



# **Accounting for Oil and Gas: The effect of the gap between US GAAP and IFRS on Norwegian companies**

**Author:** Endale Mitiku Adere

**Supervisor:** Kim Ittonen Ph.D.

**Student**  
**Umeå School of Business**  
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I would like to dedicate this thesis to Nohamin. I owe you, your mother and sister too much, and will never forget you in my every day and every step.

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“There is no wisdom, no insight, no plan that can succeed against the LORD.”

-Proverbs 21:30

Thank you the almighty God. Amen!!!

## **Abstract**

## **Background**

Oil and gas is a main source of revenue for many countries. Norway is one of them. Several companies operate in these countries. The companies demand accounting to communicate to their stakeholders. The two biggest accounting regimes, IASB and USA have their own standards for the upstream activities of those companies. The standard setting bodies mandatorily require companies to comply. Norwegian listed companies, as they are in the IASB regime, must comply with the IASB standard, IFRS 6.

## **Problem**

The IASB standard has a problem of addressing the entire upstream activities of the companies. Moreover, the standard has conceptual flaw. However, these oil and gas firms are required to follow it. As a remedy, the entities fill the gap by using the US GAAP, if they are listed, as the regulation requires them to follow IFRS. Thus, using these two standards coupled with the defect of the IASB standard is affecting them.

## **Purpose**

The purpose of this thesis is to explain the effects of IFRS 6 on companies by comparing it with the US GAAP standard. In doing so, theories relevant to the issue are described and the technical gaps between the two standards are elaborated.

## **Method**

This thesis uses mixed method. The research design followed is concurrently mixing quantitative and qualitative methods. However, qualitative method dominates in the mixing. As a data collection mechanism, interview, questionnaire and documentation i.e. the annual reports of the companies are used. In the study both deductive and inductive reasoning are used.

## **Conclusion**

Subsequent to making the study, the author concludes that the surveyed companies have used the US GAAP to fill the gap that IFRS possess. However, retaining two sets of accounts has economic effect and the companies are paying for that. Moreover, they expend costs for adopting the IFRS when they change their standard from US GAAP to IFRS. Moreover, it is difficult to make conclusion about diffusion of accounting method due to contagion effect. Similarly, although previous studies show that size of a firm is a determinant factor, it is tricky to make conclusion on the studied companies.

## **Key words**

Accounting for oil and gas, IFRS 6, the gap between IFRS and US GAAP, Norwegian oil and gas companies

## **Abbreviations and acronyms**

<b>Acronym</b>	<b>Word or explanation</b>
EU	European Union
FASB	Financial Accounting Standard Board
GAAP	Generally Accepted Accounting Principle
IASB	International Accounting Standard Board
IASC	International Accounting Standard Committee
IFRS	International Financial Reporting Standard
NASB	Norwegian Accounting Standard Board
NGAAP	Norwegian Generally Accepted Accounting Principle
SFAS	Statement of Financial Accounting Standard
US	United States

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# 1 INTRODUCTION

*This part of the thesis provides background information about the research. Moreover, it describes the purpose of the study along with explaining the statement of problem and the delimitation that the study. Moreover, the research question, which the thesis answers, is presented.*

## 1.1 Background

Norway is one of the largest oil producing nations in the world. In 2008, the volume of its oil export was the sixth largest in the world. In the same year, it was ranked as the second leading exporter and the fifth biggest producer of gas in the world. Petroleum has 47% share from the country's total export and it has 27% share from the state's revenue. Moreover, it has 22% share from the country's GDP. (Norwegian Petroleum Directorate, 2010, p. 1-20).

The country administrates its petroleum by forming a ministry -Ministry of Petroleum and Energy. The ministry controls petroleum through The Norwegian Petroleum Directorate and three other companies, which are Petoro AS, Gassco AS and Statoil ASA. The country's petroleum industry acknowledges the involvement of private companies as well. Currently, there are around 60 companies involved in the petroleum activities (Norwegian Petroleum Directorate, 2010 et al., p. 34). These companies, including Statoil ASA, whose majority share is owned by the state, have universal stakeholders. Accordingly, identical to other companies all over the world, they demand a mechanism by which they can report their economic condition and results of operations to their widespread stakeholders. For this purpose, they must employ accounting.

Accounting is the language of business (Stevenson, 2006, p. 154). It is used by the business world to communicate their business transactions that have occurred in their operations. Due to several reasons such as culture, legal system, taxation law (Nobes & Parker, 2008, p. 24-28), besides, levels of inflation, size and complexity of business enterprise (Mueller, Gernon & Meek, 1997, p. 68), there are diversifications of accounting practices throughout the world. As a result, among other things, it is difficult to make comparison between companies that reside in different geographical areas. Moreover, it is tricky for interested parties to make financial as well as non-financial decisions at ease.

In order to alleviate this, efforts have been made for several years. To a large extent, in the 1970s international organizations were established with the aim of harmonizing accounting. In this regard, the establishment of Accountants' International Study Group can be considered as a constructive one (Skinner, et al., 1987, p. 26). This organization was founded by the US, Canadian and British professional accountants with the purpose of conducting comparative studies on accounting practices of those countries. Likewise, International Federation of Accountants (IFAC) was also set up in 1977 by 63 professional accounting bodies from 51 countries (Skinner, at al., 1987, p. 27).

Significantly, the formation of the International Accounting Standards Committee (IASC onwards) was pivotal in the harmonization of the profession. IASC was established in 1973, by representatives of professional bodies of Australia, Canada,

France, Germany, Japan, Mexico, the Netherlands, the United Kingdom, Ireland and the United States (Epsen & Mirza, 2004, p. 13).

The International Federation of Accountants (IFAC) and IASC were being financed by similar bodies and there was a goal congruency between them (Skinner, 1987, et al., p. 218). Accordingly, IASC was working as a delegate of International Federation of Accountants with respect to standard setting. Moreover, between the years 1983 and 2000 the IASC's members have included all the professional accountancy bodies of the International Federation of Accountants.

According to Mirza, Orrell & Holt (2006, p. 8), in 2001, IASC made a fundamental change to reinforce the independence, legitimacy and quality of the international accounting standard-setting process and replaced by International Accounting Standard Board (IASB onwards). The constitution of IASB (IASB Foundation Revised Constitution, 2010, p. 5) states that, its objectives are formulating standards and endeavor to foster their application through the convergence of the national standards of member countries with its own standards.

Commonly, accounting standards are categorized into two labeling - principle-based and rule-based standards. Principle based standards are those that provide a conceptual basis for accountants to follow instead of a list of detailed rules (Shortridge & Miring, 2004, p. 4). On the other hand, rule based standards comprise detail instructions to be followed. In this respect, the US standards are normally considered as rule based and on the reverse IFRS's standards are viewed as principle based.

There have been arguments for years with regard to which standard type should the standard setting organs follow. Some scholars advocate rule based standards. For instance, Schipper (2003, cited in Boone and Raman, 2003, p. 27) insists rule-based standards are helpful as they present implementation direction, improve verifiability, and limit speculation so that the standards oblige managers from opportunistically manipulating financial reports for their own sake. Contrary to this, Agoglia, Douppnik & Tsakumis (et al., 2009, p.16) argue that principle based standard improves the desire to apply professional judgment consistent with the purpose of the standards and that will result in a better, meaningful and informative financial statements.

Though the advocators have tried to magnify the benefits of what they support, both the rule-based and the principle-based standards have gone through relatively critical periods. The unpopular scandals of the big American companies such as Enron and WorldCom lead to strong criticisms on the rule based standards (Nobes, 2008, p. 103). On the other hand, the IASC standards were criticized for being wordy and broad which lead to several interpretations throughout the world. (Mirza, Holt & Orrell, 2008, p.10). In response to the criticisms, in 2001, when IASC was restructured and renamed as IASB the new board made amendments on 14 standards and withdrew some.

Along with standard setting, IASB seek a way by which its standards converge with other national standards. In this regard, the European Community's regulation No 1606/2002 has a significant contribution. The legislation demands all member countries' listed companies to apply IFRS in their consolidated financial statements (Mirza, Holt & Orrell, et al., 2008, p. 12). Accordingly, the Norwegian listed

companies, as per stipulated on the aforementioned regulation and specified on the Norwegian Accounting Act 3-9, are expected to follow IFRS and Norwegian GAAP (NGAAP onwards) as deemed necessary.

In Norway, previously NGAAP and the Norwegian Accounting Act served as a basis for accounting. NGAAP is issued by the Norwegian Accounting Standard Board (NASB onwards). NASB, which was founded in 1989, is a non-governmental organization (Endresen, Andersen, Strandberg & Trapani, et al., 2001, p. 2).

NGAAP is neither extremely rule nor principle-based. Rather it is based on a legal framework without thorough list of rules. The standards pass through persistent review to adapt to the ever-changing circumstance (Endersen, Andersen, Strandberg & Trapani, et al., 2001, p. 5). On the other hand, Johnsen & Eilifsen (1998, p. 1289) elaborate the Norwegian accounting standard setting process. A standard first is released as an exposure draft on which a variety of comments is given by concerned bodies. Following the opinions, modifications is made, if necessary, and it will be released as a preliminary standard.. When the preliminary standard serves its purpose the users and preparers gets sufficient experience. Ultimately, the final standard is issued by incorporating the experience gained when the standard was serving as preliminary standard.

Endersen, Andersen, Strandberg & Trapani (et al., 2001, p. 5), describe that when there is significant practical variations or there is no sufficient “international guidance” on a certain subject, NASB issues discussion paper. In this regard, in the 2009 Norwegian Accounting Act list of standards, there is no discussion paper available on accounting for oil and gas (Den norske Revisorforening, 2009, p. 50). Due to unavailability of specific standard, companies use US GAAP for handling their upstream activities.

IASB, subsequent to the structuring, has started its activities by inheriting all the standards formulated by IASC and started its work on three areas namely new improvement project, continuing projects and major reforms (Nobes, et al., 2008, p. 83). These projects, among others, include extractive industry project. This research project is yet to be finalized to become comprehensive standard to the industry.

Extractive industry, which encompasses the mining and the oil & gas sectors, has many unique features as compared to other industries. Wright & Gallun (2008, p. 8) clarify this industry’s peculiar features. According to them, extractive industry works in a high level of risk, in which there is no correlation between the amount of expenditure and the value of reserve, which may be extracted therein. Moreover, the companies involved in the business might wait for long period of time until they start obtaining return from their investment. In addition, there is a high level of regulation coupled with complex tax rules and unique cost sharing agreements. Luther (2008, p. 69) includes accountability as additional unique characteristic of the industry. Entities involved in this industry engage in activity that implicates community interest thus they have higher accountability.

In 2004, IASB issued IFRS 6 “Exploration for and Evaluation of Mineral Resources”, for this industry. This standard was issued with the intention of making limited improvements on the prevailed diversified accounting practices. It addresses activities

involved in the extraction and evaluation processes.

Wright & Gallun (et al., 2008, p. 1-32) describe activities involved in the exploration industry. The activities are categorized into two main group namely upstream activities and downstream activities. The upstream activities extend from searching the mineral or oil and gas up to the point where they are readily available for sale or consumption. These activities are exploration, acquisition, drilling, developing and producing. On the other hand, the downstream activities encompass refining, processing, marketing and distribution. The peculiar features of the extractive industry are manifested on those, which fall under the upstream classification. The industry specific standard, i.e. IFRS 6 is issued for the upstream activities.

The US standard is collectively known as Generally Accepted Accounting Principle. The history of GAAP starts in 1939 when the American Institute of Accountants (AIA) formed the Committee on Accounting Procedure (CAP) which issued 51 Accounting Research Bulletins (ARB). In 1957, American Institute of Accountants (AIA) was renamed as American Institute of Certified Public Accountants (AICPA) and it established the Accounting Principles Board (APB). This organ formulated 31 opinions, which are known as APB Opinions. In 1973, Financial Accounting Standards Board (FASB onwards) was formed as a replacement to APB due to, among other things, insufficient compensation to the APB members. FASB issued 168 Statements of Financial Accounting Standards (SFAS herein after). US GAAP encompasses all the aforementioned standards and is the collection of all these documents. (Carpenter & Mahoney, 2008, p. 5), (Hussey & Ong, et al., 2005, p. 81), (Nobes, et al., 2008, p. 211) and (Skinner, et al., 1987, p. 249)

With the aim of formulating standard to the extractive industry, the American Institute of Certified Accountants issued Accounting Study Research for this industry (Wright & Gallun, et al., 2008, p. 48). Subsequent to that, several standards were issued by the aforementioned US standard setting bodies for bringing up a comprehensive standard to the industry. However, all those couldn't make up an all-inclusive standard. Therefore, identical to IASB and NASB, the US still doesn't have a comprehensive standard for the extractive industry in general (Luther, et al., 2008, p.70). Nevertheless, it has a standard for the oil and gas sector of the industry. The standard encompasses two methods of accounting namely full cost method and successful-efforts method.

