

## Accounting for Extractive Industries: Has IFRS 6 Harmonised Accounting Practices by Extractive Industries?

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*Accounting for extractive industries has historically been practiced by one of a number of methods: successful efforts, full costing, area of interest, appropriation and reserve recognition accounting. The choice of method adopted leads to different accounting figures. The difference in the treatment of the costs leads to different accounting figures being reported in the financial statements of extractive companies. This means that the 'tell it like it is' criteria of accounting functions differently, so that stakeholders find like-with-like comparisons for decision-making purposes difficult. These difficulties have culminated in the release of IFRS 6 Exploration for and Evaluation of Mineral Resources, to help harmonise accounting practice. This paper, through content analysis of annual reports of 122 upstream oil and gas companies from around the world, investigates the role of IFRS 6 in harmonising extractive industries' accounting practices. Our analysis identifies seven types of company, which differ in their compliance with IFRS 6. Hence, we conclude that IFRS 6 has had some success in harmonising accounting treatments of exploration and evaluation expense but that this success is limited and more needs to be done to achieve wider harmonisation for the extractive industries.*

The growth and globalisation of international capital markets and the financial statements comparability problem have become an international concern (Sutton 1993; Roberts et al. 2008). The globalised nature of the extractive industries and the political, economic and strategic impact of mineral wealth on mineral-rich countries, as well as the needs of different stakeholders for transparent information, drive the need for a common accounting practice for these industries (Wise and Spear 2000). Historically, substantial variation in reporting practices of extractive industries resulted in reduced comparability of both the financial accounts and results of these companies (Karapinar et al. 2012). To be able to make informed decisions, stakeholders outside the industry, such as banks, investors and financial and academic analysts, and regulators need to understand these practices (Glaum et al. 2013).

In response to these demands, the International Accounting Standards Board (IASB) has, over many years, been working on reducing the diversity in accounting practices by developing international accounting standards (IAS). These standards are an attempt by the IASB to harmonise accounting treatments of different expenditures and revenues among companies and countries and to provide significant advantages to individual stakeholders and corporations alike (Choi and Levich 1991; Whittington 2000; Nguyen and Gong 2014; Carlin et al. 2014). According to Sutton (1993) and Gallhofer and Haslam (2007), IAS are appropriate tools for providing uniformity in accounting practices by different companies around the world.

The objective of this study is to investigate to what extent the IASB, via introducing IFRS 6, has been successful in harmonising accounting practices among extractive industries. A reasonable understanding of the success of IFRS 6 in harmonising accounting practices by mining industries should allow the IASB and other stakeholders to define factors that enhance accounting practices and facilitate mechanisms that derive a worldwide acceptance and enforcement of IFRS 6.

### Background to the Research Problem

The extractive industries have historically used a number of different accounting methods for their expenditures, including successful efforts, full costing, area of interest, appropriation and reserve recognition accounting<sup>1</sup> (Alfredson et al. 2009). The application of a variety of accounting methods presented problems for investors in comparing the financial performances and positions of companies in the extractive sectors. The choice of a certain accounting method by an extractive company affects the company's disclosed intangible assets in the balance sheet, the amount of expenditure written off in the income statement and the net profit. The differences in reported financial results and disclosed assets by extractive companies provoke serious concerns about the

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comparability of the financial statements of these companies and their usefulness for decision making. Thus, in 2004, the IASB developed and published an accounting standard, IFRS 6, for the extractive industries, the objective of which was to enhance the uniformity of accounting practices, improve the comparability of financial statements and hence fulfil the decision-making usefulness needs of stakeholders.

IFRS 6 allows the use of two alternative accounting methods: the successful efforts (SE) and full costing (FC) methods. These methods differ primarily in terms of which exploration and evaluation (E&E) expenditures are capitalised. While E&E expenditures are capitalised under the FC method, they are only capitalised under the SE method if it can be demonstrated that they lead to commercially viable discoveries. However, although IFRS 6 has been used for a relatively long time, there is currently no evidence to suggest that companies in the extractive industries are fully compliant with IFRS 6. Therefore, whether IFRS has been successful in harmonising accounting practices in the extractive industries or not, and whether extractive companies comply with the requirements of IFRS 6, are questions worth investigating.

