

ACCOUNTING FOR OIL AND GAS UPSTREAM ACTIVITIES: A STUDY IN DISCRETIONARY REPORTING BEHAVIOUR IN LIBYA

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Abstract

The two most common methods to account for oil and gas upstream activities are full cost (FC) and successful efforts (SE), both being accepted by accounting authorities in many countries (Gallun et al., 2001). However, oil and gas accounting systems in developing countries such as Libya may differ from FC and SE principles. The Libyan Petroleum Law (LPL) permits oil and gas companies either to expense or capitalize some types of costs (LPL, 1955) including intangible geological and geophysical (G and G), exploratory dry hole, intangible exploratory successful wells and development dry hole costs. This research evidences the current accounting practice of the oil and gas upstream activities in Libya for both national oil companies (NOCs) and for international oil companies (IOCs) regarding their reporting to the Libyan government. IOCs show varying practices skewed towards SE selection depicting behavioural practice of writing off costs immediately in order to deflect revenue flows from the principal party (the Libyan Government). These practices are contrasted with holding companies' global reporting policies showing evidence of inconsistent accounting treatment when IOCs report to the Libyan government and to their holding companies. The paper concludes by suggesting reasons for the accounting practices, its implications for the Libyan fiscal position and suggests further research.

Introduction

Readers of accounting reports for oil and gas companies must consider the considerable management discretion regarding the recognition and measurement of earnings (Cormier and Magnan, 2002). This includes the current accounting treatment of exploration and development expenditures through applying FC and SE methods resulting in different timings of reported earnings. Discretionary accounting choices can be used opportunistically (Watts and Zimmerman, 1986) conditioned by such factors as a company's financing activities (DeAngelo et al, 1994), by

political exposure (Han and Wang, 1998) and investors' expectations (Klassen, 1997).

Numerous studies have dealt with FC and SE methods based on their impact on financial statements (e.g. Johnson, 1972; Yee, 2006; Murdoch and Krause, 2008), and market reaction to FC and SE methods (e.g. Mohrman, 1993; Aboody, 1996) with the focus on generally accepted accounting principles as applied by international accounting standards. This study provides a further perspective from an emerging economy (Libya) who do not apply these global standards, gaining insight into an alternative reporting framework, and an understanding of the choices being made by agency entities reporting to their principal (the Libyan Government). Libya is dependent heavily on the oil and gas industry which remains the foundation for the country's economic activity, accounting for more than 95 percent of the country's merchandise exports and more than 50 percent of its Gross Domestic Product (IHS Global Insight, 2009). Accounting choices can affect national reporting within Libya and thus the contractual cost sharing between IOCs and the Libyan government with the potential for opportunism existing where discretionary management behaviour is an option. A further contribution is to consider the consistency of accounting treatment when the IOC agents report internally within Libya as contrasted with how they report globally, considering reasons for such inconsistencies if they exist.

Accounting for Oil and Gas Upstream Activities

Prior to the mid 1950s, almost all oil and gas operating companies were treating their costs of upstream activities under accounting principles that might collectively be called the SE accounting method. In the mid 1950s a new approach was introduced to account for costs of upstream activities, this approach was known as the FC accounting method which was adopted by small and new companies (Brock et al., 1982). In 1977 the Financial Accounting Standards Board (FASB) under Statement No.19 required oil and gas companies to follow the SE method to treat their costs of upstream activities (Deakin, 1979). However, FC companies' lobbying effort (Cortese et al, 2009) led in 1978 to the Securities and Exchange Commission (SEC), under Accounting Series Release (ASR) No. 253, permitting oil and gas companies to use either the FC or SE method.

The diverse results of the FC and SE methods have long been a controversial subject in the petroleum accounting literature (Pruett and Vanzante, 2003). Under the SE method, only exploratory drilling costs of successful wells which have proved reserves are capitalized. Unsuccessful

exploratory drilling costs under this method which do not result in an asset with future economic benefit are expensed immediately. In contrast, the FC method considers both successful and unsuccessful costs incurred in the search for reserves as a necessary part of the cost of finding oil or gas and therefore are capitalized, even though the unsuccessful costs have no future economic benefit (Wright and Gallun, 2008).

In regard to a critique of FC and SE methods, proponents of the FC method (Bierman et al, 1974; Baker, 1976; Pruett & Vanzante, 2003; Brooks, 2005) argue that the unsuccessful costs are necessary to search for oil and gas. Thus both successful and unsuccessful costs should be capitalized. However, it could be argued that this capitalization of unsuccessful costs is an abuse of the matching concept. On the other hand, the SE method recognises conservatism requiring the charging of unsuccessful costs to be expensed as they are incurred (Cooper et al, 1979; Dyckman, 1979; Katz, 1985; Macintosh & Baker, 2002). Thus the successful costs reflect assets which result in future economic benefits. On the other hand, the immediate expensing of unsuccessful activities may have a negative impact on the volatility of earnings of small companies. This is caused by these companies having smaller portfolios of field projects which reduces their ability to dampen the periodic effects of unsuccessful projects against a large portfolio which includes successful projects within that period. This may impact on smaller companies' competitiveness in the oil and gas industry.

