information for 76 publicly traded oil and gas companies in the U.S. that were primarily involved in the exploration and production of crude oil and natural gas (39 full cost firms and 37 successful efforts firms). The research's findings showed that successful efforts firms' correlation coefficient was much greater than full cost firms', indicating that successful efforts earnings were more strongly connected with cash flows than full costing earnings. The findings of this study conflicted with the researcher's findings. While successful efforts accounting was found to have significantly higher effect on earnings quality, the researcher's findings indicated that full cost accounting had higher effect on earnings quality.

In the study carried out by Lugemwa (2014) correlation analysis was used as the tool for analysis and decision. In this current research, regression analysis was used as the basis for establishing the causal effect between accounting methods and earnings quality. The researcher submits therefore that regression analysis is the best tool for establishing causal effect between accounting choice methods and earnings quality. The researcher's findings give a more reliable and convincing position on the debate than using correlation analysis.

Hassan and Farouk (2014) did a study on the business characteristics and earnings caliber of Nigerian listed oil and gas companies. The goal of the research was to ascertain how much business characteristics influenced the profits quality of the companies. The population was nine (9) in number out of which a sample of seven (7) were used. Firm attributes as the independent variable was represented by firm size, leverage, institutional ownership, profitability, liquidity and firm growth), while the residuals from the modified represented earnings quality. The investigation covered the period from 2007-2011. Data were gathered from secondary sources, including the annual reports and financial statements of the companies, by the researchers using multiple panel regression techniques. The results showed that firm size, institutional ownership, and profitability had a large but adverse influence on the earnings quality while leverage, liquidity, and firm growth had a significant positive effect on EQ.

Methodology

This study adopted ex-post facto research design as it was consistent with the criteria for adoption and has been used in other studies. The design was also used because of the availability of data from the annual reports of the sampled oil and gas companies under investigation. The scope of this study was limited to the Nigerian oil and gas industry (upstream sector only). The period for the study covered fifteen years from 2006 to 2025. The choice of the period was to be able to use recent data so that the findings of the study could be recent and relevant to the contemporary situation. Secondary were generated from published annual reports of the sampled companies. The study used published raw data from director's report in the annual reports of companies selected for the study. Annual reports which were the major source of data were obtained from the Nigerian Exchange Group and processed by a public online database maintained by MachameRatios Database, a registered regression data providing company. Data for the list of exploration oil and gas companies registered in Nigeria were obtained from a registered google online information provider nairametrics.com.

Model Specification

In order to test for the relevance of the hypotheses regarding the effect of accounting practice on earnings persistence of oil and gas companies in Nigeria, the following multiple regression equation as used in Onwumere (2009) was applied for the respective variables and analysis of the hypotheses:

$$Y = f\ (X1, X2, X3) \text{ - } (1)$$

where Y is the dependent variable which describes earnings persistence

X is the independent variable which represents accounting practice, f represents an acronym for function of the independent variable.

The above equation takes the form of a two-variable linear function:

$$Y = \alpha + \beta 1X1, \beta 1X2, \beta 1X3 + \mu \text{ - - - - - - - - - - - - } (2)$$

Where, Y= dependent variable X= independent variable α = constant indicating the point of interception with Y. β = slope or gradient or coefficient of X μ = error or control term

Rewritten as EarPers=f (AcctgPract) - - - - - - - - - -(3)

The following models were therefore specified for analysis of the stated hypotheses:

EarPers = α + β1FCAcctgChoi + β1SEAcctgChoi + μ - - - - - - - - - (4)

Where, EarPers= Earnings Persistence

FCAcctgPract = Full Cost Accounting Practice

SEAcctgPract = Successful Efforts Accounting Practice

α = constant indicating the point of interception with independent variable.

β = slope or gradient or coefficient of dependent variable

μ = control variables represented by FSIZE, ROA and LEV

Data Analysis and Discussion

Data collected from the sampled oil and gas companies have been presented in tables and analyzed. In this section, analysis was done in the following manner:

Descriptive Statistics

Table 4.1: Descriptive Statistics for the Variable under Study

Variables	Observations	Mean	Standard Dev	Minimun	Maximun
EPERS	120	0.1832	1.2226	-6.00	1.41
FC	120	0.5667	0.3321	1	1
SE	120	0.4333	0.4976	0	0
ROA	120	3.2428	19.676	-2.41	4.27
FSIZE	120	3.65	5.51	2.51	2. 98
LEV	120	32	15.907	4	66

Source: Researcher's Computation, 2025.