## **1.2 Problem statement**

It is not uncommon for accounting standard setting bodies to formulate industry specific standards. For instance, in the US there are standards which are set to a single industry, real estate; healthcare, motor carriers, television, and computer software are among them (Luther, et al., 2008, p.72). Though they are few, IFRS has also industry specific standards. One of them is IFRS 6, "Exploration for and Evaluation of Mineral Resources".

This standard covers only part of the activities involved in the industry so that companies, which were complying with other standards, are unable to obtain a comprehensive standard to work with. Moreover, the author's preliminary insight reveals that it has defect. However, entities that are under the IASB accounting regime

are expected to comply with it. Among these are the Norwegian oil and gas companies.

Norwegian oil and gas companies were previously following the US GAAP. Currently, they apply both US GAAP and IFRS. This hinted the author that the US GAAP has filled out some disparity exists between what the industry demands from the accounting standard and the incomplete IFRS standard. In fact, this may have adverse or constructive impact. Thus, the author asks the following as a research question.

What is the effect of the gap between US GAAP and IFRS on accounting practice, choice and economic condition of the Norwegian oil and gas companies?

### **1.3 Purpose of the study**

The purpose of this study is to show the gap that IFRS 6 has compared to the standard demand by the industry. The study further makes theoretical comparison between the US GAAP and IFRS and reveals the disparity between the two with regard to accounting for oil and gas. Moreover, it examines their dual applicability in the Norwegian oil and gas companies. As stated in the background, the Norwegian accounting regime is characterized by adherence to good practice. Listed oil and gas companies that have been following US GAAP, nonetheless; since the issuance of IFRS 6, they are obliged to comply with IFRS as well. However, companies that are not listed continue to use the US GAAP. For this reason, unlisted companies do not fill the gap that IFRS has.

The standard comparison part of the thesis enables the author to show the theoretical rationale behind each standard. Moreover, it reveals how they are consistent with the general framework of the overall standard.

Examining the practice of the companies can depict the unfavorable or beneficial impact that the incomplete IASB standard i.e. IFRS 6 brings on the companies in an accounting regime where there is no particular national standard on the issue and has been following rule based US GAAP.

### **1.4 Delimitation**

The activities of extractive industry range from exploration until distribution. The activities are categorized into upstream and downstream, as stated in the background part. Those that belong to the downstream activities include refining, processing, marketing and distributions are common to many industries. On the other hand, the upstream activities exploration, acquisition, drilling, developing and producing are peculiar characteristics of the industry. In addition other accounting issues such as inventory management, depreciation, depletion & amortization and impairment issues emanate from these activities nature. Therefore, this study is limited only to covering these activities, inventory management, depreciation, depletion & amortization and impairment issues.

Moreover, though the extractive industry encompasses mineral and oil & gas sectors,

this study covers only accounting for oil and gas sector of the overall extractive industry. Besides, joint venture and tax accounting issues are not covered, as they are vast demanding separate research by themselves.

## **2 METHODOLOGY**

### **2.1 Choice of the subject**

Accounting for extractive industry is one of the research agendas of the IASB. This research has been an unfinished issue for this standard setting body. As a matter of fact, IASB has inherited the project from its predecessor IASC, which has started it as a project since 1998. Ever since, apart from the formulation of IFRS 6, the project cannot find a final solution.

In April 2010, IASB issued a discussion paper, pertaining to accounting to extractive industry, demanding interested parties to comment and forward their remark to it. Reading the discussion paper coupled with personal desire to take the industry as a career path, particularly the oil and gas sector, has inspired the author to choose the subject.

Consequently, subsequent to choosing the topic the author navigated an accounting regime where he can grasp sufficient knowledge about the issue. Thus, Norway and its oil and gas companies were chosen by the author for his study. In conducting this research, the author believes that he will contribute his own fill to the profession.

### **2.2 Preconceptions**

According to Bryman (2008, p. 24), research is influenced by epistemology, ontology, values, theory and practical considerations. Value is one of the influential factors and it reflects personal belief. In fact, research has to be value free not being influenced by preconceptions that a researcher has on the subject.

To this effect, the author of this study hasn't developed any preconception on the issue. His prior professional career experience and his previous studies haven't impact to be inhibited in his study. He has studied accounting then information system at bachelor level and worked in a bank. In his banking career, he has participated in studies related to operational improvement; performance management, strategy development and product & branch profitability researches. Moreover, he grew up in a country where there is no major oil and gas related industry. Thus, this research is conducted objectively without being influenced by the author's preconception.

### **2.3 Perspectives**

The topic can be viewed from several perspectives. For instance, as the subject matter of the study is related to depicting the gap that IFRS 6 has in addressing the overall process of the extractive industry as compared to its US GAAP, the study can be conducted from the two standard setting organs perspective. Likewise, it can also be viewed from the financial statement users' perspective. The users' category includes investors and financial institutions. These users are expected to have an understanding of both IFRS and US GAAP so as to make informed decision.

On the other hand, due to regulation the companies are forced to comply with the incomplete standard. These companies are vulnerable to the impact that the standard

may have on their overall reporting. Therefore, the study can also be viewed from their point of view.

Accordingly, the author wants to conduct the study from multi-perspectives specifically from the internal i.e. from the companies' viewpoint and externally from investor or financial institution perspective.

The part of the study that portrays the gap between the two standards takes an external perspective. While the portion that depicts the effect of the gap takes up the internal viewpoint of each company

## **2.4 The Research philosophy**

The philosophical assumptions that researchers employ in quantitative, qualitative and mixed methods are different. Qualitative approach is characterized by participatory claim, while quantitative approach follows a positivist knowledge claim. Contrary to these mixed method claims knowledge pragmatically (Creswell, 2003, p. 17). The author prefers to enquire knowledge pragmatically by following mixed method. Leech and Onwuegbuzie (2007, p. 265) define mixed method as "the one in which the researcher collects, analyzes, and integrates both quantitative and qualitative data in a single study or in multiple studies that investigate the same underlying phenomenon".

This study incorporates showing the shortcomings of the IFRS 6 with respect to US GAAP and examining the effect that the gap has on the Norwegian oil and gas companies. As a result, the author believes that making a mixed-method study can address the research question he raised and a pragmatic knowledge claim (epistemology and theoretical perspective) therein can be achieved.

The rationale for employing mixed method arises from answering the research question in a proper manner. Fundamentally, the research question encompasses triple issues, namely, accounting practice, choice and economic condition. Each of the subjects demands a usage of mono-method alone. Therefore, to answer them harmoniously a mixed method is the best way. For instance, to answer the accounting practice issue appropriately the usage of qualitative method is paramount. Contrarily, the accounting choice topic requires positivist knowledge claim.

In addition to the reasons which are connected to the research question, mixed method enables the author to "combine the macro and micro levels of a research issue" as Leech and Onwuegbuzie (et al., 2007, p.267) put it. From this thesis's perspective, it, for example, enables to address the accounting method choice, from a higher level to detailed practices incorporated with in the method.

## **2.5 Scientific approach**

According to Gray (2007, p. 4), "scientific method is a general model for inquiry in the physical & natural sciences and in the social sciences." The general principles of scientific approach edify that research should have objectivity, reliability, and validity (Gray, et al., 2007, p. 8-11). Objectivity implies that a research made by two researchers on the same subject must end up in the same result. Reliability shows the replication of a research outcome if the research is repeated. On the other hand,

validity means the correctness of the measure used in the research.

Garin (1994, p. 46) states that scientific method employs inductive and deductive methods. Deduction is the process of bringing specific ideas from a more general knowledge or theory. In contrast, induction is the reverse of deduction by which a general theory or knowledge is formulated from many specific ideas, knowledge or theories.

Further Garin (et al., 1994, p. 47) explains, “Both deductive and inductive approaches can work together. Deduction starts with general ideas and applies them to evidence and induction starts with evidence and assesses its implication for general ideas.” The author of this research, therefore, uses both inductive and deductive reasoning to arrive at the research question and answering it.

In this regard, empirical data is collected and analyzed. Moreover, previous researches and theories, which are relevant to the topic are used

## **2.6 Research design**

Leech and Onwuegbuzie (et al., 2007, p. 268) elaborates that mixed method design has three dimensions namely mixing, timing and emphasis dimensions. Under mixing dimension, they explain that mixed method can be partially or fully mixed. Partially mixed method is defined as “a research method, in which both quantitative and qualitative methods are used until a certain stage of a research” Leech and Onwuegbuzie (et al., 2007, p. 265). Whereas, in fully mixed method, they are used simultaneously or independently, from the beginning of the research to its end.

With regard to the time dimension, it is discussed that the methods can be mixed concurrently i.e. both methods at the same time or sequentially - one method after the other. On the other hand, emphasis dimension shows the level of dominance which either qualitative or quantitative method has over the other in the mixing of the methods (Leech and Onwuegbuzie et al., 2007, p. 269).

In this thesis, therefore, the author mixes the methods partially, performs them concurrently and prefers the qualitative method to have supremacy. This design is followed due to the fact that, as explained above the author believes following one of the methods alone could not answer the question appropriately. Hence, the issues have both qualitative and quantitative attributes and using the methods together can help the author to develop his understanding of the topic as the research progresses. Moreover, the research demands in depth data. Thus, following one method and proceeding to the other gives no sense. In addition, the thesis requires the usage of multiple theories.

The need for domination of qualitative over quantitative method is also related to the desire to get in-depth data and to utilize the qualities of qualitative research. In this respect, the thesis addresses the behavior of managers by using a theory, which will be discussed in the next major part of the thesis. Qualitative dominated mixed method in this regard is preferable (Creswell, et al., 2003, p. 213).

## **2.7 Criticism of data sources**

In this study, the author uses both primary and secondary data. Both these data sources have their own benefits and pitfalls. Primary data gives to a researcher a realistic view of the topic. Moreover, it is recent information that a researcher gathers for the subject. Furthermore, it can be collected in a variety of ways.

However, primary data has its own drawbacks. It may not be available to the researcher if the respondents fail to provide a response timely. Finding primary data consumes more time and money. Furthermore, sometimes respondents may provide false information and this may lead a researcher into a wrong conclusion.

Likewise, secondary data have their own inherent advantages and downsides. In most cases, secondary data are outdated. Additionally, the issue of reliability and validity can be raised on them. Sometime, it may be difficult to find data that suits to the topic.

Contrary to these, secondary data possess numerous benefits such as being readily available to the researcher with low cost and they can serve as an alternative to a primary data. They can also help a researcher to be alert to potential problems that primary data may bring on the research.

Understanding the benefits and drawbacks of the two data sources can help the author to optimize from the positives of the two. Accordingly, the author of this research tries to be cautious in using data sources.

### 3 THEOROTICAL REVIEW

#### 3.1 Accounting theory

According to Coetsee (2010, p. 2), there are different schools of thought on accounting theory. Of these, two of them are dominant. The first one emphasizes on the development of accounting principle and defines accounting theory as a logical reasoning in the form of a set of broad principles that provides a general frame of reference by which accounting practice can be evaluated. Thus, accounting theory guide the development of new practices and procedures (Hendriksen, 1982, as cited in Coetsee, et al., 2010, p. 2). Therefore, accounting theory is the basic assumptions, definitions, principles and concepts that underlie accounting rule making.

For the second school of thought, accounting theory has primary objectives of providing a basis for the prediction and explanation of accounting behavior, events and practice. Therefore, this school of thought considers accounting theory as an attempt to evaluate practice. The difference between the two is that the first one emphasizes on principle and is normative while the second one assesses practice thus it is descriptive. Normative theory methodologically describes what the theory should be; in contrast, the descriptive once shows what the realty is. Coetsee (et al, 2010, p. 3) states that accounting theories were developed through normative or descriptive process. Nowadays, normative and positivistic i.e. using predictive process is used to develop accounting theory.

Positive accounting theory and decision usefulness theory are two of the most important theories in the field of accounting. Positive accounting theory was introduced by Watts and Zimmerman (Al-Adeem, 2010, p, 40). There are many positive accounting versions but their positive accounting theory differs from others by giving importance to prediction and explanation though it is descriptive like the other positive theories (Watts and Zimmerman 1990 p 147). Their positive accounting theory known as PAT in short, deals, among other things, with accounting choice (Kabir, 2007, p. 139). In their research, they introduced transaction and information costs with respect to accounting choice.

Decision usefulness theory gives prime focus to the outcome of the accounting process i.e. the information which accounting provides (Coetsee, et al., 2010, p. 9). Inanga and Schneider (2003, p. 229) describes that decision usefulness theory of accounting considers that accountants know the needs of financial statement users and those needs are common. Therefore, accountants can prepare general-purpose financial statements that can be useful for decision-making. Inanga and Schneider (et al., 2003, p. 235) further explain that this theory is the foundation of the Concept Statement of the Financial Accounting Standard's Board (FASB). Coetsee (et al., 2010, p. 15) also states that the conceptual framework of both FASB and IASB is decision usefulness theory.