In Libya the IOCs helped draft the Libyan petroleum law and regulations (LPL)⁽¹⁾ under the jurisdiction of the Ministry of Finance and Economics (Waddams, 1980, p57). The LPL permits oil and gas companies in Libya to capitalize or expense several types of costs (LPL, 1955), whereas these costs are specified to be capitalized or expensed under the FC and SE methods. IOCs report their oil and gas upstream activities both to the Libyan government under LPL, to assist in the cost sharing contractual arrangements, and to their holding companies under global standards (FC or SE method).

Table 1 compares the treatment of these costs under the LPL, FC and SE methods. The FC and SE methods differ regarding the treatment of tangible and intangible G and G costs and exploratory dry hole costs with the accounting treatments being specified, the only area of discretion is in the choice of methodology. Intangible exploratory successful wells and development dry hole costs are capitalised under both methods. In contrast

⁽¹⁾ LPL means LPL No. 25 and regulations No. 8 and 9.

the LPL provides choices between FC and SE for numerous individual costs e.g. intangible G and G, exacerbating management discretion. In addition under LPL oil and gas companies are not permitted to deduct acquisition costs, whereas these costs are capitalized under FC and SE methods. LPL does not regard acquisition costs as a recoverable cost under the contractual cost-sharing agreements, being one of the negotiation variables for the agency contract. Furthermore, tangible G and G is treated using FC principles whilst tangible exploratory successful wells, development successful wells and production costs are treated consistently by all methods providing no room for discretion.

Table 1: Accounting treatment of costs under FC, SE and LPL

Oil and gas upstream costs	FC	SE	LPL
Acquisition costs	Capital	Capital	Not deductible
Tangible G and G costs	Capital	Expense	Capital
Intangible G and G costs	Capital	Expense	Capital or expense
Exploratory dry hole costs	Capital	Expense	Capital or expense
Tangible exploratory successful wells	Capital	Capital	Capital
Intangible exploratory successful wells	Capital	Capital	Capital or expense
Development dry hole costs	Capital	Capital	Capital or expense
Development successful wells	Capital	Capital	Capital
Production cost	Expense	Expense	Expense

Source: Adapted from Wright and Gallun (2008) and LPL (1955).

The researchers adopt agency theory as a theoretical framework for this study; the substantive agency relationship being between the National Oil Corporation (NOCorp)⁽²⁾ as the principal, and the oil companies as agents. NOCorp has expanded its exploration and production operation through its own fully owned companies (NOCs) or in participation agreements with IOCs. Such agreements have been predominated by Exploration Production Sharing Agreements (EPSAs) and much less significantly by concession agreements (World Investment Forum, 2009). Bindermann (1999) notes that the main aim of IOCs is profit maximisation whereas the host country is mainly interested in maximising its revenue. The principal may attempt to

⁽²⁾ The Libyan oil and gas industry is run by NOCorp (state owned).

make sure agents act in ways favourable to the principal (Scott, 2009), for example through contractual arrangements. It is also envisaged that long-term relationships might encourage the agent to act spontaneously in the interests of the principal rather than responding to contractual obligations (Broadbent et al, 1996).

Agency theory advocates the danger of information asymmetry regarding the principals' ability to monitor effectively whether their interests are being properly served by agents (Baiman, 1990; Adams, 1994). In the context of this study the information problem may be more related to the reporting framework where the agents have influenced the reporting framework at its inception towards management discretion. Agency theory explains why out of self-interest companies may lobby for certain accounting regulations (Scott, 2009). Given such a framework where management choice is acceptable it would not be surprising if agents make choices based on those accounting policies that maximises reported cost in order to pay less tax (Broadbent et al, 1996; Hoque, 2006). This is evidenced in Libya where IOC's choose accounting policies which allow them to expense several types of cost, where these costs are discretionary to management regarding capitalisation or expensing (Mahmud and Russell, 1998). Thus the agents may not be acting in the interests of the principal host country seeking to expense several types of costs (when they have the option to capitalize or expense them under the LPL) rather than capitalize them in order to gain early recompense for costs from the principal under the cost-sharing contract.

