

Oil and Gas Exploration in the Arctic Ocean: The Accounting and Reporting Challenges

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ABSTRACT

Oil and Gas exploration and production in the Arctic requires unique attention because of the special features in the field. Dealing with the exclusive issues in the Arctic, poses some accounting and reporting challenges. In this study, Shell Company exploration activities and reporting were studied. Two methods of accounting for exploration are considered; the Successful Effort method and the Full Cost method. It is however revealed that due to the unique challenges in the region, the accounting method to be adopted will have implication to both shareholders and the other stakeholders. Consequently, shareholders may prefer the use of full cost based on its impact on their earnings, while the regulators prefer the successful effort due to its fairness in reporting.

Keywords: *Oil and Gas, full cost, accounting and reporting challenges, Arctic ocean*

INTRODUCTION

The Petroleum industry performs a crucial role in the world's economy, and its products serve as the primary driver for every developed economy (Inkpen and Moffett, 2011). The need for Oil and Gas exploration and production ventures became necessary to meet the growing demand of the industry. Nevertheless, the industry is characterised with challenges at different levels of its operations including crude price volatility. This study identifies and discusses the unique features of exploration activities in the Arctic and examines the accounting and reporting challenges companies may encounter.

The distinguishing features of petroleum exploration activities are the unique characteristics that make the industry different from other industries (Inkpen and Moffett, 2011; Norton and Rowe, 1978). The features differ in nature and magnitude depending on the operating environment. For instance, oil and gas companies, has the following peculiarities to their operations in the Arctic Ocean; Environmental challenges, safety risks and legal challenges. Others include; massive up front investment with a high likelihood of uncertainty of the presence of hydrocarbons, longer time frame to recoup investments and harsh weather condition (BBC News 2013 and Foster, 2014).

Environmental Challenges, Safety Risks and Legal Issues

Environmental and safety risks affect the well-being of the environment and safety of workers in petroleum operations (Taverne, 1999; Aven and Vinnem, 2007). Taverne

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(1999) acknowledges that a blow-out caused by drilling in an offshore may affect human safety and the environment. Violation of health and safety environment regulations has often resulted in massive financial loss and interference with drilling activities (Deepwater Horizon Study Group, 2011). For example, spillage in Shell exploratory activities in Chukchi and Beaufort Seas in 2012 resulted to suspension of drilling, consequently, caused a substantial drop (71%) in fourth quarter profit (BBC News 2013 and Foster 2014). Similarly, the April 2010 BP Macondo field incident exemplify another lesson (Deepwater Horizon Study Group, 2011).

However, Aven and Vinnen (2007) suggest that managing health and environmental safety risks can reduce the impact of the loss. Violation of safety rules often results to continuous legal challenges (BBC News, 2013, Deepwater Horizon Study Group, 2011). For example, Shell Company was sued in London high court over environmental case brought against them (Macalister, 2014). Studies reveal that for these risks to be mitigated, a risk factor should be included in investment decisions and that adherence to safety regulations be monitored (Deepwater Horizon Study Group, 2011; Botelho, Magrini and Schaeffer, 2014). For instance, BBC News (2013) reports that Shell Company was dragged to court over violation of safety rules while exploring for oil in the Arctic.

High Investment Costs, Risk of Wildcat and Investment Timing

Substantial investment costs at exploration phase constitute another characteristic in the petroleum industry. Exploration costs are usually incurred for an extended period of up to five years before production. Drilling a dry hole due to a wildcat is also another peculiar feature of the industry (Wright and Gallun, 2011). For instance, the U.S. abandoned two-thirds of its exploratory wells in 1998 describing them as dry holes (Jennings, Feiten and Brock, 2000). Accounting for massive investment with no definite corresponding inflow could be challenging. Studies reveal that Shell spent over \$5b on a project in the Arctic for six years without certainty of production (Foster, 2014). However, Vianello, Costa and Teixeira (2014) argue that the reasons for high costs of investment in the industry could be affected by time value for money. Therefore, they suggest that E & P companies should make adequate analysis and planning before committing funds to projects. Another feature was harsh weather condition. Shell suspended its operations in 2012 due to bad climatic condition such as regular ice floe; prolonged darkness and unfavourable temperatures (BBC News, 2013 and Beurden, 2013). Such conditions could extend a project life, increase costs and affect the entire performance of the company. The above unique features of Shell Company resulted to severe accounting and reporting problems.