The results of the descriptive statistics of the study variables were displayed in Table 4.1. From the table, the result showed a mean value of earnings persistence of 0.1832 which implied that there was variation in earnings quality in terms of how they were persistent over the study period. Literature suggests that a value close to 1 means better earnings persistence, but the result here showed 0.1832 which was far below 1. This was confirmed in the higher standard deviation of the data set which stood at 1.2226. This showed that as other companies had persistent earnings quality as seen in the maximum value of 1.41, others had very in persistence earnings quality as demonstrated in the minimum value of -6.00. The company with the highest earnings persistence was ETERNA while that with the lowest was OANDO.

The percentage of companies that adopted successful efforts accounting for its practices on the other hand, was 43.33%. This implied that minority of the companies choose successful efforts accounting for disclosure. It also suggested that some of the sampled companies capitalize all their cost irrespective of whether such cost led to successful discovery of oil in commercial quantities or not. For successful efforts method, the capitalized costs were those that led to successful discovery of oil and gas which were fully developed. This practice usually leads to dwindling profits as majority of costs are expensed in the profit and loss for those years in which such heavy costs were incurred. This increases the variability of earnings within the company as it progresses from one year to another.

For the control variables, result indicated that the companies studied had a miserable mean return on assets of 3.65% which was considered too low. This was because some companies had very high ROA (4.27%) while others had very low ROA (-2.41%). This development proved the above assertion that the companies had a wide variation in their ROA (19.67%) arising from the different accounting choices they made to account for

With respect to independent variables, the percentage of companies utilizing full cost method of accounting for its practice reported 56.67%. This implied that majority of the companies disclosed all their costs whether they led to successful discovery of oil in commercial quantities or not. This also implied that majority of the companies their expenditure costs. For the firm size which was represented by total assets, the mean value of 3.65% showed that the companies had huge assets base to carry out their operations. However, very wide variations were noticed in the data set as depicted by the standard deviation value of N 5.51billion. This was made possible by the wide minimum and maximum values of N2.51 million and N2.98 million. The last issue considered was the age of the companies. The companies were 32 years old on average as shown by the mean value of age. The minimum and maximum values of 4 and 66 years implied that while some companies were young, most of them were old as depicted in the low standard deviation value of about 16 years.

Regression Results

The regression results of the study were presented in tables as follows:

Table 4.2 Regression Result for Earnings Persistence

Variable	Coefficient	RobustStd Error	T	prob/t/
Full Cost	-0.8430	0.3341	-2.52	0.013
Successful Effort	0.2418	0.2631	0.92	0.360
ROA	0.5215	0.1442	3.62	0.000
FSIZE	0.4807	1.0916	0.44	0.660
LEV	0.1089	0.1813	0.60	0.549
Cons	-2.846	3.163	-0.90	0.370
Obs	120			
Prob>f	0.0006			
R-square	0.1443			

Source: Researcher's Computation, 2025.

Table 4.2 showed the result of the regression of accounting choice on earnings persistence. These findings indicated that a percentage increment in company's choice of full cost method will increase earnings persistence by 84.30%. This implied that an increase in the adoption of full cost method will increase earnings quality of oil and gas companies in Nigeria. The result suggested that with the application of full cost accounting method, earnings persistence will appreciate thereby increasing the overall quality of earnings of the companies. For the successful efforts accounting, a unit increase in the number of companies choosing successful efforts method will reduce earnings quality by 24.18%. This implied that successful efforts accounting has the ability to reduce earnings persistence.

Concerning the regulating variables, the result showed that a company's ability to increase ROA by one unit will increase earnings persistence by 52.15%. This implied that if a company increased its return on assets base, it will be in a better position to improve its persistence of earnings. More so, companies with huge firm size in total assets were likely to improve their earnings persistence by 48.07% while an increase in the percentage of leverage of a company will enhance earnings persistence by 10.89%. On the contrary, it was found that, if accounting choice was not considered for analysis, other factors outside the study could be responsible for influencing earnings persistence by high 85.57% implying that choice of method only accounted for 14.43%as shown by the low coefficient of multiple determinations (R-square) in influencing earnings quality. The overall result of this study indicated that as companies increased their choice of full cost accounting method, earnings persistence in particular and earnings quality in general were going to be more, but when companies migrate to successful efforts method, earnings quality were less.