Contribution of the Study

Only one previous piece of research exists regarding Libyan oil and gas upstream accounting (Mahmud and Russell, 1998). The current study differs from the prior research in several respects: the selected companies, the research instrument applied and the comparison of in-country and global reporting practices of the IOCs. Mahmud and Russell (1998) in their population selected two NOC's and seven IOC's that were exploration and production companies. Since sanction removal⁽³⁾ and the new EPSA contracts the number of exploration companies has increased significantly and thus twenty five companies are included in this study. In regard to the research instrument applied to gain an understanding of the accounting treatment of oil and gas upstream costs, Mahmud and Russell's (1998) developed an instrument based on the Oil Industry Accounting Committee

⁽³⁾ The US succeeded to pressure the United Nations to impose an economic sanction in 1992 when Libya refused in 1988 to deliver the Libyan suspects involved in the Lockerbie bombing (Ozman and Bunter, 2005).

in the UK (1985) and the Canadian Institute of Chartered Accountants (1984). The instrument selected in the research is from the current chart of accounts used for reporting to NOCorp, which is the common working framework adopted in Libya and therefore both current and familiar to the respondents. All existing oil and gas upstream companies are selected in the current study using this new instrument. Furthermore, the study contrasts the local accounting practices with the global accounting practices of each company for their oil and gas upstream activities. This contrast considers consistency of accounting treatment of the individual IOCs from the unusual perspective of reporting the same accounting transactions to differing geographical audiences and with differing frameworks. The research questions are thus:

- How do oil and gas companies treat their oil and gas upstream costs when they report to NOCorp?
- Is there a difference between reporting to the Libyan government and global accounting practices for recording oil and gas upstream activities for IOCs?

Methodology

The majority of oil and gas upstream companies in Libya are operating under EPSAs (22 companies). Furthermore, there are two fully owned NOCs and one company operating under a concession agreement where the holding company owns 100 percent of the company (Oil and Gas Directory in Libya, 2010). In order to achieve the objectives as set the researchers employed a questionnaire, based on the Chart of Accounts as required to be adopted by NOCorp. The questionnaire was given to all of the companies to ascertain the current accounting practice of IOCs and NOCs regarding the accounting treatment of upstream activities. In addition information was gathered on variables that might explain the company's behaviour regarding their accounting treatments. This form of questionnaire based research is commonly used in literature to survey accounting practice amongst companies (e.g. Coe 1997 and 2001 and Paterson 2008).

The questionnaire was distributed to all twenty five upstream oil and gas companies operating in Libya as identified from the NOCorp Exploration and Financial Analysis Departments, including the two NOCs and twenty three IOCs. The researchers delivered the questionnaires to the appropriate financial managers of the companies who oversee the upstream accounting transactions. These financial managers were heads of accounting department in IOCs and NOCs at the time of the study whose

responsibilities include the preparation of oil and gas financial reports to NOCorp and their holding companies. Completed questionnaires were collected from twenty two companies representing a response rate of 100 % for NOCs and 87 % of IOCs (20 out of 23 companies) of the population.

Results

Background information of the respondents

Table 2 provides background information regarding the companies who completed the questionnaires. This information will provide background to assist in explaining the accounting treatment choices for upstream activities.

Table 2: Descriptive data

Number of years companies operating in Libya		Nationality of financial managers		Size of entity (\$ annual expenditure) within Libya		Accounting treatment of holding company	
< 5 years	0	Libyan	7	< \$50m	1	FC (IOCs)	7
5-10 years	14	Foreign	15	\$50m-\$100m	2	SE (IOCs)	13
11-15 years	2			\$100m-150m	3	LPL(NOCs)	2
> 15 years	6			\$150m-\$200m	5		
				> \$200m	11		
Total	22		22		22		22

The companies were firstly considered in regard to their experience of operating in Libya and thus their exposure to the Libyan context including its regulatory framework. The assigning of new EPSA agreements had resulted in 64% of the companies having been in the country for between 5-10 years. In contrast 27% of the companies have been operating in Libya for more than 15 years. Regarding the financial managers' nationality only one third are Libyan. With two of these Libyan managers being employed by NOCs this leaves only five working for IOCs (25%). Any limit to the exposure of the companies or their financial managers to the Libyan context may impact on the ability of experienced oil and gas financial managers' to understand the Libyan oil and gas financial framework.

Of the companies responding 50% have annual expenditure on their activities of more than two hundred million dollars within Libya including the NOCs. In regard to the IOCs global accounting practice for upstream

activities 65% selected the SE method, the more conservative of the two methods. The researchers noted that the smaller IOCs, as proxied by the annual expenditure, adopted the FC method to report for their holding companies.