Accounting and Reporting Challenges

Petroleum exploration requires massive investment and extended period to complete. Despite improved technology, there exist risks of unsuccessful exploration in the industry.

Therefore, costs accumulated over time with a high rate of uncertainty of discovering commercial reserves posed a significant accounting and reporting challenges (Norton and Rowe 1978, Taylor, Atkins, Dowad, Jones and Perry, 2011). Those who prepare financial statements usually encounter the problem of how to treat pre-development costs due to its impact on financial results (Dolson, Carmichael, Kapadiya and Ramirez, 2011). For example, Shell's project in the Arctic Ocean off the northern coast of Alaska started exploration in 2005 and by 2013 incurred cost of \$4.5bn with no certainty of production (BBC News, 2013). Accounting decision taken on how to deal with such costs could affect the investors and other stakeholders. To address the complexity in accounting, two methods were permitted, Successful Efforts (SE) method and Full Cost (FC) method (Wright and Gallun, 2011 and Peat Marwick McLintock, 1990).

Accounting Implications for Exploration Costs

Successful Efforts (SE) Method: This method expenses all exploration costs incurred in unsuccessful drilling (Schugart, 2002). A study on Shell's exploration activities in the Arctic reveals that it has been applying successful efforts method of accounting as provided by IFRS 6 and US GAAP to report its activities (Shell, 2014). Using the Shell's scenario above, the substantive exploration costs incurred for six years and the necessity to suspend drilling activities posed a significant challenge on reporting. SFAS19-1 paragraph 32 and SORP 2001, paragraph 33 recommends the procedure for Accounting for suspended-well. SORP could not clearly state the accounting procedures for suspended-well in explicit terms. It impliedly reveals that where prospective reserves exist, and determination planned, then costs should be capitalised pending the discovery of commercial reserves. Otherwise, if there is no plan to continue drilling, then write-off the initial capitalised costs (Wright and Gallun, 2011).

The US GAAP (SFAS 19-1) suggests that for a company to maintain capitalised exploratory costs, it must meet two criteria. First, that there must have been the discovery of reserves in commercial quantity. Secondly, determination of the reserves and the economic viability of the exploration activity are progressive. However, where any of the two conditions was not met then the standard provides that the costs should be impaired. If Shell Company met the conditions stated in SFAS 19, then costs of exploration will be capitalized and recorded in Drilling in-progress account. The cost is non-depreciable (Wright and Gallun, 2011). This action could result to increase in the net assets of the company and improve earnings, which most shareholders and other stakeholders prefer. However, capitalization of such costs using SE method is for a short-term pending determination of the reserves. The management of Shell Company may wish to write-off the pre-development costs against income. Hence, the performance of that year might be affected by the decision. For instance, an extract from Shell's annual report for 2013 will show the following effect of the above decisions in the income statement.

Extract from Shell Consolidated Statement of Income for the year ended 31 December, 2013

	Adjusted (2013)	Original (2013)
	\$million	\$million
Income before tax	33,592	33,592
Exploration costs expensed	5,000	-
Adjusted income before tax	28,592	33,592
Taxation	<u>17,066</u>	<u>17,066</u>
Income for the year	<u>11,526</u>	<u>16,526</u>

Source: Shell Annual Report 2013

The above statement shows income for the year; \$16,526,000,000 when exploration costs are capitalized. If the costs are written-off the income, it will result to a decline in the post-tax profit to \$11,526,000,000 assuming tax figure remains unchanged. This may affect investors' earnings for that year. However, researchers argue in favour of this method that the costs written-off did not meet the definition of an asset hence a true representation of the company's activity (Brady, Chang, Jennings and Shappard, 2011). Furthermore, studies show that the method reveals performance of assets in the profit or loss account which is fair. Nevertheless, others argue that the method often distorts net income from one period to another due to dry holes, abandonments and other write-offs (Wright and Gallun, 2011). Other evidences reveal that wide variations in profit figure or shareholders' funds, could affect loan agreement and earnings of the investors (Dhaliwal, 1980).