The issues put forward in both positive accounting theory and decision usefulness theory are relevant to this study. Hagerman and Zmijewski (1978, p. 83) state that "a positive theory of accounting is a prerequisite to understanding how firms will react to changes in accounting standards". Positive accounting theory raises accounting choice and the political process that surrounds it. As this study is about the effect of

accounting gap created due to the political decision made on the issuance as well as the implementation of a standard i.e. IFRS 6, issues covered under positive accounting theory are significant. Likewise, decision usefulness theory is the foundation for the frameworks of the two standard setting bodies. Thus, it has relevance as the standards are formulated by basing those frameworks.

### **3.2 Accounting choice**

Fields, Lys & Vincent (2001, p. 256) define accounting choice as "any decision whose primary purpose is to influence (either in form or substance) the output of the accounting system in a particular way." Dhaliwal, Salamon and Smith (1982 p 44) describes that accounting entities do not choose accounting method in an arbitrary manner. Similarly, Watts & Zimmerman (et al., 1990), Reppenhagen (2009) and Hagerman & Zmijewski (et al., 1978) and other scholars agree with this.

### **3.3 Determinants of accounting choice**

Hagerman & Zmijewski (et al., 1978, p. 86) describes that there are some major economic determinants for accounting choice. Those major factors are size of the firm, the level of capital intensity of the firm and competition that the business faces with is vital. Watts and Zimmerman (et al., 1990, p. 146) on the other hand, state that existence of bonus plan, leverage ratio, and political process together with firm size are some of the factors for making accounting choice.

In both the aforementioned studies firm size is a determinant factor. Hagerman and Zmijewski (et al., 1978, p. 87) explains that cost or tax levied on firms is a function of their size so that larger firms are expected to pay more tax than smaller once. Accordingly, bigger firms tend to report less profit to avoid this cost (Watts and Zimmerman, et al., 1990, p. 144). On the other hand, Hagerman and Zmijewski (et al., 1978, p. 90) state "firms that use a capital intensive technology do not include the opportunity cost of capital in computing net income," this can lead them to make an accounting choices that minimize income. Likewise, competition can also affect accounting choice. Entities, to avoid new entrants, tend to report less profit. Watts and Zimmerman (et al., 2010, p. 144) mention that managers choose accounting method that increases income if incentive plan is linked to profit.

Reppenhagen (et al., 2009) studied accounting choice factors from different perspective i.e. contagion view and intrinsic as well. The one considered as intrinsic are identical to those mentioned above. However, contagion as defined by (Borgatti & Foster, 2003 cited in Reppenhagen, et al., 2009, p. 2) is "the transmission of an idea, practice, or behavior through the influence of other agents". Accounting choice contagion can happen due to having proxies for board-to-board, communication, geographical proximity, common external auditors, industry similarity of prior adopters, success of prior adopters, and competitive rivalry. Thus, these factors can be causes for diffusion of accounting method or standard. Reppenhagen (et al., 2009) shows that these factors disseminate accounting practice from one firm to the other. However, it is recommended in the study that further research is demanded to rank the level of impact which those factors have.

### 3.4 Classification of accounting choice

Various scholars have endeavored to classify accounting choice depending on the goals that motivate accounting choice. In this regard, Fields, Lys and Vincent (et al., 2001, p. 261) categorize accounting choice as contracting, asset pricing, and influencing external parties. They state that their classification is consistent with Watts & Zimmerman's taxonomy in their positive accounting theory introductory work.

Contracting arises due to market imperfection, which in turn stems from the presence of agency cost and the absence of complete market. Watts and Zimmerman (et al., 2010, p. 135) states that monitoring cost is an instance of agency cost. Thus, entities make accounting choice to alleviate those costs.

The second group, which has the aim of influencing asset pricing, is initiated by information asymmetry. Accounting serve the purpose of filling the information asymmetry and accounting choice is made in a belief that there will be a higher earning.

Entities make accounting choice for the purpose of influencing external parties such as regulators and tax authorities. Watts and Zimmerman (et al., 2010, p. 134) call this political cost. Entities tend to choose accounting method that reduces or defer tax or income as well. Further discussion about the standard setting process is made here under.

### 3.5 Accounting standard setting

Standard setting bodies, such as IASB and FASB, experience lobbying from preparers and governmental self-interest (et al Nobes 2008 p-208). The lobbying is motivated by different reasons as mentioned above. The major one is related to revenue and earning management. Managers want to show higher revenue in the financial statements of their companies due to the fact that their compensation is most often associated with it. Governments also lobby the formulation of standard that can lead to a higher earning (Nobes, et al., 2008, p. 210).

Cortese Irvine & Kaidonis (2010, p. 3-5) describes the lobbying that IFRS 6 has gone prior to becoming a standard. In this study, it is mentioned that extractive industry encompasses companies that have significant share in the global capital. Those companies have influenced IASB to issue IFRS 6. Similarly, Nobes (et al., 2008, p. 210-229) discusses lobbying from historical as well as current instances by raising titles of some of the standards issued in the US, UK and IASB.

In spite of this, accounting standard setting bodies imposes their standards by getting the help of enforcement bodies (Nobes, et al., 2008, p. 190). Different forms of bodies in different accounting regimes perform the enforcement. Stock exchanges, regulators of stock exchanges, government departments & agencies and private sector bodies are used as an enforcer in various accounting regimes.

In countries such as US, Norway, Sweden, Switzerland and Australia, stock exchange regulators perform enforcement. On the other hand, in Belgium, Italy, France, Portugal and Spain the task is left to the private body panel. In the UK government department

carries out enforcement (Nobes, et al., 2008, p. 191). The enforcement action of those bodies makes a standard mandatory in their jurisdiction. The mandatory standard may be new or a change to the existing standard. As the topic of this research is related to an existing standard, mandatory accounting change is worth mentioning.

### **3.6 Mandatory accounting change**

Business entities can change their accounting methods voluntarily as stated above or regulatory bodies may require them. The mandatory accounting change may take the form of changing accounting method or standard. A standard change in many cases brings about method change. With regard to standard change, the mandatory adoption of IFRS by European Union (EU) and European Economic Area (EEA) countries is historic. Christensen, Lee & Walker (2007, p. 1) labeled it “the largest regulatory experiments in financial reporting ever”. Further, they state that from the mandatory adoption of IFRS, some companies economically benefited and others become losers. Jeanjean & Stolowy (2008, p. 491) also state that the adoption has impact on the earning quality of firms. They found that the effect of mandatory adoption of IFRS differs from firm to firm depending on institutional factors.

Identical to the motives for the accounting choice under the voluntary accounting change, mandatory method change which follows from mandatory standard change is triggered by factors stated above as determinants of accounting choice. Balsam Haw & Lilien (1995, p. 27) describe that in a mandated accounting change, in which managers have flexibility in timing of implementation, they tend to choose time when they can maximize their benefit.

### **3.7 Motives for the formulation of accounting for Oil and Gas**

Accounting regimes formulate industry specific accounting standard when they find that the industry has special features. For instance in US there are accounting standards for real estate, healthcare, motor carriers, television, and computer software (Luther, et al., 2008, p. 72) due to their special characteristics. Likewise, US GAAP has industry specific standard for oil and gas industry. IASB is also endeavoring to formulate standard for extractive industry- an industry that encompasses oil & gas and mineral industries. The peculiar features of oil and gas industry that urge the standard setting organs to issue industry specific standard is presented here.

Oil and gas industry, identical to the mineral industry, is mainly characterized by lack of association between the amount of investment made and return obtains thereof (Wright & Gallun, et al., 2008, p. 2). A simple exploration effort of companies may generate a high return or contrary to this, after extensive drilling the companies may discover unsatisfying result.

The industry also encompasses high level of risk. The 2009 Ernest and Young business risk report (Ernest and Young, 2009, p. 14) ranks business risks that the oil and gas industry faces with. In the ranking political constraints, uncertain energy policy and price volatility take the three leading positions. Price volatility in most cases is related to stability in and around oil and gas producing countries. Oil and gas is major source of income for many countries besides it is one of the sources of energy for other primary, secondary and tertiary human activities. Thus, this arouses political interest

from governments and they design stiff energy policies and regulations.

Roggenkamp (2001, p. 15) states regulations can be enacted by international bodies, or emanates from treaties between nations. Additionally governments can decree regulations within their own jurisdictions. Prevention of Marine pollution from Continental Shelf Exploration and Exploitation, Law of Sea Convention (LOSC), Liability and Compensation for Oil Pollution Damage (Roggenkamp, et al., 2001, p. 14-18) can be considered as instances of international laws and regulations. Frigg Treaty which is made between United Kingdom and Norway (Roggenkamp, et al., 2001, p.18) is one example of a treaty. National laws such as the Norwegian Petroleum Act (Hammer, 2010, p. 885) serves as a regulatory framework in relation to regulating the activities of the bodies involved in the business within the country, which endorses the law.

All these regulations situate the industry to be in a high level of regulation. Moreover, the industry is characterized by complex tax rules and unique cost sharing agreements. (Wright & Gallun, et al., 2008, p. 2). In Norway, for instance, a special tax is levied on oil and gas activities. The oil and gas companies are expected to pay 28% ordinary tax and 50% special tax. However, there is there is a 7.5% tax shield which is called uplift by which companies protect themselves from the effect of the special tax. (Norwegian Petroleum Directorate, et al., 2010. P. 24-25).

These peculiarities of the industry urge the accounting regimes to formulate accounting standard specific to the industry. The next section is dedicated to this industry specific accounting

### **3.8 Accounting for oil and gas industry**

Accounting for oil and gas is controversial from technical as well as accounting choice perspectives. (Wright & Gallun, et al., 2008, p. 48; Malmquist, 1990, p. 174; Cortese, Irvine & Kaidonis, et al., 2008, p. 2). The detailed technical treatment of accounting for oil and gas is discussed in detail in the next major title of this study. However, below the two US GAAP accounting methods and their IASB equivalent i.e. IFRS 6 are addressed from broader perspective, which will be followed by accounting choice in oil and gas industry.

#### **3.8.1 Oil and gas accounting in the US**

The US GAAP used to have four alternative accounting methods for oil and gas (Amended SFAS 19 2008, Paragraph 100) they were full cost, successful-efforts, discovery value accounting and current value accounting methods. However, FASB rejected the use of discovery value accounting and current value accounting methods due to reasons stated on the Amended SFAS 19 (2008 paragraph 133 - 141) Accordingly, currently there are two methods of accounting for oil and gas under the US GAAP .

There have been huge debates with regard to which method shall the companies follow. Cortese, Irvine & Kaidonis (et al., 2008, p. 6-15) explain the historical arguments, which the advocates of the two methods have made including the US standard setting bodies' contentious decisions made in the past. Until 1950, the only

accounting method available was successful-efforts method. However, in 1950 full cost emerged as an alternative accounting method (Malmquist, et al., 1990, p. 174). Starting from then, a debate surrounds the accounting for oil and gas. As a remedy, regulatory bodies have attempted to eliminate full cost (Spear & Leis, 1997, p. 171). Despite it remains as one alternative accounting method together with successful-efforts method.

### **3.8.2 Oil and gas accounting in the IASB**

Setting standard for extractive industry, an industry that includes mineral and oil & gas industries, was started in 1998 by IASC, the predecessor of IASB (IASB, 2010). Since then, the major achievement that can be mentioned is the formulation of IFRS 6. This standard is designed to serve both the mineral and oil & gas industry. As can be understood from the standard, it is not designed to bring major change; rather it aims at unifying the diversified practice observed in the industry. Currently, IASB is preparing a standard which with the intention of formulating a comprehensive standard (IASB 2010).

### **3.9 Accounting choice in oil and gas industry**

As has been stated earlier the US GAAP has two methods namely full cost and successful-efforts methods. The IASB also permits the methods due to the economic consequence that declining one of the methods can bring on entities (Cortese, Irvine & Kaidonis, et al., 2008, p. 3). Accordingly, companies applying IFRS have two methods to choose from.

Cortese, Irvine & Kaidonis (et al., 2008, p. 16) state that full cost is popular accounting method for smaller companies, hence they can capitalize all the costs they incur so that they look bigger. In this regard, Malmquist's (et al., 1990) study is considered as one of the finest works in accounting choice in oil and gas industry (Spear and Leis, et al., 1997, p. 172). In the study Malmquist (et al., 1990) formulated five hypotheses and tested on 287 oil and gas companies' accounting method choice. The study examines firm characteristics through those hypotheses. One of the hypotheses was related to firm size and it was, *ceteris paribus*, the larger the firm, the lesser the likelihood it will choose full cost method. The other two hypotheses were connected with evaluating the relationship between accounting method choice and the upstream activities. The remaining two are linked to source of fund.

In this thesis, the size hypothesis worth mentioning as the hypothesis is generated from positive accounting theory as has been discussed previously and mentioned at Malmquist (et al., 1990, p. 181). Bigger firms, for the purpose of reducing the tax they pay prefer to choose a method that reduces profit. In this case, they favor successful efforts method instead of full cost.