Accounting treatment of oil and gas upstream activities

This section seeks to provide evidence of how oil and gas companies in Libya currently treat their upstream costs. It considers firstly, the reporting by entities to NOCorp within Libya and then secondly the IOCs' global reporting practices. Regarding the reporting for NOCorp, both IOCs and NOCs were asked to show their treatments of oil and gas upstream costs. However, when considering global practices only IOCs were asked to show their global treatment of these costs, as NOCs are owned by the government.

Reporting of NOCs to NOCorp

The results indicate that NOCs do not report their acquisition costs as this is not applicable for NOCs and IOCs under LPL. Tangible G and G costs, intangible G and G costs, tangible exploratory successful wells, intangible exploratory successful wells and developments successful wells are being capitalized by all of NOCs, whereas exploratory dry hole, development dry hole and production costs are expensed. The researchers note that when NOCs have a choice to capitalize or expense the costs, they capitalize them unless they are unsuccessful costs. This is entirely in line with the SE method regarding dry holes and accepts a conservative logic of not capitalizing costs with no future benefits.

Reporting of IOCs to NOCorp

Table 3 illustrates how IOCs report their upstream costs to NOCorp. Acquisition costs are again not accounted for by IOCs being not deductible (ND) under LPL (LPL, 1955). Some of the costs are treated consistently between FC, SE and LPL both conceptually (see Table 1) and in practice: tangible exploratory successful wells and development successful wells (both which are capitalized) and production costs (which are expensed). Tangible G and G costs under FC and LPL should be capitalized whilst under SE they should be expensed. Practice shows that all companies capitalize the costs in line with the statutory LPL.

Table 3: IOC's treatment of upstream costs

Upstream costs	Capitalize		Expense		Total number of companies
	Number of companies	Percent	Number of companies	Percent	
Acquisition costs	ND	ND	ND	ND	ND
Tangible G and G costs	20	100%	0	0%	20
Intangible G and G costs	4	20%	16	80%	20
Exploratory dry hole costs	3	15%	17	85%	20
Tangible exploratory successful wells	20	100%	0	0%	20
Intangible exploratory successful wells	5	25%	15	75%	20
Development dry hole costs	2	17%	10	83%	12 ⁽⁴⁾
Development successful wells	12	100%	0	0%	12
Production costs	0	0%	10	100%	10 ⁽⁵⁾

Management discretion can however occur for several costs due to the LPL which permits these companies to capitalize or expense these types of costs: intangible G and G costs, exploratory dry hole, intangible exploratory successful wells and development dry hole costs. The majority of IOCs expense these costs rather than capitalizing them (80%, 85%, 75%, 83% respectively). A number of indicators have been considered which might help to explain the choice of capitalization or expensing these four costs. They include the fiscal implications relating to the choice, and as shown in Table 4 a number of contextualised factors: the company's years in Libya, the nationality of the financial managers and the size of company.

Given that the contractual agreements between the principal (the government (NOCorp) and the agencies (the IOCs) allow for a share of the operational costs and given agency theory's foundational assumption of self-interest it may be that management discretion may lead to agents undertaking self-interested decisions to the detriment of the principal. The expensing of the discretionary costs will result in a timing difference only,

⁽⁴⁾ Only 60% of the respondent companies are at a development stage at present.

⁽⁵⁾ Only 50% of the companies responding are at a production stage at present.

as the costs will be written off eventually either immediately (expensing as with SE logic) or gradually over time under FC logic. However, the time value of money principle would guide companies to seek cash flows earlier rather than later resulting in a selection of expensing principles requiring the government to remitting their cost share earlier. Thus there is a remitting of value between the agency parties relating to the time value of the expenditures concerned. The self-interest of the agent thus results in the principal losing value due to the fiscal regime of discretionary choice in place at this point in time.

It can be seen from Table 4 that all of the IOCs who have more experience in Libya (more than 10 years) tend to expense the costs where discretion is allowed (with one exception for development dry holes). It could be that some of these companies have been operating in Libya for so long that they were involved in the influencing and drafting of the LPL (Waddams, 1980) and thus are aware of the option to instigate the fiscal advantage of expensing immediately. Thus, these companies having drafted the law are now benefiting from this legislation. This expensing choice will affect the timing of the cost share with NOCorp providing cash earlier than under the capitalizing option. On the other hand, some of the IOCs who have less experience in Libya capitalize these costs, perhaps being unaware of the LPL choice. Table 5 shows the correlation statistics for the companies' years of experience in Libya and the discretionary choices made. Statistical significance is only found, however, for intangible exploratory successful well costs.