Full Cost Method: This method capitalises all exploration costs whether successful or not (Jennings, Feiten and Brock, 2000). Shell Company operating in the U.S. economy has the option to change its accounting method from Successful Efforts to Full Costs method (Brady, Chang, Jennings and Shappard, 2011; SFAS 25). Full cost capitalises all exploration costs of whether successful or unsuccessful well. Consider Shell with \$5b exploration costs incurred, this amount will be recorded in Drilling in-Progress account, but not included in the DD & A pool. This entry might result to increase in net assets with no charge to the income statement hence improving earnings for the year with full disclosure of \$5b. Furthermore, the costs may be tested for impairment annually to determine whether impairment has occurred (Wright and Gallun, 2011). However, the decision to capitalise all exploration costs may have an effect on the firm's capital structure. The argument for this method hold that efforts put on unsuccessful drilling formed part of the successful exploration (Wright and Gallun, 2008). Again, it measures accounting assets and earnings which shareholders and other stakeholders expressed their interest in (Wright and Gallun, 2011). Applying this method means, capitalizing costs that do not meet the definition of an asset. Researchers argue against this method that income statements may not reveal unsuccessful explorations during the year hence misleading (Brady, Chang, Jennings and Shappard, 2011). Even though, costs associated with unevaluated property are excluded from DD & A until the evaluation of the property completes but full disclosure of such costs are required (Stock Exchange Commission, 1996).

CONCLUSION

It is imperative to note that exploration activities in the Arctic possess special features slightly different from other fields in the world. However, this research reveals that challenges in the Arctic are inevitable but could be mitigated by proper planning and application of risk management techniques (Aven and Vinnem, 2007). Furthermore, the choice of accounting method depends largely on the need. Shareholders may desire the use of Full cost because it has less impact on their earnings. On the other hands, Regulators may prefer the Successful effort due to its fairness in reporting.

Appendix

Shell Annual Report 2013

CONSOLIDATED STATEMENT OF INCOME		\$ MILLION		
	NOTES	2013	Restated 2012	Restated 2011
Revenue		451,235	467,153	470,171
Share of profit of joint ventures and associates	10	7,275	8,948	8,737
Interest and other income	6	1,089	5,599	5,581
Total revenue and other income		459,599	481,700	484,489
Purchases		353,199	369,725	370,044
Production and manufacturing expenses		28,386	26,215	26,553
Selling, distribution and administrative expenses		14,675	14,465	14,359
Research and development		1,318	1,307	1,123
Exploration		5,278	3,104	2,266
Depreciation, depletion and amortisation		21,509	14,615	13,228
Interest expense	7	1,642	1,757	1,373
Income before taxation		33,592	50,512	55,543
Taxation	17	17,066	23,552	24,450
Income for the period	4	16,526	26,960	31,093
Income attributable to non-controlling interest		155	248	267
Income attributable to Royal Dutch Shell plc shareholders		16,371	26,712	30,826

All results are from continuing activities.

EARNINGS PER SHARE		\$		
	NOTES	2013	Restated 2012	Restated 2011
Basic earnings per share	26	2.60	4.27	4.97
Diluted earnings per share	26	2.60	4.26	4.96

CONSOLIDATED STATEMENT OF COMPREHENSIVE INCOME		\$ MILLION		
	NOTES	2013	Restated 2012	Restated 2011
Income for the period		16,526	26,960	31,093
Other comprehensive income	23			
Items that may be reclassified to income in later periods:				
Currency translation differences		(1,938)	1,394	(3,138)
Unrealised (losses)/gains on securities		(166)	(815)	1,684
Cash flow hedging gains/(losses)		178	31	(222)
Share of other comprehensive (loss)/income of joint ventures and associates		(167)	(222)	60
Total		(2,093)	388	(1,616)
Items that are not reclassified to income in later periods:				
Retirement benefits remeasurements		3,833	(2,578)	(3,575)
Other comprehensive income/(loss) for the period		1,740	(2,190)	(5,191)
Comprehensive income for the period		18,266	24,770	25,902
Comprehensive income attributable to non-controlling interest		23	300	(348)
Comprehensive income attributable to Royal Dutch Shell plc shareholders		18,243	24,470	26,250