Test of Research Hypotheses

The hypotheses stated in section one is hereby restated and tested in this section as follows:

Ho_1: The Nigerian oil and gas industry's decision to use full cost accounting does not materially affect profits persistence.

Table 4.2 was used to test this hypothesis. From the table, prob>/t/ =0.013 which was less than 0.05. As a result, the alternative was accepted and the null hypothesis was rejected that the choice of full cost accounting significantly affects earnings persistence in the Nigerian petroleum sector.

Ho_2: The choice of successful efforts accounting in the Nigerian oil and gas business has little influence on earnings persistence.

Table 4.2 was used to test this hypothesis. From the table, prob>/t/ =0.360 which was greater than 0.05. This led to the acceptance of the null hypothesis that earnings persistence is not significantly affected by the choice of successful efforts accounting in the Nigerian oil and gas industry.

Discussion of Findings

From the result of the test of research hypotheses, the findings are hereby discussed below:

The result of accounting practice and earnings persistence as demonstrated in this research has shown that there was a significant effect of full cost accounting on earnings persistence. The significant effect is supported by the study of Harris and Ohlson (1987) which discovered that full cost accounting had a negative effect on earnings quality potentials of companies studied. This finding implied that if full cost accounting was adopted, the ability of earnings quality to persist will be enhanced. The result of the finding also indicated that full cost accounting had the potential of significantly affecting earnings persistence. These findings are in line with those of Bryant (2003) and Sunders (1976) who in their respective studies discovered that full cost method can significantly affect earnings outcomes. Again, it was found that the choice of accounting method was not a determining factor in influencing earnings persistence. The coefficient of multiple determinations was found to be so low in supporting the theoretical argument that choice of accounting method was responsible in influencing earnings quality. The test of hypothesis two revealed that successful efforts accounting had insignificant effect on earnings persistence. This finding was supported by the works carried out by Harris and Ohlson (1987) and Bandyopadhyny (1994) who also reported significant effect of successful efforts method on earnings. The result implies that the ability of the companies to continue to produce earnings consistently in the future is low when they adopt successful efforts accounting. The study found that successful efforts accounting had insignificant effect on earnings persistence. The result was inconsistent with the findings of Bryant (2003) and Sunder (1976) who discovered that full cost method was more significant than successful efforts method. The result was also opposed to the studies of Mustafa (2010), Harris and Ohlson (1987) and Lugemwa (2014) who found that successful efforts accounting was significant in influencing earnings quality. This insignificant effect may be due to the fact that too much cost which are otherwise supposed to be capitalized are expensed thereby making the method irrelevant in determining earnings persistence.

Summary of Findings

The study's primary goal was to ascertain how accounting practices affected earnings persistence in the Nigerian oil and gas sector. The main goal was to determine which practice gives oil companies better quality stream of earnings. Ex-post facto research methods were used to gather secondary data from the annual reports and statements of affairs for eight (8) specifically chosen oil and gas businesses that are listed on the Nigeria Exchange Group in order to accomplish this goal. The independent variable identified was accounting practice represented by full cost accounting and successful efforts accounting, while the dependent variable was earnings persistence. The study applied the random effect regression models to analyze the secondary data obtained from the sampled companies. The panel regression results revealed that:

i. Full cost accounting had a significant effect on earnings persistence.

ii. Successful efforts accounting had an insignificant effect on earnings persistence.

Conclusion

From the findings of the study, it was pertinent to conclude therefore that:

i. When oil and gas companies in Nigeria choose to adopt full cost accounting, their earnings persistence would be enhanced thereby improving their quality of earnings.
ii. Successful efforts accounting was found to be irrelevant in explaining persistence in earnings of oil and gas companies.

Recommendations

Based on the conclusions enumerated above, this study recommended that:

i. If oil and gas companies desire to ensure that earnings continue consistently and persist into the future, they should choose full cost method of accounting for their operations. This is because the study had shown that full cost method was important in determining the persistence of earnings. Managers of such companies could achieve this by continuously appropriating depreciation, depletion and amortization costs of all costs whether they lead to prove or unproved reserves. The lump sum charge under successful efforts method may distort earnings to the point that earnings may become irregular.
ii. Managers of oil and gas companies in Nigeria should not adopt successful efforts accounting for their accounting practice if they want their earnings quality to persist consistently into the future.

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