Table 4: Indicators lead IOCs to choose the capitalisation or expensing

Reasons behind the choice of capitalisation or expensing	Intangible G and G costs		Total	Exploratory dry hole costs		Total	Intangible exploratory successful wells		Total	Development dry hole costs		Total
	Choice			Choice			Choice			Choice		
	Capitalise	Expense		Capitalise	Expense		Capitalise	Expense		Capitalise	Expense	
Company's years in Libya												
Less than 5 years	0	0	0	0	0	0	0	0	0	0	0	0
5 - 10 years	4	8	12	3	9	12	5	7	12	1	4	5
11 - 15 years	0	2	2	0	2	2	0	2	2	0	1	1
More than 15 years	0	6	6	0	6	6	0	6	6	1	5	6
Total	4	16	20	3	17	20	5	15	20	2	10	12
Nationality of the financial managers												
Libyan financial manager	4	1	5	3	2	5	5	0	5	1	0	1
Foreign financial manager	0	15	15	0	15	15	0	15	15	1	10	11
Total	4	16	20	3	17	20	5	15	20	2	10	12
Size of company												
less \$ 50 Million	1	0	1	1	0	1	1	0	1	0	0	0
\$ 50 - 100 Million	0	2	2	0	2	2	0	2	2	0	2	2
\$ 101-150 Million	1	2	3	1	2	3	1	2	3	1	0	1
\$ 151-200 Million	1	4	5	0	5	5	1	4	5	0	2	2
More \$200 Million	1	8	9	1	8	9	2	7	9	1	6	7
Total	4	16	20	3	17	20	5	15	20	2	10	12

Table 5: Spearman Correlation Statistics

Costs	Spearman Correlation	Years in Libya	Nationality	Size of company
Intangible G and G costs	Spearman rho Correlation Coefficient	0.398	0.866**	0.253
	Sig. (2-tailed)	0.082	0.000	0.283
Exploratory dry hole costs	Spearman rho Correlation Coefficient	0.335	0.728**	0.244
	Sig. (2-tailed)	0.149	0.000	0.299
Intangible exploratory successful well costs	Spearman rho Correlation Coefficient	0.460*	1.000**	0.117
	Sig. (2-tailed)	0.041	0.000	0.624
Development dry hole costs	Spearman rho Correlation Coefficient	0.071	0.674*	0.073
	Sig. (2-tailed)	0.827	0.016	0.823

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Table 4 also shows that there is a relationship between the nationalities of the financial managers and the choice to capitalize or expense the four discretionary costs. IOCs whose financial managers are foreign tend to expense them rather than capitalize them whilst the majority of IOCs whose financial managers are Libyan tend to capitalize these costs. It may be that the Libyan national financial managers have a greater loyalty to their country than to their employers. It may also be that for these companies their holding companies are unaware of the accounting choices in Libyan reporting and do not make their employees accountable for the choice, being more focused on their holding companies reporting. Table 5 shows the correlation statistics for nationality of the financial managers and the discretionary choices made. Statistical significance is found for all of the discretionary choices with foreign nationals expensing and Libyan nationals capitalising.

It can also be argued that larger IOCs would tend to expense the four costs rather than capitalise them. This would be consistent with previous research (Cooper et al, 1979) which asserted that large oil and gas companies tend to use the SE methodology to treat their costs of upstream activities. This is because large companies normally have a portfolio of projects and a project failure is not as significant compared to smaller companies. However, the correlation statistics shown in Table 5 do not

recognise statistical significance between the size of the entity and the discretionary choices made.

Consistency between reporting of IOCs to NOCorp and to holding companies

This section seeks to understand how IOCs report the oil and gas upstream costs to their holding companies. A comparison can then be made with the accounting treatment as reported to NOCorp in order to question consistency of accounting treatment application. Some costs are treated the same under SE and FC rules i.e. acquisition costs, tangible exploratory successful wells, intangible exploratory successful wells, development dry hole and development successful wells are capitalized by all IOCs, whereas production costs are expensed by these companies. However, tangible G and G, intangible G and G and exploratory dry hole costs are treated differently as noted in Table 1. For these latter costs in the companies responding to the questionnaire seven out of the twenty IOCs (35%) apply FC principles and thus capitalize these costs while thirteen out of twenty expense them (65%) as in SE adoption.

Consideration is given only to those costs where IOC managers can use discretion in their reporting to their contractual in-country principal under LPL regulations as opposed to how they report to the market principal i.e. their global shareholders, using FC or SE principles. Table 6 shows the level of consistency for each of the discretionary costs, showing how companies actually reported to NOCorp as opposed to their global practice.

It can be seen that SE companies treat intangible G and G costs and exploratory dry hole costs in a more consistent way (11 and 12 out of 13 for each category respectively) than FC companies (2 out of 7 companies for both categories). This is because SE method allows these companies to expense these costs which is aligned to the self-interest of the agent who wishes early write off of costs allowing earlier release of funds from NOCorp. However, the majority of FC companies are forced to act inconsistently from their global procedures in order to achieve self-interest.