Accordingly, Malmquist (et al., 1990) uses the value of sales of the companies as a measure of size. Eventually, the result of the study affirms the conventional knowledge whereby larger firms choose successful method and the smaller once favor full cost method. Spear and Leis (et al., 1997) tests the same hypotheses on 316 oil and gas companies and found similar result.

### **3.10 Economic consequences of accounting choice**

Holthausen & Leftwich (1983, p. 79), labeled positive accounting theory of Watts and Zimmerman, as “Economic Consequence theory”. They reason out that this theory, different from other positive accounting theories, explains the link between the firm’s cash flow with the reported accounting income numbers.

Some of the issues addressed in this theory such as transaction, information, political and monitoring costs are related to the economic consequences that companies can face with when they change their accounting standard or method. Moreover, political cost can be made to influence standard setting bodies not to make a change an existing standard.

Holthausen & Leftwich (et al., 1983) focus on examining previous studies made on this area of accounting. They explain that positive accounting theory, which Watts and Zimmerman originated in 1978 and further developed by other scholars, deliberates notions such as political, information and transaction costs. The discussion, which they made on these issues, can be summarized as follows.

A new accounting method can have undesirable or beneficial impact on entities’ cost of collecting and processing information necessitated by the method. Moreover, it can have influence on the cost of distributing the information needed by the accounting information users. In addition to these, the financial statements prepared by the method can influence the obtainability of capital. In this regard, they refer studies made on the relationship between accounting choice and stock price. Most the previous studies summarized therein gave due emphasis on the association between stock price and accounting method choice.

However, Watts and Zimmerman (1978), which as stated above was labeled as “economic consequence” made empirical study on behavior of management on political and information costs with respect to the issuance of discussion memorandum on “reporting the effects of general price level changes in financial statements”. They found that larger firms favor to lobby the issuance of the standard if it has income decreasing impact. In addition, smaller firms are willing to incur information cost up to the level where the marginal cost of information cost is equal to the marginal cost of lobbying.

### **3.11 Conceptual frameworks of FASB and IASB**

Decision usefulness theory is used as a base for the foundation of the conceptual frameworks of the two standard setting bodies. Schroeder, Clark & Cathey (2011, p. 117) explain that the FASB’s conceptual framework gives due emphasis to decision usefulness in that the objectives part of the framework is worded with the underlying idea of decision usefulness theory. The objective of financial statement is to provide information useful in decision-making.

Schroeder, Clark and Cathey (et al., 2011, p. 119) further discuss about the qualities of accounting information as per the FASB’s framework. The two primary qualities of accounting information are relevance and reliability. Moreover, understandability, timeliness, verifiability, representational faithfulness, neutrality, comparability,

consistency and materiality are also the attributes of the quality of accounting information vis-à-vis the FASB's conceptual framework.

On the other hand, Mirza, Orrell & Holt (et al., 2008, p. 8) describe about the IASB's framework which, they mention, is commonly referred to as "conceptual framework". The framework deals with objectives of financial statements, the underlying assumptions in preparing them and the qualities, which they shall, possess. Identical to the FASB's, the objective of this framework bases the same theory i.e. decision usefulness theory. The objective of financial statements is providing information useful in economic decision-making. The framework further addresses that the underlying assumptions in preparing financial statements are going concern and accruals. With regard to qualitative characteristics, understandability, relevance, reliability, comparability, and constraints are considered.

Comparison of the two frameworks is presented in Schroeder, Clark and Cathey (et al., 2011, p. 135-138). They state, "the subjects contained in the two frameworks appear to be similar and apparently they do not create any obstacle for convergence." They further explain that the level of detail within each of the framework create the difference between the two.

In 2005, IASB and FASB have started a project to converge the two frameworks (Whittington, 2008, p. 139). Schroeder, Clark & Cathey (et al., 2011, p. 135-138), emphasize that having common frameworks simplify the convergence of the two standard setting bodies.

In 2007, the SEC announced that it accepts foreign filers in US financial statements if they are prepared in accordance with IFRS. A year later, SEC publicizes its plan about the future of IFRS in US. Accordingly, the plan was in 2010 the 20 largest companies would change their accounting into IFRS and by 2014, most public companies should change into IFRS. However, in 2009 when SEC made a leadership change this plan was decided to be delayed (Willis, et al., 2010, p. 312 - 313).

### **3.12 Harmonization of accounting standards**

According to Hussey & Ong (et al., 2005, p. 273), harmonization is a process of reducing the alternative accounting treatments available in the national standards to reach at common standards. Agoglia, Douplik and Tsakumis (et al., 2009, p. 18) explain that harmonization takes two forms which are harmonization of regulations or standards and harmonization of practices. Harmonization of standards is often referred to as "de jure harmonization" while harmonizing standards known is designated as "de facto harmonization". It has to be clear that harmonization of accounting standards may not bring about harmonization of practices.

Oftentimes, harmonization is bemused with convergence and standardization. Hussey & Ong (et al., 2005, p. 274) argue that convergence comes through time as standard setting bodies attempt to form agreed regulatory pronouncement. On the other hand, standardization is enforcing a single set of standard on different national standards.

## **4 TECHNICAL ISSUES IN OIL AND GAS ACCOUNTING**

### **4.1 Accounting for Oil and Gas upstream activities**

The industry specific accounting for oil and gas relates to the upstream activities stated above. In discussing the US GAAP as well as the IFRS standards, the author follows; the classification of the activities used the standards. This means the classification of the activities stated on SFAS 19 for the US GAAP and in the part dedicated to IFRS, the IFRS 6 paragraph 9 and 10 categorization is followed.

SFAS 19 divides the activities into four by merging the drilling and development activities. Therefore, the activities discussed under the US GAAP are exploration, acquisition, drilling & development and production. On the other hand, IFRS classifies the activities into exploration & evaluation and development activities.

### **4.2 Oil and gas accounting under the US GAAP**

As discussed above, the US GAAP provides two alternative accounting methods for the oil and gas industry. The following part covers the accounting treatment in the two methods.

#### **4.2.1 Successful-efforts and full cost methods**

Successful-efforts accounting method is commonly known to divide costs into successful and unsuccessful, whereby the successful drillings result in the extraction of economically recoverable oil and gas, and the unsuccessful drillings end up in a dry hole. Historically the US standard setting bodies supported this method (Cortese, Irvine & Kaidonis, et al., 2008, p. 4). However, it could not become the only accounting method for the industry.

Full cost accounting method was once rejected by FASB, however; relentless efforts made by its proponents helped it to become an alternative accounting method for oil and gas companies (Cortese, Irvine & Kaidonis, et al., 2008, p. 3). The statement that FASB issued to rescue full cost accounting method is SFAS 25. FASB mentioned in the standard its reasons for accepting the use of full cost method. Under its paragraph 20 it states among other things that full cost method helps companies to raise fund easily.

#### **4.2.2 Upstream activities**

As stated in the delimitation part, this study focuses on upstream activities. Therefore, it examines upstream activities namely exploration, acquisition, drilling, developing and production activities. Here it has to be noted that the classification of the upstream activities may take another form. For instance, under IFRS 6 they are classified into two exploration & evaluation and development activities. However, the author prefers the classification made by Wright & Gallun (et al., 2008, p. 6) in believing that this grouping renders a clearer insight about the activities.

### **4.2.2.1 Exploration**

Exploration is one of the fundamental upstream activities. Wright & Gallun (et al., 2008, p. 8-9) state that oil and gas exploration demands the involvement of geoscientists. The scientists use geological and geophysical methods to locate the place where the oil and gas can be extracted. Geological study refers to the study of the surface of the earth. While, geophysical survey is made on the subsurface of the land. These studies are conducted for the purpose of obtaining information about the existence of oil and gas in the area where the study is performed. In most cases, these studies result in valueless extraction effort. Nonetheless, nowadays, technological advancement has improved the success of the studies substantially.

With regard to exploration, Norway has its own policy that aimed at the rapid and efficient identification of oil and gas (Norwegian Petroleum Directorate, et al., 2010, p. 28). The exploration activities may be performed by a licensed company or a physical person as stated in the Norwegian Petroleum Act section 2.-1. The need for participating private companies on the exploration activities arouse from the desire to attract companies, which are competent both financially and technologically (Hammer, et al., 2010, p. 884). In Norway, currently there are many integrated and independent companies licensed to participate in the oil and gas industry.

### **4.2.2.2 Acquisition**

Subsequent to the success of the exploration activities, companies acquire the area. According to Omorogbe (2010, p.118-122) there are two ways of ownership of oil and gas. The first one is “domanial” where government is the owner of the resource and the second one gives ownership right to the landowner. Norway, Saudi Arabia, Kuwait are examples of state ownership models. On the other hand, in many states of the USA the ownership belongs to the landowner.

In the state ownership model, private entities obtain the right to utilize the resource through license or lease. In Norway, as stated above, private companies obtain their right to explore through license. Moreover, companies have to get production license as well.

### **4.2.2.3 Drilling**

Subsequent to securing the right to continue their operations, companies carry out drilling activities. They can be performed by the companies themselves or by other companies after reaching an agreement. Identical with the exploration activities, geoscientists participate in these activities too. They follow the presence of oil and gas and analyze the success while the drilling activity is undergone. If a drilled well failed to generate sufficient oil and gas, drilling will take place in another area.

### **4.2.2.4 Developing**

Success in drillings efforts leads companies to perform a development activity. Development activities include all the tasks performed to facilitate the extracting, gathering and storage of oil and gas. These include constricting pavement from the wells to the point where the oil and gas is intended to be stored. The Norwegian

Petroleum Directorate is preparing a guideline for the prudent and safe development activity, as it is a basis for the production and value creation from the industry (Norwegian Petroleum Directorate, et al., 2010, p. 37).

#### **4.2.2.5 Production**

It is the final activity of the upstream activities. Production activities are all tasks accomplished to take out the oil and gas from the ground to the surface to be gathered treated and stored (Wright & Gallun, et al., 2008, p. 37). In Norway, the licensing system encompasses production licensing. The production license inclusive of exploration period can extend up to ten years (Norwegian Petroleum Directorate, et al., 2010, p. 32).

#### **4.2.3 Accounting for oil and gas in the two methods**

In the following section the accounting treatments for the upstream activities, under the two US GAAP methods are presented hereunder.

##### **4.2.3.1 Exploration**

Exploration costs may be incurred prior to acquisition or subsequent to it. Those costs that are incurred before acquisition are commonly known as prospecting costs. Therefore, acquisition costs include prospecting and others, which may be made in connection to acquisition.

SFAS 19 paragraph 17 enumerates exploration costs. They are costs of topographical, geological, and geophysical studies, rights of access to properties to conduct those studies, and salaries and other expenses of geologists, geophysical crews, and others conducting those studies. Collectively, those are sometimes referred to as geological and geophysical or “G&G” costs. Moreover, legal costs for title defense, and the maintenance of land and lease records are considered exploration costs.

Additionally, test well contributions are exploration costs. Wright & Gallun (et al., 2008, p. 82) provide explanation about test well contributions. According to them test well contributions is formed, when one company pays for G&G information obtained from another company. Besides, costs of drilling and equipping exploratory wells fall under the category of exploration costs. Exploratory well is” a well drilled to find and produce oil and gas in an unproved area.” (Wright & Gallun, et al., 2008, p.142).

In the successful efforts method all the aforementioned costs except the exploratory costs shall be expensed. This standard, under paragraph 19, states that exploratory drilling costs shall await the outcome of drilling. If the drilling results in success of finding oil and gas, the costs shall be capitalized unless it shall be expensed.

Contrary to successful-efforts method, full cost does not create distinction between the successful and unsuccessful drillings. The method allows companies to capitalize all exploration costs.

##### **4.2.3.2 Acquisition**

Paragraph 15 of the same standard describes acquisition costs. According to the standard, costs incurred by purchase, lease, or other method used to acquire a property (whether unproved or proved) shall be capitalized when incurred. They include the costs of lease bonuses and options to purchase or lease properties, the portion of costs applicable to reserves when land including reserve rights is purchased in fee, brokers' fees, recording fees, legal costs, and other costs incurred in acquiring properties. In both successful-efforts as well as full cost methods, acquisition costs are capitalized.

### **4.2.3.3 Drilling and development**

These costs include those incurred to gain access to and prepare well locations for drilling, including surveying well locations for the purpose of determining specific development drilling sites, clearing ground, draining, road building, and relocating public roads, gas lines, and power lines, to the extent necessary in developing the proved reserves.

The standard under paragraph 271 defines development drilling and proved reserves as follows. Proved reserve is "the estimated quantity of crude oil, natural gas, and natural gas liquids which geological and engineering data demonstrate with reasonable certainty to be recoverable in future years". Moreover, development drilling is a drilling made in a proved area

In addition to the above costs, others incurred to drill and equip development wells, development type stratigraphic test wells, and service wells, including the costs of platforms and of well equipment such as casing, tubing, pumping equipment, and the wellhead assembly are categorized under the drilling and development costs. Stratigraphic test well is defined under paragraph 274 as "a drilling effort, geologically directed, to obtain information pertaining to a specific geologic condition" .

