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Oil and Gas Accounting in the Nigerian Petroleum Industry

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ABSTRACT
This study is aimed at assisting accounting practices operated in the oil and gas industry in Nigeria particularly to examine the major problems of accounting in the Nigerian oil industry. Also, attempt was made, to assess the role of Nigerian Accounting Standard Board (NASB), the Institute of Chartered Accountants of Nigeria (ICAN) and the Association of National Accountants of Nigeria (ANAN) in developing relevant accounting standards for the industry. Data was collected using both primary and secondary sources with the aid of structured questionnaire. Simple percentages and Chi-square Statistical models were used to analyse the data. It was found that accounting standards for oil and gas industry in Nigeria owe its origin to the methods initially formulated in America and Britain with slight modifications. It was also observed that NASB, ICAN and ANAN play significant role in formulating standards for the oil and gas accounting sector in Nigeria to suit the realities of the time. It was recommended that oil and gas companies in Nigeria irrespective of their origin should show unequivocal commitment in adopting and upholding ethical standards that would lead to improvement in accounting information. The Nigeria National Petroleum Corporation (NNPC) and oil companies should relate functionally with statutory institutions like ICAN, NASB and ANAN with a view to fostering a stronger working relationship.
Keywords: *Accounting for oil and Gas*

1. Introduction

The oil industry is considered the most strategic of all the industries all over the world. Oil is both a major source of revenue and a visible weapon in international politics. It is then crucial that such a veritable asset be well accounted for to enable both the government and oil companies maximize benefits derivable from the natural endowment. Accounting for oil and gas prospecting has developed over the years, however, there is still no set of globally or generally applied standard of accounting for oil and gas activities though, there are some widely used methods by various companies as a matter of choice. Some oil companies in Nigeria use the successful method while others prefer the full cost method of accounting. There is also an accounting method, which is based on proved oil and gas reserves, this method Reserve Recognition Accounting is hardly used in the country.
The fact that the operating companies are from different countries may mean the use of varying accounting principles and procedures for recording and reporting in accordance with those practiced in the respective companies' home country. This practice makes comparability of financial statements of oil companies difficult. It also makes it difficult to properly assess growth.

The focus of this study is to ascertain the approval of the accounting practices of oil and gas companies operating in Nigeria and to establish the need for a common accounting standard for the oil industry in Nigeria. The study will also assess the role and efforts of the Nigeria accounting standard board (NASB) in developing relevant accounting standard for the oil industry in Nigeria.

2. Research Questions and Hypotheses

Based on the stated problems and objectives of the study, the following research questions are therefore posed:

RQ_1: Are there significant relationships in the accounting methods and procedures practiced by the different oil companies in Nigeria?

RQ_2: Are there significant relationships between the capitalization policy of oil companies and that recommended by the Nigerian Accounting Standard Board.

The answers to the research questions were used to test the research hypotheses stated below in the null.

Ho_1: There is no significant relationship between the accounting procedures and methods practiced by the different oil companies in Nigeria.

Ho_2: There is no significant relationship between the capitalization policy of oil companies and that recommended by the Nigerian Accounting Standard Board.

3. Literature Review

Prior to 1950 most companies in the upstream sector of the petroleum industry used the SUCCESSFUL EFFORTS METHOD to account for oil and gas exploration development and production. The practice was to expense dry hole costs and intangible drilling costs on productive wells while actual acquisition costs and tangible equipment costs were capitalized and amortized. With the emergence of large-scale public markets and more sophisticated exploration technology in the 1960's, a new method of accounting for oil and gas activities evolved. Under this method known as the FULL COST method, all costs incurred in exploring, acquiring and developing oil and gas reserves were capitalized in a cost centre irrespective of whether reserves were recovered or not

Thus, by the Middle of 1960's, two different approaches to accounting for oil and gas activities had clearly emerged. Advocates of full cost method argued that finding commercially producible hydrocarbons is an overall objective, which is not to be evaluated on well-by-well basis successes while proponents of successful efforts method held the view that any drilling effort that proves to be unsuccessful is a loss that should not be recognized immediately. With the controversy over, the two methods raged, actual practices within each of the methods varied from company to company, There is clearly a need for standards and uniformity of accounting for the petroleum industry.

The oil industry is divided into two sectors namely the upstream and the downstream. The upstream sector is concerned with finding and production of crude oil, which is its raw materials to produce petrol, kerosene, diesel oil, aviation fuel, cooking gas, engine oil and the petrochemicals (Ojaide 1998). Some companies generate most of their revenues from transporting, refining and marketing activities. The cost relating to these activities require no special accounting considerations beyond those applied to regular business activities of the same type. The special difficulty in accounting for oil and gas companies arises where activities extend to acquisition of properties for prospecting, exploration, development and production (Asechemie 1996).