Table 6: Consistency between reporting for NOCorp and reporting for holding companies

		Reporting for holding companies			
		Intangible G & G costs		Consistency and inconsistency	
		FC Companies would capitalise	SE Companies would expense		
Reporting for NOCorp	Choice				
	Capitalise choice	2	2	Consistency (unshaded)	13 65%
	Expense choice	5	11	Inconsistency (shaded)	7 35%
	Total	7	13		20
	Choice				
	Capitalise choice	2	1	Consistency (unshaded)	14 70%
	Expense choice	5	12	Inconsistency (shaded)	6 30%
	Total	7	13		20
	Choice				
	Capitalise choice	2	3	Consistency (unshaded)	5 25%
	Expense choice	5	10	Inconsistency (shaded)	15 75%
	Total	7	13		20
	Choice				
Capitalise choice	1	1	Consistency (unshaded)	2 17%	
Expense choice	3	7	Inconsistency (shaded)	10 83%	
Total	4	8		12	

Note: Capitalise & capitalise or expense & expense = consistency and capitalise & expense or expense & capitalise = inconsistency.

Intangible exploratory successful wells and development dry hole costs are treated in similar ways for FC and SE companies when reporting to NOCorp. This is because these costs are capitalized under both FC and SE methods. Given the choice under LPL most companies have opted for inconsistent approaches to these costs seeking an immediate write-off of the cost with the related immediate cost return from the principal of the contract. Thus for intangible exploratory successful wells, which are normally capitalized under SE and FC, fifteen of the twenty companies at the exploratory stage acted inconsistently and ten of the twelve developing companies acting inconsistently to their global procedures regarding development dry hole costs. It should be noted that the majority of the FC companies are inconsistent throughout as their global procedures are at odds with the expensing self-interest motive. However any consideration of altruism for the conservative SE policy holders is quashed when they are given and take the option to act inconsistently regarding the intangible exploratory successful wells and the developmental dry hole wells.

Conclusion

LPL is inconsistent with global standards such as FC and SE methods with LPL permitting management discretion over specific upstream costs. The reason behind the inconsistency could be the IOCs influence in drafting the LPL (Waddams, 1980) doing so in a self-interested way, with those who are regulated lobbying for and benefitting from the regulations set (Oye and Maxwell, 1994). The regulations permit not only management flexibility in accounting choices but also an ability to transfer value from principal to agent through the immediate expensing of costs resulting in an earlier recompense from the principal. The standard setting process in Libya prompted by self-interest may have produced a robust but inequitable system of regulation. It is interesting to note that there appears to be no catalyst to the Libyan government to redress this legislative framework even though it is counter to global practice and potentially value enhancing to the Libyan economy.

While it can be argued that the building of long-term relationships might encourage the agent to act in the interests of the principal rather than responding to contractual obligations (Broadbent et al, 1996) the results of this study indicate that the majority of agents (IOCs) do not act in the interests of the NOCorp (principal). The majority of IOCs expense their upstream costs where discretion allows rather than capitalize them resulting in earlier recompense from the principal thus enhancing corporate value. The results confirm the findings of Mahmud and Russell (1998) regarding expensing such costs although unlike the previous study there are several cases where companies adopt a capitalizing practice. The differences in the two results may be

explained by the size and type of company included in the population of the two studies.

The discretionary practices can be explained through the prism of agency theory which has been used in numerous contexts to explain why principals and agents behave in certain manners due to self-interest including the lobbying and influencing practices regarding accounting regulation setting (Scott, 2009). There seem to be no logical reasons as to why LPL should allow management discretion. This allows for agency related behaviour through management self-interest as shown by the majority of IOCs within Libya. Therefore, it would be appropriate for the Libyan government to revisit the legislation with a clear focus on their stakeholders who may have differing interests to the agents. Further research would be invaluable as to the fiscal impacts on adopting different regulatory systems for reporting upstream activities.

IOCs and NOCs treat their costs for NOCorp in different ways, especially the treatment for the costs which are permitted to be capitalized or expensed by LPL. The majority of IOCs expense these costs, whereas all NOCs expense unsuccessful costs and capitalize successful costs. This may be because IOCs seek to maximize the value of the cost recoup from the government by expensing these costs immediately, whereas NOCs see these costs in line with a conservative accounting approach capitalizing costs which have future economic benefits (successful costs) and costs which do not have future economic benefits (unsuccessful costs) are expensed.