REFERENCES

- Aven, T. and Vinnem, J. E.** (2007). *Risk management with applications from the offshore petroleum industry*. London: Springer.
- BBC News** (2013). *Shell suspends arctic drilling for 2013*. London: BBC News Business. Available online at www.bbc.co.uk/news/business-21609892 [Accessed 23 November 2014].
- Beurden, B. V.** (2013). *Shell Sustainability Report 2013*. USA: Royal Dutch Shell Plc.
- Botelho T., Magrini A. and Schaeffer R.** (2014). Plumbing the depths: Utilizing O&G reserve profiles to develop forward-looking risk assessments for exploration and production activities. *Energy Policy*, 69(0), 489-500
- Brady J., Chang C., Jennings D. R. and Shappard R.** (2011). *Petroleum accounting: principles, procedures and issues* (7th ed). Denton, TX: Professional Development Institute.
- Deepwater Horizon Study Group** (2011). *Final Report on the Investigation of the Macondo Well Blowout*. Berkeley: The University of California.
- Dhaliwal, D. S.** (1980). The Effect of the Firm's Capital Structure on the Choice of Accounting Methods. *The Accounting Review*, No 1, pp. 78-84
- Dolson M., Carmichael D., Kapadiya A. and Ramirez A.** (2011). *Financial reporting in the oil and gas industry* (2nd ed). USA: PricewaterhouseCoopers International Limited.
- Foster, J. M.** (2014). *Shell Suspends 2014 offshore drilling plans in arctic*. California: Center for American Progress Action Fund. Available from: <http://thinkprogress.org/climate/2014/01/30/3225831/shell-arctic-drilling-2014/> [Accessed 23 November 2014]
- Inkpen, A. C. and Moffett, M. H.** (2011). *The global oil & gas industry: management, strategy & finance*. Tulsa, Okla.: PennWell Corp.
- Jennings D. R., Feiten J. B. and Brock H. R.** (2000). *Petroleum Accounting: Principles, Procedures and Issues*. 5th ed. Texas: Professional Development Institute.
- Macalister, T.** (2014). Shell poised to sell four oil fields and pipeline in Nigeria: Crude spills, sabotage and thefts prompt pounds 3bn sale: But group still faces legal cases relating to Pollution. *The Guardian*, 02613077, p. 27
- Norton, J. C. and Rowe, D. A.** (1978). *Accounting and auditing guide for United Kingdom oil and gas exploration and production*. London: Institute of Chartered Accountants in England and Wales.
- Peat Marwick McLintock (Firm)** (1990). *Oil and gas: a survey of published accounts 1990*. London: Peat Marwick McLintock.
- Schugart, G.** (2002). Workbook on Oil and Gas Accounting - Part 1. *Institute for Energy, Law & Enterprise*. Available from: <http://www.beg.utexas.edu/energyecon/Uganda/Oil-&-Gas-Accounting-1.pdf> [Accessed 22 November 2014]
- Shell Plc** (2014). *Annual Report*. USA: Royal Dutch Shell Plc.
- Stock Exchange Commission** (1996) *Reg. S-X 210, Rule 4-10*. 3235-0009.
- Taverne, B.** (1999). *Petroleum, industry and governments: an introduction to petroleum regulation, economics and government policies*. The Hague: Kluwer Law.
- Taylor, P., Atkins L., Dowad P. Jones A. and Perry N.** (2011). *Impact of IFRS: Oil and Gas*. London: KPMG International Cooperative.
- Vianello, J. M., Costa, L. and Teixeira, J. P.** (2014). Dynamic modelling of uncertainty in the planned values of investments in petrochemical and refining projects. *Energy Economics*. [online] Vol. 45(0140-9883.). Available from: <http://www.sciencedirect.com/science/journal/01409883> [Accessed 14 November 2014]
- Wright, C. J. and Gallun, R. A.** (2008). *Fundamentals of oil & gas accounting*. 5th ed. Tulsa, Okla: Penn Well.
- Wright, C. J. and Gallun, R. A.** (2011). *International petroleum accounting*. Tulsa, OK: Penn Well.