The American Institute of Certified Public Accountants (AICPA), U.S. Securities and Exchange Commission (SEC), Accounting Principles Board (APB) and the Financial Accounting standards Board (FASB) have at one time or the other made efforts to provide uniformity and maximize conflicting treatments of the same accounting transaction.

Specific issues in the petroleum industry are universal and do not vary with location, whether in Africa, Europe or America. These issues include (i) Capitalization Policy; (ii) Treatment of Abandonment of Costs; (iii) Reserver Quantities; (iv) Deferred Taxes; and (v) Conveyances.

Table 1.
Differences between Successful and Full .Cost Accounting.

s/no		SUCCESSFUL EFFORTS METHOD	
1	Cost centre	Cost centre is either a field reservoir, lease or property. .	Cost centre is country by country or continent basis
2	Capitalization	All acquisition cost, cost of unsuccessful exploratory wells and development cost are capitalized,	Acquisition costs, all exploration costs (successful or unsuccessful) and development cost are capitalized.
3	Amortization costs	These include proved properties cost of successful exploratory wells, successful development wells, unsuccessful development wells and development costs.	Evaluated cost of property drilling and development cost impairments; estimated future development costs; estimated restoration and dismantlement costs.
4	Impairment	Any impairment on unproved properties is expensed within the period	Impairment is included in the amortization basis.
5	Reserves used in amortization	Acquisition costs are amortized on the basis of proved reserved whereas wells and related facilities and equipment are	All costs in the amortization pool are amortised on the basis of proved reserves.

		amortized based on proved developed reserve	
6	Coiling cost	Not required but may be carried out.	Ceiling test is mandatory.
7	Conversion of oil and gas to common unit	Conversion is done on energy content basis only. Gross revenue method is permitted.	Conversion is done either on energy content basis or on gross 'revenue basis if the ratio on selling price of oil and gas is not in accord with energy content
8	Sole or predominant mineral base	Can use sole mineral base to amortize if only one mineral is produced or only one is predominant.	Use of sole or predominant mineral is base is not permitted.
9	Net reclamation and discmantlement costs	Provision for liabilities for reclamation and dismantlement cost net of salvage is made and charged to profit and loss,	Estimated dismantlement and renovation costs are included in amortization. No specific provision is made.
10	Gain or losses on conveyances	Gain or loss can be recognized on the sale or transfer of proved properties and unproved properties under certain circumstances.	Gain or losses cannot be recognized on sale or transfer on properties except (a) sales proceeds exceed original acquisition cost (b) there is significant change in amortization rate.
11	Future development cost	Cost of future development are not included in the amortization base.	Cost of future development project are included in the amortization base.

Source: Petroleum Accounting and Taxation in Nigeria, 1992.

4. Reserve Recognition Accounting

Minerals are recorded at their estimated value when the reserves are discovered or alternatively, when the reserves are developed. Several variations of reserve recognition accounting have been proposed. Determination of the value of oil and gas reserve is critical to (RRA). Four principal valuation methods that might be used to measure the value of reserves emerged. They are;

- **Current cost**: this is the amount of cash or its equivalent that would have to be paid if the same asset were acquired currently.
- **Current exit value in orderly liquidation:** The value of mineral reserves on a current exit value basis would equal the price at which the reserves on a current value basis would equal the price at which the reserves could be sold in a place by a willing seller to a willing buyer, neither being under any compulsion to sell or buy and both being competent and having reasonable knowledge of the facts.
- **Expected Exit Value in the Normal Course of Business:** This is the non-discounted amount of cash or its equivalent into which an asset is expected to be converted in the course of business less the direct cost necessary to make that conversion (sometimes referred to as net realizable value).
- **Present Value or Expected Cash flows:** This is the present value of future cost inflows into which an asset is expected to be converted in the normal course of business, less the present value of cash outflows necessary to obtain those inflows.

There is also the question of which discount rate to use should it be
(i)Rate applicable to long-term government bonds issued by the government of the country in which the reserves are located; (ii) Prime rate; (iii) Company's weighted average or incremental long term borrowing rate (iv) Company's weighted average cost of capital and (v) Discount rate used by company management internally to make individual investment decisions.
Argument for and against Reserve Recognition Accounting methods are seen from the discussion above.

5. The British Standardization Efforts

Between 1986 and 1991, the UK oil industry Accounting Committee Published Statements of Recommended Practice to be used by oil companies. The statements were:

- Disclosures about oil and gas exploration and production activities (Issued April 1986)
- Accounting for oil and gas exploration and development activities (Issued December 1987)
- Accounting for abandonment cost (Issued June 1988)
- Accounting for various financing revenue and other transactions of oil and gas exploration and production companies (Issued January, 1991).