Furthermore costs incurred to acquire, construct, and install production facilities such as lease flow lines, separators, heaters, manifolds, measuring devices, and production storage tanks, natural gas cycling and processing plants, and utility and waste disposal systems are drilling and development costs. Moreover, other costs incurred to provide improved recovery systems are included herein.

Successful efforts method capitalizes all the costs mentioned above, whether the well is successful or unsuccessful. Likewise, full cost method follows the same accounting treatment and capitalizes the costs.

### **4.2.3.4 Production**

SFAS 19 paragraph 24 describes production costs. According to the standard, production costs are those costs incurred to operate and maintain an enterprise's wells and related equipment and facilities. They include depreciation and applicable operating costs of support equipment and facilities and other costs of operating and maintaining those wells and related equipment and facilities.

The following are considered as instances of production costs. Costs of labor to operate the wells and related equipment and facilities, besides, repairs and maintenance expenses made for those equipment and facilities are production costs.

Moreover, materials, supplies, and fuel consumed and services utilized in operating the wells and related equipment and facilities fall under this category. Furthermore, property taxes and insurance applicable to proved properties and wells and related equipment and facilities are production costs. Production costs under successful-efforts as well as full cost methods are expensed.

#### **4.2.4 Other accounting issues**

Accounting for oil and gas is not limited only to treating the upstream activities. Accounting issues such as inventory management, which results from exploring a successful drilling activity, can be raised. Moreover, as the industry employs several fixed assets, it is paramount to mention depreciation, amortization and depletion of those long-lived assets. Furthermore, since the production of oil and gas is a lengthy activity, a value decline or appreciation could have happened on the wells through time. Therefore, impairment of reserves is required.

##### **4.2.4.1 Depreciation, depletion and amortization**

One of the primary topics under this issue is identifying the unit of account on which depreciation, depletion or amortization is to be calculated. The two accounting methods described above i.e. successful-efforts and full cost methods uses different cost centers as a base for calculation. Wright & Gallun (et al., 2008, p. 11) describe that successful-efforts method uses property, field or reservoir as a cost center. Contrary to this, full cost method considers geographic area mainly country as a cost center.

The US standard (SFAS 19 paragraph 35) states that capitalized costs of exploratory wells and exploratory-type stratigraphic test wells that have found proved reserves and capitalized development costs shall be amortized or depreciated by the unit-of-production method so that each unit produced is assigned a proportion share of the unamortized costs. The paragraph further allows the use of other calculation methods if deemed necessary. Likewise, paragraph 30 supports the use of unit of production method for amortizing or depreciating capitalized acquisition costs.

Paragraph 36 of the standard discusses about depreciation of support equipment and facilities used in oil and gas producing activities. It recommends those items to be accounted for as exploration cost, development cost, or production cost, as appropriate

##### **4.2.4.2 Impairment**

Identical to many of the matters discussed above, there is deference between the two accounting methods with respect to impairment. SFAS 19 paragraph 28 is used as a regulation for successful-efforts method. On the other hand, full cost method users rely on guidance issued by SEC (Wright & Gallun, et al., 2008, p. 108).

Nichols (2010, p. 237-255) explains impairment of assets in both methods. Under the successful-efforts, the companies must divide their long-lived assets into groups of cash generating capacity. Subsequently, the three steps impairment process undergoes. First, an event or circumstance that indicates the occurrence of impairment must exist. The oil and gas industry is commonly known by having a substantial reduction in the

proved reserves. The occurrence of circumstance like that implies the need for impairment (Nichols, et al., 2010, p. 241). The second task is making comparison between the undiscounted future net cash flow with the book value of the property. If the comparison shows that the undiscounted future net cash flow is less than the book value, determination of the impairment amount will be made.

In determining the impairment amount, comparison between the book value and fair value of the property is made as a third step. It is impossible to find quoted price to know the fair value of unproved property. Thus, the common practice (Gallun, 1997 as cited in Nichols, 2010) is discounting the undiscounted future net cash flow. Then the impairment amount will be the difference between this amount and the book value of the property.

Impairment under full cost method is different. As full cost companies capitalize many of their costs, the SEC regulation requires a test of over capitalization. The test is made by putting a ceiling to ensure that net capitalized costs do not exceed the value of the company. The ceiling test is performed quarterly and is made by comparing the net capitalized cost to a cost ceiling value. If the capitalized cost is more than the ceiling, then it is permanently written down (Wright & Gallun, et al., 2008, p. 106-107) (Nichols, et al., 2010, p. 255).

#### **4.2.4.3 Inventory valuation**

Under the US GAAP, there is no special accounting treatment of inventory valuation for oil and gas companies. Willis (2010, p. 318) explains that the three most common costing systems, namely FIFO, LIFO and average cost methods are used. Moreover, lower of cost or market is used. This valuation is made by comparing the historical cost, which is difficult to trace, with their net realizable value. If the net realizable value is below cost, then the inventory is recorded at net realizable value. The lower of cost or market presentation is not reversed after once it is recorded.

Wright & Gallun (et al., 2008, p. 285) states that, in principle companies are required to record their inventories at cost. However, the nature of oil and gas production makes tracing per unit cost very difficult. As an option, costs can be found as joint costs and these costs are subdivided between oil and gas produced as per the volume of the production of each product.

#### **4.2.4.4 Disclosure**

SFAS 19 requires the disclosure of proved oil and gas reserve quantities and location, capitalized costs and expenditures relating to oil and gas producing activities together with the support equipment. Furthermore, entities are required to disclose costs incurred in oil and gas property acquisition, exploration, and development activities, the results of operations for oil and gas producing activities. Moreover, standardized measure of discounted future net cash flows i.e. future net cash flows less the computed discount relating to proved oil and gas reserve quantities has to be disclosed. Disclosure of these facts is not made for interim statements. However, interim statements' disclosure should include major events that can have impact on the statements.

Furthermore, entities are demanded to disclose the method of accounting they use in preparing their financial statements. Major economic or other factors that may have significant impact on the financial statements of entities are needed to be disclosed.

### **4.3 Oil and gas accounting under IFRS**

In 2004, IASB formulated IFRS 6. The standard has experienced few minor amendments in its existence. This standard is issued for extractive industry's upstream activities and assets created thereof, which cannot be dealt with neither IAS 38 "intangible assets" nor IAS 16 "property plant and equipment".

The standard aims at bringing uniformity in the accounting practices of the industry. However, as stated on the objectives part of the standard, it does not target making vital improvements on the existing accounting practice. In addition, it is intended to enable entities to recognize impairment based on IFRS 6 and to measure the impairment as per IAS 36. Furthermore, it is formulated to help entities to be able to disclose amounts that result from upstream activities.

The standard under paragraph 5 describes the situations, in which it cannot be applied within the upstream activities. Accordingly, the standard does not address those activities, which are performed prior to having the right to explore. Moreover, the applicability of the standard ends when technical feasibility and commercial viability of extracting a resource are completed.

#### **4.3.1 Upstream activities**

IFRS 6 divides upstream activities into two major groupings i.e. exploration & evaluation and development activities.

##### **4.3.1.1 Exploration and evaluation**

The standard under paragraph 9 discusses about exploration and evaluation. The paragraph gives examples of expenditures that can be categorized as exploration and evaluation. Accordingly, acquisition of right to explore, topographical, geological, geochemical and geophysical studies, exploratory drilling, trenching, sampling costs are considered as exploration and evaluation costs. Moreover, activities performed in relation to evaluating the technical feasibility and commercial viability of extracting resource are exploration and evaluation activities. All these costs, depending up on their nature, are capitalized and classified as tangible or intangible. (IFRS, 2011).

##### **4.3.1.2 Development**

Oil and gas companies incur a huge amount of cost for developing the extractive activity. IFRS 6 paragraph 10 requires these expenditures not to be considered as part of exploration and evaluation activity. The standard considers these expenditures to be categorized as intangible assets and be treated as per the guideline provided on IAS 38.

#### **4.3.2 Other accounting issues**

In addition to providing guideline about upstream activities, IFRS 6 provides

directions with regard to other accounting matters such as depreciation, depletion and amortization, impairments and disclosure.

#### **4.3.2.1 Depreciation, depletion and amortization**

IFRS 6 does not give a particular method of depreciating, depleting and amortization of assets. The standard under paragraph 12 requires the use of IAS16 or IAS 38 for treating them as per their nature subsequent to recognizing the assets.

IAS 16 under paragraph 62 considers units of production as one of the alternative depreciation methods. It states that this method is used in a “charge based on the expected use or output” (IFRS, 2011). Likewise, IAS 38 paragraph 98 mentions units of production as one of the options of amortization.

#### **4.3.2.2 Impairment**

The standard under paragraph 18 states that, impairment test shall be conducted when circumstances indicate that the carrying amount of the exploration and evaluation assets exceeds their recoverable amount. Moreover, it provides instances of situations this may happen. Thus, when a company’s right to explore has become near to expire or expired, the project is out of the priority of the company’s management in terms of planning and budgeting, and the exploration do not provide commercially viable quantities of resources impairment has occur.

Following the occurrence of these circumstances, companies shall perform impairment as per IAS 36. Nichols (2010, p. 238) presents the impairment of assets of oil and gas companies under IFRS. First, assets are categorized into cash generating unit. Here it should be noted that IFRS 6 paragraph 21 states that a cash-generating unit must not be larger than operating segment. For oil and gas companies, cash-generating unit is usually a field. Secondly, comparison is made between the book value and fair value of the cash-generating unit. Fair value is reached by discounting the estimated future net cash flows. If this amount is less than the book value, then impairment is recognized by the amount of the difference. The impairment is charged to expense and a contra asset account such as accumulated capitalized cost account.

#### **4.3.2.3 Inventory valuation**

Inventory of oil and gas is handled by IAS 2 “inventories”. This standard from paragraph 11-13 describes costs of conversion and is applicable to oil and gas companies. Willis (2010, p. 318) expresses that FIFO and average cost methods are the two methods allowed to be considered as inventory flow assumptions. IFRS does not allow LIFO. Presentation of inventories is made at lower of cost or net realizable value.

#### **4.3.2.4 Disclosure**

As stated previously, one of the objectives of IFRS 6 is to help entities to disclose their activities related to upstream activities. The standard under paragraph 23 states, “An entity shall disclose information that identifies and explains the amounts recognized in its financial statements arising from the exploration for and evaluation of mineral

resources.”

This includes the accounting policy that a firm has for exploration and evaluation expenditures and the assets, liability, income and expense as well as operating and investing cash flows that emanates from the upstream activities.

### **4.3.3 The gap between US GAAP and IFRS**

Accounting for oil and gas under the two accounting regimes has been presented above. The US GAAP, which is known by encompassing standards that are rule based and IFRS that is recognized in being principle based treat the issue differently, as has been shown above. The gap between the two standards is discussed hereunder.

#### **4.3.3.1 Upstream activities categorization**

The US GAAP divides the activities into four and provides detailed information and ways of accounting treatment for each of them. It starts from the pre-exploration activities i.e., as stated on the standard paragraph 16, prospecting activities and covers up to production. On the other hand, IFRS 6 deals with only exploration & evaluation and development activities. Three of the activities mentioned under US GAAP namely acquisition, exploration as well as drilling, which is part of drilling and development activities in the US GAAP are combined and given one name exploration and evaluation activities under IFRS. Moreover, it does not mention about production activities.

IFRS 6 considers obtaining legal right to explore as a starting point for upstream activities. It neglects activities performed prior to obtaining a legal right and fails to provide any guideline regarding them. Contrarily, the US GAAP addresses them and they can be treated differently depending upon the accounting method followed.

According to IFRS, the final activity of upstream activities is a point when technical feasibility and commercial viability of extracting a resource are demonstrable. In contrast, the US GAAP goes beyond this and extends to covering production activities.

Making classification of the activities in itself has no impact on accounting. However, the underlying assumption made i.e. considering a sequential flow of the activities is a mistake. Wright & Gallun (2005, p.18-19) explains that upstream activities are performed in an overlapping manner. Subsequent to development, further drilling activity may be performed. In a similar way, when production is taking place geological and geophysical test can be conducted. Thus, commercial viability does not warrant the end of the upstream activities. Hence, following it, exploration & evaluation as well as development activities may be performed.

#### **4.3.3.2 Conceptual difference on development**

The definition of development in the two standards is completely different. US GAAP SFAS 19 paragraph 21 defines development cost as costs, which are incurred to obtain access to proved reserves and to provide facilities for extracting, treating, gathering, and storing the oil and gas. On the other hand, IFRS considers development as intangible assets. This IFRS’s definition implies that development is assumed as a

research and development cost. However, these costs are completely out of the scope of research and development.

### **4.3.3.3 Accounting treatment of upstream activities**

The US GAAP has two alternative accounting methods for handling the upstream activities and other accounting issues as well. The accounting for upstream activities varies depending on the methods used. On the other hand, IFRS 6 provides limited guideline on some of the issues. Thus, the accounting treatment differences and similarities between IFRS and the US GAAP's methods i.e. successful-efforts and full cost methods are as follows.