IOCs use LPL, with its discretionary provisions, to report for NOCorp and use FC or SE methodologies to report for their holding companies. IOCs therefore have the option to treat the discretionary costs in a consistent way as they treat them for their holding companies. Inconsistency in reporting for NOCorp and reporting for holding companies goes against the consistency concept in accounting which promulgates consistency of accounting treatment, for example, within each accounting period and from one period to the next (IAS 1.27). In respect to oil and gas accounting practice in Libya, a significant number of IOCs do not act in such a consistent manner when they report for NOCorp and for their holding companies. Consistency it can be argued should exist for a company in their global practices i.e. between countries around the world and not just between periods. This recognition of consistency is important in limiting management choice and reducing possibilities of manipulation (Wustemann and Kierzek, 2007).

The researchers have found cultural issues regarding accounting treatment of oil and gas upstream activities in Libya. These issues include in particular the nationality of the financial managers and to a limited extent the company's years in Libya. The IOCs whose financial

managers are foreign tend to expense the costs when they have the choice rather than capitalize them. On the other hand the majority of IOCs whose financial managers are Libyan tend to capitalize these costs rather than expense them. It could be argued that the Libyan national financial managers have a greater loyalty to their country than to their employers.

In respect to company's years in Libya, the researchers found that the IOCs who have more experience in Libya tend to expense the costs where discretion is an option. This may show a relationship of corporate awareness of indigenous particulars of a specific context but may also be due to the fact these companies may have assisted in drafting the original LPL. Conversely, some of the IOCs who have less experience in Libya may be unaware of the LPL choice.

Accounting follows different patterns in different parts of the world. This may be explained and predicted by differences in cultural factors which impact on the different accounting treatments and systems adopted within different geographical locations (Gray, 1988). This may be the case in Libya where reporting by IOCs is impacted by the cultural identity of the managers making decisions bringing with that numerous differing cultural behavioural variations, as well as contextual awareness of a country's specific reporting environment. This cultural issue can be limited by reducing management discretion thus attempting to eliminate the company's ability to produce different reports (Barth et al, 2008), as in the case in Libya where IOCs report differently for NOCorp and their holding companies.

References

- Aboddy, D., 1996. Recognition versus disclosure in the oil and gas industry. *Journal of Accounting Research*, 34, 21-32.
- Adams, B., 1994. Agency theory and the internal audit. *Managerial Auditing Journal*, 9(8), 8-12.
- Baiman, S., 1990. Agency research in managerial accounting: A second look. *Accounting, Organizations and Society*, 15(4), 341-71.
- Baker, C.R., 1976. Defects in full-cost accounting in the petroleum industry, 12, 152-8.
- Barth, M.E., Landsman, W.R and Lang, M.H., 2008. International Accounting Standards and accounting quality. *Journal of Accounting Research*, 46(3), 467-498.
- Bierman, H., Jrand, D., Roland, E. and Thomas, R., 1974. Financial accounting in the petroleum industry, *Journal of Accountancy*, 138(4), 58-64.
- Bindemann, K., 1999. *Production-sharing agreements: an economic analysis*, *World Petroleum Market Report*, Oxford Institute of Energy Studies, Oxford.
- Broadbent, J., Dietrich, M. And Laughlin, R., 1996. The development of principal-agent, contracting and accountability relationships in the public sector: conceptual and cultural problems. *Critical Perspectives on Accounting*, 7(3), 259-84.
- Brooks, M., 2005. Financial reporting: oil and gas accounting - The mystery. *Accountancy*, 136, 80-1.
- Brock, H.R., Klingstedt, J.P. and Jones, D.M., 1982. *Accounting for oil & gas producing companies Part 2: amortization, conveyances, full costing and disclosures*, North Texas State University, Denton, Texas.
- Canadian Institute of Chartered Accountants., 1984. *Survey of full cost accounting practices*.
- Coe, T.L., 1997. *Survey of accounting practices in the European oil and gas industry*, The Institute of Petroleum Accounting.
- Coe, T.L., 2001. *2001 PricewaterhouseCoopers survey of U.S. petroleum accounting practices*, Institute of Petroleum Accounting.