6. The Nigerian Standardization Efforts

The Nigerian Accounting Standard Board (NASB) in 1991 constituted a steering committee on oil and gas accounting with a view to producing a statement on accounting practices for petroleum industry. The committee's recommendations formed the major part of the statement of accounting standard (SAS 14) released for compliance in 1994. NASB issued another accounting statement for the Downstream Petroleum Industry known as (SAS 17).

Both the UK and Nigerian standards have also endorsed the use of either the successful efforts or the full cost methods. Both costing methods have been considered as conforming to generally accepted accounting principles and both in various forms are widely used today.

A recent survey of nearly 300 oil and gas companies in Nigeria, informed that roughly fifty percent used Full Cost Accounting and the remaining used Successful Efforts Costing (Uche, 2000). A 1972 survey showed that companies employing the successful efforts method account for approximately 87 percent of US oil and gas production indicating that full costing has been adopted by relatively small-and medium-sized companies.

7. Accounting Standard and the Search for Uniformity

How is uniformity of treatment being assured? Accounting standards of each country attempt to harmonize the practice. In US, FASB 19 is doing this, while in the UK, the various SORPS on the Petroleum Industry aim to achieve the same purpose, in Nigeria SAS. 14 discourages disparate and differing practices implementation of full cost and successful efforts method by decreeing.

8. Research Methodology

Methodology employed in this study is described as "Quasi-experimental" in nature, According to Baridam (1988) respondents were expected to select the appropriate answers among listed alternatives for each question. In some cases, spaces were provided at the end of some questions to allow respondents to include any additional information sought by the question. Primary data were obtained from filled questionnaires, which was supplemented with an informal interviews and secondary data were obtained from journals, magazines, NASB, and ICAN publications/pronouncement and that of NNPC/Oil Companies. Chi-square was used to test the hypotheses.

9. Data Analysis/ Results

For the purpose of this study, attention was focused on the multinational oil companies operating in Nigeria. Therefore, this constitutes our target population. From this accessible population, 500 copies of questionnaire were distributed out of which 448 were returned, therefore, 89.6% response rate, was achieved.

Table 2: Questionnaire Distribution and Collection

RESPONDENTS	NUMBER DISTRIBUTED	NUMBER COLLECTED	PERCENTAGE COLLECTED
SPDC	100	95	21.20
MOBIL	100	90	20.09
CHEVRON	100	90	20.09
ELF	100	85	18.98
AGIP	100	88	19.64
TOTAL	500	448	100

Source: Research Survey, 2010.

From the above table, it could be deduced that as copies of the questionnaire were retrieved from SPDC 90 each were collected from Chevron and Mobil, 85 and 88 were collected from ELF and Agip respectively. 52 copies of the questionnaire were not returned, representing a non-response rate of approximately 10%.

10. Testing of Hypotheses

H_0: There is no significant relationship between the accounting procedures and materials and methods practiced by the oil companies.

H_A: There is a significant relationship, between the accounting procedures and methods practiced by the oil companies.

Table 3
Accounting practices of Oil Companies are related to Generally Known Accounting Methods.

Grouping	Yes	No	Total
SPDC	70	23	93
MOBIL	60	27	87
CHEVRON	40	50	90
ELF	65	19	84
AGIP	70	16	86
TOTAL	305	135	440

Source: Research Survey, 2010.

From the above table, table 3 drew information used in constructing comparison of observed and expected frequencies. In table 4, the expected the expected frequency
calculated by the use of the following formula:

$$f_e = \frac{r \times k}{n}$$

where,
f_e = the expected frequency
R = the total of all items in each row of the table
K = the total of all items in each column of the table
N = the grand total of all row and column items.

Table 4 Expected frequency

Grouping	Yes	No	Total
SPDC	70(64.5)	23(28.5)	93(93)
MOBIL	60(66.3)	27(26.7)	87(87)
CHEVRON	40(62.4)	50(27.6)	90(90)
ELF	65(58.4)	19(25.8)	84(84)
AGIP	70(59.6)	16(26.4)	86(86)
TOTAL	305(305)	135(135)	440(440)

Source: Research Survey, 2010.

The figures above then form basis for calculating equation below
$x^2 = \Sigma (fo - fe)^2$. The result of the calculation is shown in table 5.