Acquisition right, to explore oil and gas in successful-efforts and full cost methods as well as IFRS, is capitalized and amortizes over the life of the property. Acquisition in a country where property ownership is at the hand of government such as Norway this may take a form of license and the licensing cost is capitalized.

In the US methods, geological and geophysical costs are treated differently. Under successful-efforts method, they are expensed, while both full cost method and IFRS capitalize them as part of the property cost

In the two US methods, the accounting treatment of exploratory drilling is different. Successful-efforts method divides them into two i.e. those that resulted in finding a resource and those that ends up in a dry hole. Subsequently, the dry hole is expensed but the successful well is capitalized. On the other hand, full cost method does not make any distinction between dry and successful drillings and capitalizes all the drilling costs. Under IFRS, drilling costs are capitalized.

In both the successful-efforts as well as full cost methods, expenditures made for development of both successful or dry hole is capitalized. Despite there is a conceptual difference between US GAAP and IFRS in defining development, IFRS 6 requires them to be capitalized.

### **4.3.3.4 Depreciation, depletion and amortization**

In connection to these issues, one of the fundamental topics is determining unit of account. Nichols (et al., 2010, p. 257) defines unit of account as the level of detail and aggregation for the accounting of assets. In this respect, the two US methods use different unit of account, for depreciation, depletion and amortization.

Under the successful efforts method, a unit of account can be property, field or reservoir. Nevertheless, full cost method considers geographic area such as country as a unit of account. IFRS 6, in this respect provides no guideline.

### **4.3.3.5 Impairment**

Impairment test under the successful-efforts and full cost is different, as stated above. IFRS in this regard has similarity with successful-efforts method. The difference between US GAAP and IFRS is that IFRS allows reversal of impairment, if circumstances indicate that, the fair value of the property increases. However, the

reversal shall not make the value above the book value of the property. Moreover, under IFRS impairment is performed annually.

#### **4.3.3.6 Inventory valuation**

The US GAAP allows FIFO, LIFO and weighted average methods and costing follows that assumption. However, under IFRS, LIFO is not allowed (Willis, et al., 2010, p.318). Under IFRS, in some situations, the lower of cost or market must be reversed. Contrary to this, the US GAAP does not allow reversal of lower of cost or market adjustments.

#### **4.3.3.7 Disclosure**

The US GAAP has detailed information regarding disclosure. Moreover, the standard has defined technical terms such as proved and unproved reserves, so that entities can disclose which part of their property is proved and which are not. Disclosing these facts help users of financial statements to have a clearer understanding of the entity.

On the other hand, the disclosure requirement posed by IFRS is not very high. As stated above, proving basic information about the exploration and evaluation activities is sufficient. The standard has not defined many of the technical terms to be disclosed and provide detailed information about entities.

### **4.4 Oil and gas accounting under NGAAP**

As stated in the background part of this thesis, Norway does not have specific standard for accounting for oil and gas. One of the members of the IASB extractive industry project, explained to the author via email and telephone that, Norway has no accounting standard, which specifically deals about oil and gas. Companies use US GAAP for this purpose. Similarly, another staff of the NASB affirms to the author this fact by email.

Due to this, companies use the US GAAP for their upstream activities. However, many of the companies involve in both upstream and downstream activities. NGAAP addresses the downstream activities. Those activities are refining, processing, marketing and distribution.

### **4.5 Theoretical discussion about impacts of the gap**

The gap between IFRS 6 and US GAAP can have impact on entities if they are required to change from one to the other. For instance, when IFRS 6 was formulated entities that are under the IASB regime were required to follow it Norwegian oil and gas companies can be examples for this as they were following the US GAAP and subsequently demanded to obey IFRS. Changing the accounting standard has impact on them. Accordingly, here the author discusses theoretical impacts that changing the standard from US GAAP to IFRS can bring on firms. Moreover, theoretical shortfalls that IFRS 6 has on newly established entities are covered as well.

The presentation made on the gap between the two standards shows that the US GAAP's successful-efforts method is consistent with the IASB's framework i.e. there

must be a match between revenue earned and expense incurred thereto. Capitalizing all the expenditures incurred will overcapitalize an entity and defer recording of expenses so that companies register excess income in their first years. The framework (IASB framework paragraph 4.52) states, “An expense is recognized immediately in the income statement when an expenditure produces no future economic benefits” Thus, expensing unsuccessful drilling effort, which the practice in successful-efforts method, corresponds this framework.

Cortese, Irvine & Kaidonis (et al., 2008, p. 3), state that the prime users of full cost accounting method are smaller oil and gas companies. When FASB was trying to abolish this method, smaller firms made strong lobbying effort by claiming the method helped them in raising more fund. The success of their effort helped the method to be one alternative despite it is inconsistent with the US GAAP’s matching principle (SFAS paragraph 178-183).

Due to this fund raising benefit and other reasons explained below, imposing regulation on entities to change and retrospectively adjust their method and balances from full cost to IFRS can have a huge impact. Therefore, IASB exempts oil and gas companies from making retrospective adjustments, by making amendment on IFRS 1 (IFRS 1 Appendix D D&A).

With regard to upstream activities, as mentioned above the US GAAP covers all the activities while IFRS considers obtaining legal right to explore as a starting and the outcome of technical feasibility study as a final point. Thus, activities performed before and after them are unaddressed issues.

Absence of guideline also exists on depreciation, depletion and amortization issues. IFRS 6 does not give a unit of account to be considered for calculation. In this respect, as mentioned earlier, entities that follow full cost take country as a unit of account. However, it is apparent that reserves in one country may have different economic life and depreciation in reality differs so that full cost method follow unit of account that deviates from actual decline on value of property. Successful-efforts method sometimes depreciates a single property. Nonetheless, under IFRS properties have to be composited. Nichols (et al., 2010, p. 243) explains that depreciation; depletion and amortization change from US GAAP to IFRS is difficult hence; there is no separate calculation for each property under IFRS and creating composite assets and applying it retrospectively is tricky. Newly adopting entities, however, experience only problem of finding unit of account.

Impairment test is another point of departure between the two standards. It is one of the reasons for the exemption of retrospective amendment of accounting balance prepared under the full cost method (Nichols 2010, p 239). Entities that use successful-efforts method experiences difficulty when they change their accounting practice from US GAAP to IFRS, as they have to amend their balances by going back to several years. The other main differences are reversibility of impairment when impairment is made. Under IFRS impairment is reversed when circumstance indicate betterment. This has to be applied retrospectively when a change is made under successful method. With regard to regularity, IFRS requires impairment test to be made annually but US GAAP requires the test to be made only impairing circumstances happen. This per se has no effect on new adopters but a changing entity has to apply retrospectively, if it

follows successful-efforts method.

The case of inventory has similarity with impairment in that lower of cost or market adjustment is reversed in some situations. Moreover, entities that follow LIFO have to change it into FIFO or average and amend the balance as if they had been following the new cost flow assumption in the previous years. New adopters will not be affected by the difference between the allowed cost flow assumptions. The disclosure difference is a matter of creating clarity about the financial statements of the entities. Thus, the impact is not significant on the accounting of them.

The impact of the gap on Norwegian oil and gas companies is presented based on the data collected from the companies. The presentation addresses the effect that that the gap has on those companies currently.

## **5 PRACTICAL METHODOLOGY**

### **5.1 Research method**

The author employs qualitative method for this research. It is apparent that method choice is dependent on the research question raised. Bryman (et al., 2008, p. 395) explains, "Research method should be appropriate to the research question." This thesis is about the impact of the accounting standard gap, which resulted from a mandatory change of accounting standard. Accordingly, the research question entails the use of qualitative method. Ragin (1994, p. 83) states that one of the goals of qualitative study is interpreting the effect of phenomenon. Accordingly, the thesis interprets the effect on the Norwegian oil and gas companies.

It is apparent that, research design lies in between the research question and data by having the general plan of the research i.e. the subject to be studied, the data to be collected and the method of data collection. Punch (et al., 1998, p.150). As was explained previously, case study is employed to make this research by making sample selection.

#### **5.1.1 Dual data collection method**

In this thesis, questionnaire and interview are used as data collecting mechanisms. The need to employ these two methods simultaneously derives from the desire to optimize the benefits that each data collection method has. At the same time, it is to avoid the imperfection, which using one of the methods alone can bring about on the research. To this effect, using the questionnaire helps the author to make contact to many companies and helps to obtain understanding of the companies

Making the interviews enabled the author to get in-depth insight about the issue. Moreover, it helped him to get clearer understanding of the topic, which the response to the questionnaire alone cannot avail to him.

When considering from this thesis's purpose point of view, the author believes that as the depth of data collection enhanced, it is possible to recognize the effect of the gap. Creswell (et al., 2003, p. 112) states that "the larger the number of people, the smaller the detail that can be obtained ". Thus, the two data collection methods are used on those limited number of companies.

### **5.2 Sample selection**

Punch (et al., 1998, p.193) describes that there are varieties of sampling methods that could be applicable in qualitative method and the choice of sampling method varies depending on the approach, purpose and setting of the research. Bryman (et al., 2008, p.183) classifies and discusses non-random samplings. It is possible to understand from the discussion that there are many types of non-random samplings and amongst them include convenience sampling. Bryman (et al., 2008, p.183) defines it as "A convenience sample is one that is simply available to the researcher by virtue of accessibility."

Accordingly, for many reasons the author of this thesis chooses to use convenient sampling. Fundamentally, majority of the oil and gas company's headquarters, most often it is where their accounting departments located in, are distant from Umeå and even from the Norwegian capital -Oslo. Therefore, attempting to find primary data in the form of interview is costly. Thus, the sample selection is not limited to but influenced by accessibility. However, the author understands that this can have impact on the generalizability or external validity of the study. Thus, to resolve this companies that do not have offices in the capital are also covered by sending questionnaire and making telephone interview. Moreover, their secondary data is used. The author has also endeavored to include a diversified company types i.e. small as well as large besides multinational and local companies. The author believes that the companies included in the study representatives of Norwegian oil and gas companies.

Basically, this thesis has the purpose of showing the gap between US GAAP and IFRS and its effect on companies. Accordingly, two companies that uses only US GAAP, two companies that follow only IFRS and two companies, which employs both IFRS and US GAAP are studied. The last two companies practice can reveal the dual applicability of the two standards and its effect. Moreover, it is possible to evaluate accounting choice in all the companies with respect to the standard they follow.

### **5.3 Questionnaire construction**

In this research, questionnaire is used as a main source of primary data collecting mechanism. In constricting the questionnaire, the author has read books that recommend better ways of preparing questionnaire and improve response rate. In this regard, Bryman (et al., 2008, p. 217-229) needs mentioning.

In the construction of questionnaire due consideration is given to the research question. Accordingly, the first three questions are intended to get general information about the companies. The questions are about the companies' name, year of establishment and the major operations they are involved in. The third question asks about the accounting standard they were following prior to adopting IFRS, if they do. Raising this issue can help to know the empirically applicable standards. The next question aimed at knowing the possible alternative methods with the standard they follow.

From questions six, up to ten bases positive accounting theory (PAT). The theory as discussed above defines information cost as resources sacrificed to get informed. Adoption of IFRS may have adverse or constrictive impact on the information cost. Thus, the questionnaire inquires in question seven and eight about the work burden comes from adopting IFRS and the manner in which the load is imposed on the companies. Prior to the two questions, the questionnaire enquires when the companies have adopted IFRS. Positive accounting theory in this regard states that managers opportunistically rush to change their accounting method if they believe that the new method can bring about the opportunity of showing better earning. The method change questions, which are the ninth and tenth, are the continuation of the same theory. Likewise, the final question, which is about executive compensation, is also related to this theory by the same rationale.

The response for the workload question associates not only with information cost but

also with the gap that IFRS 6 has. Due to the shortfall that the standard has, entities must look for ways to fill the gap, which in turn can expose them for extra accounting work. In this respect from question eleven to thirteen are intended to know the way that the companies have followed to cover the shortfalls of the standard. These questions can help to know what the companies use to overcome the shortcomings of the IFRS.

## **5.4 Interview**

Many scholars categorizes interview differently (Punch, et al., 1998, p. 175). For instance, (Patton, 1980, cited on Punch, et al., 1998, p.193) classifies interview into three. They are informal, conventional, general interview guide approach and the standardized open-ended interviews. In this thesis, the author uses general interview guide approach due to the advantages that the approach has.

General interview guide approach provides freedom to the researcher in making the interview besides it enables the author to acquire more know-how about the issue as well as the interviewee as the interview goes on (Turner, 2010, p. 756).

Owing to this benefits, the author wishes to undergo his interview with more of knowing the subject matter in depth. As a result, interviews of chief financial officers as well as other accounting department staffs of the companies is made and used in this thesis. The interview guide, which the author uses, is annexed at the end of the thesis.