- Cooper, K., Flory, S.M. and Grossman, S.D., 1979. New ballgame for oil and gas accounting. *The CPA Journal*, 49(1), 11-17.
- Cormier, D. And Magnan, M., 2002. Performance reporting by oil and gas firms: Contractual and value implications. *Journal of International Accounting Auditing & Taxation*, 11(2), 131-153.
- Cortese, C.L., Irvine, H.J. and Kaidonis, M.A., 2009. Extractive industries accounting and economic consequences: Past, present and future. *Accounting Forum*, 33(1), 27-37.
- Deakin, E.B., 1979, An analysis of differences between non-major oil firms using successful efforts and full cost methods. *The Accounting Review*, 54(4), 722-34.
- DeAngelo, H., DeAngelo, L. and Skinner, D.J., 1994. Accounting choice in troubled companies. *Journal of Accounting and Economics*, 17(1-2), 113-143.
- Dyckman, T.R., 1979. Market effects of the elimination of full cost accounting in the oil and gas industry: another view. *Financial Analysts Journal*, 35(3), 75-80.
- Gallun, R.A., Wright, C.J., Nichols, L.M. and Stevenson, J.W., 2001. *Fundamentals of Oil & Gas Accounting*, 4th, PennWell.
- Gray, S.J., 1988. Towards a theory of cultural influence on the development of accounting systems internationally. *Abacus*, 24(1), 1-15.
- Han, J.C. and Wang, S., 1998. Political costs and earnings management of oil companies during the 1990 Persian Gulf Crisis. *The Accounting Review*, 73(1), 103-118.
- Hoque, Z., 2006. *Methodological Issues in Accounting Research: Theories and Method*, Spiramus: London.
- IAS 1.27., 2003. Presentation of Financial Statements, *IAS*.
- IHS Global Insight., 2009. *Libya: IMF says impact of financial crisis on Libya limited to Oil Revenues*", IHS Global Insight, (October 2009) accessed at:
(<http://myinsight.ihsglobalinsight.com/servlet/cats?pageContent=art&serviceID=4078&filterID=1154&documentID=2274548&typeID=0&documentTypeID=8&src=pc>).
- Johnson, R.T., 1972. Full-cost vs. conventional accounting in the petroleum industry. *The CPA Journal*, 42(6), 479-484.

- Katz, L.C., 1985. Oil and gas: a compromise method of accounting. *Journal of Accountancy*, 159(6), 116-124.
- Klassen, K.J., 1997. The impact of inside ownership concentration on the trade-off between financial and tax reporting. *The Accounting Review*, 72, 455-474.
- Libyan State Law No. 25 of 1955 (Petroleum Law). April 1955.
- Mahmud, M.B. and Russell, A., 1998. Survey of Libyan oil and gas accounting practice. *Petroleum accounting and financial management journal*, 17(3), 117-160.
- Macintosh, N.B. and Baker, C.R., 2002. A literary theory perspective on accounting: towards heteroglossic accounting reports. *Accounting, Auditing & Accountability Journal*, 15(2), 184-222.
- Mohrman, M.B., 1993. Debt contracts and FAS no.19: A test of the debt covenant hypothesis. *The Accounting Review*, 68(2), 273-288.
- Murdoch, B. and Krause, P., 2008. An investigation of the earnings quality of the successful efforts and full costing methods. *Petroleum Accounting and Financial Management Journal*, 27(3), 99-111.
- Oil and Gas Directory in Libya., 2010, Public Services Offices, Tripoli.
- Oil Industry Accounting Committee., 1985. *Accounting for oil and gas exploration and development activities: a survey of industry practice in the United Kingdom*. UK.
- Otman, W. and Bunter, M., 2005. *The Libyan petroleum industry in the twenty first century: the upstream, midstream and downstream handbook*, Alexander's Gas & Oil Connections, Limbach.
- Oye, K. and Maxwell, J., 1994. Self-interest and environmental management. *Journal of Theoretical Politics*, 6(4), 593-624.
- Paterson, R., 2008. *Financial reporting in the oil and gas industry*, PricewaterhouseCoopers, United States.
- Pruett, S., and Zante, N., 2003. Successful Efforts Versus Full Cost: A Continuing Controversy May Soon be Resolved. *The Journal of 21st Century Accounting*, 3(1), 1-19.
- Scott, W.R., 2009. *Financial Accounting Theory*, Pearson Prentice Hall.
- Waddams, F.C., 1980. *The Libyan Oil Industry*, Croom Helm Ltd, London.

- Watts, R.L. and Zimmerman, J.L., 1986. *Positive accounting theory*, Prentice Hall, New York.
- World Investment Forum., 2009. *Libya Overview*, World investment forum, (September 2009) accessed at: (http://www.world-investment-forum.com/docs/countries_overview/libya.htm).
- Wright, C.J. and Gallun, R.A., 2008. *Fundamentals of oil & gas accounting*, 5th, PennWell Corporation, United States.
- Wustemann, J. and Kierzek, S., 2007. Filling gaps: why consistency of accounting standards matters - normative evidence from the U.S. and Germany as related to IFRS, Working Paper, University of Mannheim.
- Yee, K.K., 2006. Capitalization of costs and expected earnings growth. *European Accounting Review*, 15(4), 565-583.