Table 5. Calculation of Chi-square statistics using data in table 4

fo	fe	fo-fe	$(fo-fe)^2$	$\frac{(fo-fe)^2}{fe}$
70	64.5	5.5	30.5	0.5
60	60.3	-0.3	0.09	0.0
40	62.4	-22.4	501.8	8.0
65	58.2	6.7	46.2	0.8
70	59.6	10.4	108.2	1.8
23	28.5	-5.5	30.3	1.1
27	26.7	0.3	0.09	0.0
50	27.6	22.4	501.8	18.2
19	25.8	-6.8	46.3	1.6
16	26.4	-10.4	108.2	4.1
Total				**36.30**

The calculated Chi-square, Cal X^2= 36.30

Interpretation

The calculated Chi-square (36.30) is greater than its tabulated value (13.28). Therefore, we reject H_0 and accept H_A i.e. "There is a significant relationship between the accounting procedures and methods by the oil companies".

Hypothesis Two.

Ho: There is no significant relationship between the capitalization policy of oil companies and that recommended by NASB

H_A: There is a significant relationship between the capitalization policy of oil companies and that recommended by the NASB.

Table 6. Impact of NASB's recommended on capitalization policy of Oil Companies including Comparison of observed and expected frequencies.

Grouping	**Yes**	**No**	**Total**
SPDC	23(28.5)	70(64.5)	93(93)
MOBIL	27(26.7)	60(60.3)	87(87)
CHEVRON	50(27.6)	40(62.4)	90(90)
ELF	19(25.8)	65(58.2)	84(84)
AGIP	16(26.4)	70(59.6)	86(86)
TOTAL	16(26.4)	70(59.6)	86(86)

Source: Research Survey, 2010.

Table 7. Calculation of Chi-square from the above table

fo	fe	fo-fe	$(fo-fe)^2$	$\frac{(fo-fe)^2}{fe}$
23	28.5	5.5	30.5	1.1
27	26.7	-0.3	0.09	0.0
50	27.7	-22.4	501.8	18.2
19	25.8	6.7	46.2	1.8
16	26.4	10.4	108.2	0.5
70	64.5	-5.5	30.3	0.5
60	60.3	0.3	0.09	0.0
40	62.4	22.4	501.8	8.0
65	58.2	-6.8	46.3	0.8
70	59.6	-10.4	108.2	1.8
Total				**36.30**

Interpretation
The tabulated value of Chi-square with four degrees of freedom at 95% level of confidence (5 percent significance level) is 9.49. Therefore, the computed Chi-square value of 36.30 is greater than the tabulated value. Hence, reject Ho and accept H_A.

11. Discussion of Findings

From the analysis of data as regards the extent of applicability of generally accepted accounting principles and procedures that are not at variance with generally known methods. The assertion supports studies of Douglas (1995) and Umoren (1996) that oil and gas companies accounting in Nigeria are in line with what is obtained elsewhere in the globe. On ICAN and NASB part, respondents unanimously support their role and efforts in organizing periodic seminars and the annual mandatory continuing professional education still supplements NASB efforts. Some respondents still beset with the fact that a number of relevant data are not stated in the balance sheet of most oil companies. In effect, this brings about distorted accounting information which may be somewhat difficult to harmonize. Also, it was found that NASB has lived up to a reasonable expectation in the oil industry, which is dominated almost exclusively by foreign companies.

Therefore, NASB has a responsibility of harmonizing any known disparity in standards. If this is not done, the Nigerian economy would be threatened as the oil sector is the single largest sector that steers the economy.

12. Summary and Conclusion

This work focused on accounting standards for oil and gas companies in Nigeria. Though, our findings seemed to centre only on the multinational foreign-based oil companies. It is believed that they would be more widely applicable even to indigenous oil concerns. It was found that there is a significant relationship between the accounting procedures and methods practiced by oil companies and the generally known accounting standards. This is in line with Nnadi (2000) who stated that Nigerian oil firms employ standard accounting procedures. Also, the capitalization policy of the Nigerian oil comparatives is not so much at variance with the recommendation of the NASB in respect of capitalization because NASB is empowered to oversee the formulation of accounting standard in Nigeria. Hence Oil companies in Nigeria cannot be an exception. Also, certain items not presented in the balance sheet, usually pose a peculiar problem to oil and gas accounting. Finally, accounting standards for the oil and gas industry in Nigeria still owe their origin to the method initially formulated by America and Britain, though there may be slight modifications to suit the reality of the time.

It is therefore, concluded and suggested that there should be uniformity in both principle and practice for oil and gas accounting in the Nigerian oil industry and that the NNPC and oil and gas companies should explore avenues to foster a strong working relationship with bodies like ICAN and NASB. Efforts should be made to ensure that disclosures for total developed and undeveloped reserves for oil and gas show movement in reserves during the year and that stakeholders should show unequivocal commitment in adopting the right -mental attitude as well as upholding the high ethical standards leading to improvement in productivity cum-accounting.

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