## **5.5 Data analysis**

As this research is qualitative, there are many options for data analysis. Amongst the many include narrative analysis. Bryman (et al., 2008, p. 560) explains, “Narrative analysis can be applied to data that have been created through a variety of research methods (notably semi-structured and unstructured interviewing)” It is further described that narrative analysis is often referred to as content analysis. The content may come in a variety of ways such as written comments on questionnaire. Accordingly, the author has gathered data in the form of interview and questionnaire.

In making interview, the author has employed convenience sampling due to attainability reasons mentioned above. From the few number of companies that have offices in Oslo, the author can manage to make interviewing many of them. Furthermore, these companies have responded to the questionnaire. In addition to them, other companies have also responded for the questionnaire. Moreover, the author conducted a telephone interview with one company, which has no office in Oslo.

The data analysis follows the suggestion available on Bryman (et al., P. 550-560) in which the following is recommended. First, the author shall know the data. This implies that the author should understand the quality of the data gathered. In this respect, the interviewed personnel of the companies include chief financial officer and other financial officers thus they have knowledge about the subject. Subsequently, coding i.e. categorizing the information is performed. The author performed narrative analysis on it.

In performing data analysis, the author has made adjustments on the wordings of the respondents. For instance, some of the respondents use NGAAP in the place of US GAAP. This, as one member of the IASB's extractive industry project team member's explanation, comes due to the long historical influence that the US GAAP has on NGAAP in this area of accounting. Many of the practitioners consider the US GAAP as NGAAP. Moreover, the companies operate both upstream and downstream activities. NGAAP has standard for downstream once, as those activities are identical to other industries' activities.

## **5.6 Ethical considerations**

In conducting this research the author has endeavored to give due consideration to ethical issues. Prior to sending the questionnaire and making the interviews, the author contacted the officials of the companies via telephone and in person, if possible, to make clarification about the purpose of the research. All the respondents express their agreement on the issue. Subsequently, the interview guide and the questionnaire were sent to them.

On the interview dates, the author has informed to the respondent that their response will be recorded and be used for the consumption of the thesis. However, the author learned on the thesis seminar that their consent should have extended up to the willingness to allow that the information they provided will be public property and posted on the internet. Nonetheless, this permission was not enquired upon the interview dates. Due to this reason, all the names of the respondents and the names of the companies are kept anonymously. Therefore, factious names are given and used in the place of the real names of the respondents and the companies.

## **6 EMPIRICAL DATA**

### **6.1 Company A**

Company A was formed in the beginning of the millennium, as a result of the takeover of one of its predecessor by another company. The company started working by inheriting management and corporate technical team from those companies in several countries. Company A has been operating in Norway for more than half a decade. (Company A, 2010).

#### **6.1.1 The Interview**

The author interviewed, the chief financial officer of Company A. Subsequent to introducing himself and the purpose of the study, the author asked the CFO, among other questions, to explain briefly the accounting method and standard, which the company follows for its upstream activities. The CFO replied that the company prepares two sets of accounting statements. The first one is for Company A Norway and the other one is to the parent company. In both cases, the company uses successful-efforts method. Furthermore, IFRS and the US GAAP are used as a basis for preparation of financial statements.

By considering the two fundamental differences between successful-effort and full cost method, i.e. treatment of geological & geophysical as well as exploration costs, the author raised questions regarding them. The CFO responded that, as the company follows successful efforts method, all the costs including the seismic study costs, even if the company buys from others, they expense them. Regarding the exploration costs, he emphasized that "the company uses decision gates whereby the decision as to expensing or capitalizing the costs are made" Further he said "after drilling a well when we decide that it is commercially viable we capitalize if not we expense it"

Pertaining to executive compensation and the workload that adopting IFRS brought on the company, the CFO replied that, the executive compensation is not solely dependent on the accounting figures. It is also reliant on the exploration and development successes. Moreover, for other units that are not technically related to these activities, their performance is measured based on the objectives assigned to them. He stressed, "Holding track of both US GAAP and IFRS has increased the workload on the accounting department".

The author forwarded questions related to upstream activities that are not mentioned in the IFRS 6, such as pre-exploration and development. The CFO explains that the company expends money for developing the exploration of oil and gas. These costs are capitalized as part of the property. The costs are unrelated to research and development costs. Regarding pre-exploration costs, he replied, "we purchase seismic test and we expense the cost". Other prospecting costs are also expensed. However, legal costs incurred in connection with licensing are capitalized as part of acquisition cost.

#### **6.1.2 Questionnaire and annual report**

The response to the questionnaire depicts that the company hasn't made an accounting method change. Moreover, they use unit of production and FIFO for as depreciation

method and inventory flow assumption respectively. Regarding impairment, the company performs test at least every year. Furthermore, the company performs drilling, if required, while production is taking place. Besides, the company can perform exploration for oil and gas.

One of the issues, which IFRS fails to address is providing unit of accounting or reserve base for the calculation of depreciation, depletion and amortization. In this regard, the response of the company for the questionnaire reveals that Company A uses a “field” as a base. Here it has to be noted that a field represents a group of wells drilled in similar area.

The financial statements of the company reveal that the company uses phantom share option plan for senior executives. Moreover, the share option compensation extends to other management levels as well. In addition to these, the annual report is consistent with the data obtained from interview and questionnaire.

## **6.2 Company B**

Company B was founded few years ago as an oil and gas company. The company involves in the exploration of oil and gas in the Norwegian Continental Shelf. Currently the company has nearly 30 licenses in that part of the country. (Company B, 2011)

### **6.2.1 The Interview**

In this company, the interview was made with the business and financial analyst of Company B. The initial question forwarded to the analyst of the company was how is the accounting treatment for oil and gas in your company? The analyst (respondent B onwards) replied that the company follows the US GAAP since they are not obliged to adopt IFRS, as they are not registered in the stock exchange. Respondent B explained that, their method of accounting is successful-effort. The company performs regular geological and geophysical tests and these costs are expensed including those costs that are incurred to purchase tests such as seismic tests made by other companies. These issues are out of the coverage of IFRS 6.

Furthermore, regarding other unaddressed issues, the company capitalizes costs that are incurred to purchase licenses from other companies. The analyst elaborated that majority of the company’s licenses are held jointly with other companies. Costs, such as registration of license are capitalized. The company capitalizes development costs such as platform and pipeline construction costs. Regarding the depreciation method, he explained that they follow unit of production method for accounting and straight-line method for the tax purpose. The unit of account for depreciation calculation is oil field.

Although the main operation of, Company B is exploration, it performs drilling activity as well. Respondent B stresses that drilling is not a one-time task. “You start drilling and after that you perform your homework i.e. making feasibility study on it. Following that you decide to continue further”

Regarding the inventory method they employ, the analyst explained that “we know

what volume of oil we have so that we use fair value method to measure its financial value” On the executive compensation issue, he replied that the company uses financial as well as non-financial performance measurements.

## **6.2.2 Questionnaire and annual report**

The annual report of the company regarding upstream activities depicts that the company is following all the attributes of the US GAAP stated under “the technical issues in the oil and gas accounting” part of this thesis. Drilling costs are temporarily capitalized, and waits the outcome of the feasibility study. If the feasibility study shows that the drilling is unsuccessful, they will charge it to expense unless it will remain as part of asset.

## **6.3 Company C**

This company was incorporated more than a century ago. The company has vast experience and operates in all over the world. It has been working in Norway since the end of the 1970s. (Company C, 2011)

### **6.3.1 The Interview**

In the Company C, the author interviewed respondent C who is the financial accountant of the company. The author understands from the accountant’s explanation that, Company C identical to Company B and Company A follows successful efforts method. However, they have not started using IFRS. The reason, respondent C explains, “the US GAAP is more elaborate accounting principle. As long as we are not forced to use it, we will not employ it”

When the respondent replies about the accounting treatment of oil and gas “our drilling may result in the extraction of economically recoverable oil and gas or we may not succeed. If we are lucky, we find oil and gas then we consider this as asset. If we can’t we will expense it “. Regarding seismic test purchase, respondent C replied that “we buy a test in an open market and we include it as cost of the oil and gas found”.

For the questions related to depreciation and inventory, the financial accountant replied “we use FIFO and we apply unit of production”. Further on impairment issue “impairment test is made every December and the management decides sometimes to make impairment test”.

### **6.3.2 Questionnaire and annual report**

As a US based company, the consolidated financial statements of the company is prepared as per the US GAAP. Company C also prepares its financial statements based on the same standard. As being, a subsidiary of a company together with not being registered in the stock market, it has no mandatory requirement to adopt IFRS.

The accounting method employed in the company is successful-effort in which a field serves as a unit of account for depreciation. Moreover, regarding inventory FIFO is used as a cost flow assumption. The consolidated financial statement of the company has one different feature. This peculiarity is related to disclosure of reserves and

resources. The author able to understand from assessing the statement that, the company categorizes the reserves and users can obtain clear information about the quality of the company's asset. The company as of December 31, 2009 has a total asset of 781,7 million Norwegian Kroner.

## **6.4 Company D**

This company is formed by the combination of two independent companies. The two founding companies were formed independently in the same year. They combined recently to form Company D. The company has been registered in the Oslo stock exchange subsequent to the combination. (Company D, 2011). The author was able to interview the CFO of the company.

### **6.4.1 The interview**

In Company D, the interview that the author made with the CFO of the company focuses only on the accounting method change they made. One of the founding companies of the parent company used to follow full cost method. Nonetheless, after being combined with the other one, the company has changed its accounting into successful-efforts method.

The interview that the author made with the CFO of the company (respondent D herein after) revealed him that the parent company has been following IFRS since the law requires them to do so. However, the newly acquired company was not practicing it. Therefore, subsequent to the acquisition, to make the accounting practice uniform within all the parts of the company, they changed the new entrant's accounting into IFRS. Moreover, change was needed to follow a method that is consistent with IFRS. Therefore, they changed their method from full cost to successful-effort. He further said, "The impact that the change brought on us can be seen from our financial statement."

### **6.4.2 Annual report**

Company D did not respond to the questionnaire that the author sent to them, thus, he uses their annual report to complement the interview. The 2010 annual report reveals that the company has made a method change. In the report, it is stated, "in accordance with IFRS, the comparative columns have been reworked from 1 January 2009 on basis of the successful-efforts method"

When looking at the stated rework, it is possible to understand that the company reduced its balance of total asset by 159.2 million Norwegian Kroner, which is equivalent to 8.2% of its total asset. The total asset of the company is 1.94 billion Norwegian Kroner. This is mainly attributable to expensing pre-exploration cost, which was capitalized under full cost method, as stated in the "notes to the financial statements" part of their 2010 annual report.

## **6.5 Company E**

This company has more than a century corporate history. Company E is based in another European country and started operating in Norway since the beginning of the

1970s (Company E, 2011). The company responded to the questionnaire, which the author sent to them. However, it was impossible to make interviewing any of the staffs.

### **6.5.1 Questionnaire and annual report**

It is possible to understand from these data sources that, the company uses IFRS at a corporate level and US GAAP in Norway. Moreover, the company uses successful-efforts method and has not changed it for long period. The depreciation method employed, identical to ssmany of the other companies, is units of production. Besides, average method is used as inventory flow assumption.

## **6.6 Company F**

This company's history goes back to the end of 1920s. However, it was formed in its current form in 1987 following the petroleum sector restructuring of the other European country where this company bases. The company involves in both upstream and downstream activities. (Company F, 2011). Identical to Company E, it was not possible to make an interview with the accounting personnel. Nonetheless, the author received a response for the questionnaire.

### **6.6.1 Questionnaire and annual report**

The company started operating in Norway since 2009, after acquiring license from another company. Currently, Company F is at exploration stage. At corporate level, the company uses successful-effort method. The response to the questionnaire also revealed that they would employ the same method in Norway as well. Since they have not finalized exploration, they could not respond about the accounting method on inventory and depreciation. However, they responded that compensation plan of the company is not fully dependent on the accounting profit of the company.

## **6.7 Summary of the empirical data**

As presented above, the companies surveyed range from local such as Company B to multinationals like Company C and Company F. Moreover, some of them have been in the business for more than a century, Company C is a perfect example. On the other hand, Company B and Company D are relatively new. Although there are variations in those issues, the companies have similarities, which are relevant to the research question.

The companies that follow the US GAAP apply it consistent with the SFAS 19 with some minor variations. For instance, Company B follows valuation method for inventory; nonetheless, the two accounting methods, which are full cost and successful-effort, are characterized by being historical cost methods.

Those that use IFRS implement the standard as per the requirement. They test impairment annually, disclose their exploration and development assets and capitalize those costs that are mentioned in the standard. These companies use US GAAP in the issues that are unaddressed such as pre-exploration costs and production costs under IFRS 6. Company D, Company A, Company F and Company E are examples.

In this respect, pre exploration costs such as license acquisition fee, license registration fee; seismic test costs are treated as per SFAS 19. The companies expense seismic test costs and capitalize license acquisition and license registration fees.

With regard to unit of account, a field is serving as a base. As explained above, a field represents collection of wells drilled in the same area. As this issue is an ignored part in the IFRS, the companies lent the idea from US GAAP. The companies calculate depreciation and depletion by considering a field as one asset.

Development and production costs, which IFRS has not tackled, have also obtained resolution. The companies capitalize all costs that should be categorized as development costs. In this regard, the accounting treatment for platform and pipeline constructions can be examples. The US GAAP, in both its methods, requires development costs to be capitalized. On the other hand, under the US GAAP, production costs such as operating costs incurred to make exploration equipment functional and costs sacrificed to maintain the wells are required to be expensed. The companies treat them accordingly.

The author witnesses that, the disclosure made by the US based company, Company C, which consolidates its financial statement as per the US GAAP addresses reserve and resource issues clearly, so that it is possible to understand the quality of the exploration development asset of the company.

The summarized presentation of the companies' major accounting practices from the perspective of the research question is presented hereunder in a tabulated format.

**Table 1 : Summary of major empirical findings**

	Company A	Company B	Company C	Company D	Company E	Company F*
<b>Standard Followed</b>	IFRS & US GAAP	US GAAP	US GAAP	IFRS	IFRS & US GAAP	IFRS
<b>Accounting method</b>	Successful efforts	Successful efforts	Successful efforts	Successful efforts	Successful efforts	Successful efforts
<b>Depreciation base</b>	Field	Field	Field	Field	Field	-
<b>Depreciation method</b>	Units of production	Units of production	Units of production	Units of production	Units of production	-
<b>Inventory valuation</b>	FIFO - Historical	Average - Fair value	FIFO - Historical	FIFO - Historical	Average - Historical	-
<b>Impairment tested</b>	Annually	Annually & when needed	Annually & when needed	Annually	Annually	-
<b>Extra information cost incurred</b>	Yes	No	No	No	Yes	No

- \* Company F is a new company in Norway

## 7 IMPLICATION AND CONCLUSION

The effect of the gap between IFRS and US GAAP on accounting for oil and gas can have three dimensions; accounting practice, accounting choice and economic impacts. Subsequent to reviewing theories and conducting case study, the author sorted out the following effects implied by the survey and theories. In effect, he makes the conclusions stated hereunder.

### 7.1 Effect on accounting practice

This one is related to the completeness and workability of the standard designed by IASB. For scrutinizing this, the author surveyed Norwegian oil and gas companies that are mandatorily expected to follow the standard. To this effect, the standard per se is not complete enough to serve the companies. This may be due to the aim of the standard as stated on the “objectives” part of it. In which it is mentioned that, the objective of IFRS 6 is, to make certain improvements in the area. However, it has conceptual flaws that may have discomfiting impact on practitioners.

The author learned, from the survey he made, that neither obtaining license nor finalizing the feasibility of a drilled well are cut off points of upstream activities. Companies in Norway incur substantial costs, which are commonly referred to as prospecting costs, and these costs are part and parcel of upstream activities’ cost. In the same manner, the author understands that after completing feasibility study, Norwegian companies make investments that can be categorized into the category of upstream. Thus, the outcome of feasibility study of drilling is not a declaration for the end of the activities.

In addition, absence of unit of account that can serve as a base for depreciation calculation, coupled with the misconception, which the standard has on development hinder its workability.

Accordingly, the author realized that these companies aren’t able to use the standard for those activities. Therefore, they fill the technical gaps that IFRS 6 has, by using the US GAAP. Consequently, the vacuity that is demonstrated in the standard is systematically filled out. However, this implies that IASB is a “satellite” of FASB in this area of accounting. The reconciled applicability of the two standards can indicate that the two standard setting bodies’ convergence effort, which is discussed in 3.11 of this thesis, is conceivable.

On the other hand, the author has observed constructive effect on the accounting practice of the companies. All the companies, consistent with the IFRS standard disclose their exploration and development asset, the accounting method they use and other related aspects. Moreover, they test impairment annually. The detailed impairment requirement needed under IFRS is presented under the major title “Technical issues in oil and gas accounting “ of this thesis.

In general, the effect of the gap between the two standards is manageable from practical point of view.

## 7.2 Effect on accounting Choice

With respect to accounting choice, all the surveyed entities use successful efforts method. By taking this into consideration, the author has tried to check the existence of contagion effect, as defined in the study of Reppenhagen (et al 2009, p. 2), in which accounting choice contagion can happen due to having proxies for board-to-board, communication, geographical proximity, common external auditors, industry similarity of prior adopters, success of prior adopters, and competitive rivalry.

As can be seen, one of the reasons for contagion is having common external auditor. In this regard, Company D is audited by Earnest and Young, Company B is the client of Deloitte and Company A hires Pricewaterhousecoopr. Thus, having common auditor cannot be a reason. However, it is difficult to witness the effect of the other factors based on this thesis.

On the other hand, previous studies such as Malmquist (et al., 1990), Spear and Leis (et al., 1997) consider size as a major factor for accounting choice. However, none of the studies provide limit for demarcating size. The studie made comparison between the companies which they have in their sample. In this thesis,, some of the surveyed companies are multinationals; Company C and Company F can be examples. The other Company B is local to the Norwegian territory. Contrary to this, Company E and Company D operate in fewer countries. When considering their total asset balance, however, they are somehow equivalent. For instance, Company D has 1.94 billion Norwegian Kroner and Company C has 781,7 million Norwegian Kroner as of the same date, December 31 2009.

Therefore, it is difficult to make conclusion about their accounting choice by taking size as a determining factor. However, from the action taken by Company D, it is possible to infer that the legal requirement imposed on listed companies coupled with the matching of successful efforts method with the IASB framework, urge companies to choose the method.

## 7.3 Economic effect

One of the unappealing features of IFRS is its retrospective adjustment of accounting figures. Even though IASB issue amendments on the first time IFRS adoption, the effect on the financial position of the entities still prevails. As presented in this thesis the US GAAP followers, particularly those that use full cost method are affected when they adopted IFRS, due to the gap between the two standards. One of the surveyed companies, Company D experienced this recently. In this respect, it is not full cost followers who will be affected by adoption, however; the extent of the impact is higher on them. All the companies that changed their standard have sacrificed cost to adopt IFRS.

Moreover, the gap between the standards forces the companies to incur more information and monitoring costs. As defined in the positive accounting theory information cost is incurred for the sake of to be informed and monitoring cost arises due to agency cost.

The companies covered in this study affirm that adoption of IFRS has brought about

extra workload. This indicates that the bookkeeping cost of the companies increases as they prepare financial statements both in the US GAAP, for the subsidiary, and IFRS at a corporate level. The aggregate of this cost has contribution to intensify the overall monitoring costs of the companies.

Therefore, due to the gap between the two standards, the companies incur costs both during the adoption period and aftermath that. Thus, the author concludes that the gap has economic effect and companies are paying for that. Prior researches such as Watts and Zimmerman (et al., 1978) found out that companies compare information cost, which they incur against the lobbying political cost they made. They emphasis that companies like to expend cost up to the point where marginal cost of information cost reaches the marginal cost of political cost. This thesis is, however, limited to showing the existence of those costs and the author requests interested bodies to make further research on the issue.

## **8 RECOMMENDATION AND CONTRIBUTION**

### **8.1 Recommendation**

In 1998, IASC has started a project to formulate standard for extractive industry. The same project is inherited by IASB and has been an issue since the boards' formation. This project has taken thirteen years without getting finalization. In those years, the only outcome that the board has brought is IFRS 6. This standard has been a subject of criticism from various parties for reasons many of which are mentioned in this thesis. As a remedy, IASB is endeavoring to come up with a comprehensive standard that is expected to alleviate the observed shortcomings of IFRS 6.

In addition to addressing those issues, the intended standard comes up with a new "breakthrough" idea. The new idea is called Publish What You Pay (PWYP). According to this proposal, companies involved in the extractive industry are expected to disclose any payment they made to governments. From this, citizens of developing countries, where transparency is limited will become beneficial as stated on the discussion paper. Much of the world's extractive resources are being mobilized from these countries. However, the citizens of the countries are not the prime users from that. The author strongly supports this idea and sincerely recommends IASB to incorporate it as part of its new standard.

The part of this thesis that explains the conceptual frameworks of the two standards and the one that describes standard setting processes show the underlying foundations of the standards and the lobbying influence that the standard setting bodies face respectively. In this respect, FASB become a victim of lobbying so that full cost is serving as an alternative accounting method even if it mismatch its conceptual framework. Similar, tendency is witnessed in IASB which failed to decide to decline the use of full cost method. Thus, IASB has to look for a way to act according so as to be faithful to its own framework without heavily affecting users.

The last recommendation that the author can make is related to economic effect that standards can bring on users. While preparing this thesis, the author has learnt that European Financial reporting Advisory Group has prepared a discussion paper entitled "Considering the effects of accounting standards" In the paper the group suggest standard setting bodies to make effect analysis of each standard prior to issuing them. The author buys out this suggestion and recommends IASB to consider the idea.

### **8.2 Theoretical contributions**

This thesis addressed two paradigms of accounting theory and one study. As discussed in "theoretical review" part of the thesis, accounting theories are categorized as normative and descriptive. Normative theory theories attempt to evaluate practice. On the other hand, descriptive theories give basis for the prediction and provide explanation about accounting information users or preparers behavior.

Accordingly, positive accounting theory, which is a descriptive theory, decision usefulness theory that encompasses both normative and descriptive qualities (Wolk, Dodd & Tearney, 2004, p. 39) and a study made on accounting diffusion, that is also descriptive, are employed.

In this thesis, standards that base decision usefulness theory are used to evaluate whether the practices of the companies are consistent with those standards. Moreover, in connection to this, by revealing effects from various perspectives standard setters are recommended to be faithful to their frameworks. As stated above their frameworks underlie decision usefulness theory. By using this thesis, the author conveys his message so that the theory can obtain marginal impetus.

Furthermore, subsequent to assessing the accounting method choice of the Norwegian oil and gas companies, the research concludes that having common auditor cannot be reason for accounting practice contagion. This can help those who made the study on accounting practice contagion to reconsider the generalizability of their study from this perspective.

In addition to these, the thesis provides instances of situation whereby companies become vulnerable to information and monitoring cost. In positive accounting theory introductory work Watts and Zimmerman mentioned those costs and provide theoretical foundation. In this thesis circumstances in which the costs can be made is exemplified. Moreover, the thesis tips off IASB to conduct impact analysis prior to setting standards.

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Respondent C. (2011), Interview about accounting for oil and gas in Company C (Interview May 4, 2011)

Respondent B. (2011), Interview about accounting for oil and gas in Company B (Interview May 6, 2011)

Respondent A. (2011), Interview about accounting for oil and gas in Company A (Interview May 6, 2011)

Respondent D. (2011), Interview about accounting for oil and gas in Company D (Interview May 10, 2011)

IASB member (2011), About extractive industry, (email communication, February 16, 2011)

NASB member (2011), About Norwegian Accounting Standard, (email communication, March 25, 2011)

## ***Annex 1. Questionnaire***

### ***Accounting for oil and gas***

*This questionnaire is prepared for master's thesis in Accounting*

*Thank you for filling out this questionnaire*

*Please put "X" on your choice when required.*

1. What is the name of your company? \_\_\_\_\_
2. When was your company established? In 19\_\_\_\_\_
3. What are the major operations in which your company is involved in?  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
4. What was the accounting standard/s you follow, prior to the adoption of IFRS, for the upstream activities (acquisition, exploration, drilling, development and production)  
? \_\_\_\_\_
5. What accounting method did you follow prior to the adoption of IFRS?
  - Successful-efforts method
  - Full-cost method
  - Other method, please specify \_\_\_\_\_
6. When did you adopt IFRS for those activities stated above? In 19\_\_\_\_\_
7. Has the adoption of IFRS for those activities have increased your accounting work?
  - Yes
  - No
8. If yes can you clarify it \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
9. Have you changed your accounting method after the adoption of IFRS?
  - Yes
  - No
10. If yes please specify your current accounting method

- Successful-efforts method
- Full-cost method
- Other method, please specify\_\_\_\_\_

11. Does your company incur exploration cost for oil and gas prior to drilling?

- Yes
- No

12. Does your company perform drilling on a well that is generating oil and gas?

- Yes
- No

13. What unit of account you use to calculate depreciation? Unit of account in this case is a group of assets or a single asset for which depreciation is calculated separately.

- Depreciation is accounted for each well
  - Depreciation is made for many wells based on geographic area
  - We use other way please specify\_\_\_\_\_
- 

14. What inventory flow assumption do you use for the oil and gas?

- LIFO
- FIFO
- Average method
- Other method. Please specify it\_\_\_\_\_

15. Does the executive compensation is dependent on the net income of the company?

- Yes
- No

**THANK YOU!!!**

## ***Annex 2 Interview guide***

Name

Position

What is the accounting method for the upstream activities in your company?

How do you account for pre exploration costs?

How do you account for development and production costs?

What is the base for executive compensation?

Can you explain it further?

What are the inventory and depreciation methods?

What is the unit of account for depreciation?