The extant literature has tended to focus only on the universality of the historical development of regulatory attempts to account for the extractive industries (see, for example, Flory and Grossman 1978; Luther 1996; Gallhofer and Haslam 2007; Cortese et al. 2009, 2010; Cortese and Irvine 2010; Cortese 2011). No studies seem to have been conducted on the usefulness of IFRS 6 in providing for a blanket mechanism to allow for unified accounting practices by the extractive industries. That is to say that the role of IFRS 6 in harmonising accounting practices for extractive industries seems to have been overlooked. Similarly, compliance by extractive companies with IFRS 6, as an indicator of its success, seems not to have been researched before. From this gap in the literature, the following research questions have been derived:

- RQ1. To what extent has IFRS 6 been a successful standard, introduced by the IASB, in harmonising accounting practice for extractive industries worldwide?
- RQ2. What, if any, are the drivers and challenges of this success?
- RQ3. To what extent do extractive companies comply with the requirements of IFRS 6?

This paper attempts to bridge this gap in the literature by investigating the extent to which IFRS 6 has been implemented in the upstream oil and gas sector, which is the largest sub-sector in the extractive industries. While building on previous studies, the paper aims to contribute to the literature by shedding light on the role of IFRS 6 in harmonising accounting practices among ex-

tractive industries and hence on benefiting stakeholders in making a like-with-like comparison among companies in the same sub-sector of the extractive industries. In order to evaluate the success of IFRS 6 in harmonising accounting practices for extractive industries, compliance with the requirements of the standard will be checked.

In order to achieve these objectives and answer the research questions this paper is structured as follows. The paper commences with a discussion of previous similar studies, followed by a brief explanation of the investment activities of firms in the extractive industries to illustrate the nature of these investments and to clarify the role that accounting plays in this process. The following section provides a brief overview of the two most widely used methods of accounting for the extractive industries, SE and FC, and stresses the need for greater harmonisation tools for accounting practices in these industries. The next two sections focus on the specific requirements of IFRS 6, and detail the research approach before a discussion and analysis of the data are presented. A final section concludes the paper.

## Similar Studies

This section highlights similar previous studies, which form a basis for our study. On the one hand, it reviews studies on accounting for extractive industries and IFRS 6 in terms of features and application and, on the other hand, it presents studies focused on companies' compliance with the requirements of IFRS.

## Related literature on accounting for extractive industries

Most of the studies on IFRS 6 have focused on the standard-setting process and the ethical considerations that surround the process of creating this standard (Cortese et al. 2009, 2010). However, there is a dearth of studies that tackle the success, or otherwise, of IFRS 6 in providing a blanket accounting treatment for expenditures incurred by extractive companies in the pre-development stage of investment. The following is a narration of a number of studies that tackle issues related to IFRS 6 from different perspectives, and those that researched compliance with IAS.

Luther (1996) studied the characteristics of accounting for the extractive industries and explored salient issues in the relevant pronouncements and practices in five different countries: the US, Australia, Canada, South Africa and the UK. Luther (1996: 67) concluded that accounting regulations in the extractive industries were limited in scope and inconsistent in perception. Cortese et al. (2009) researched the economic consequences of different accounting methods applied in the extractive industries; they concluded that although the

debate among different international accounting bodies has been ongoing for some time and although attempts have been made to harmonise accounting practices for the mining industries, few regulations have emerged, and the choice of one of a number of accounting methods still needs to be made. Noël et al. (2010) used a Habermasian philosophy to explore the procedures at work in international accounting standard setting from an ethical point of view, to analyse the political problems associated with adopting IFRS 6. They concluded that neither the IASB's way of working nor the composition of its board fulfilled the criteria of discourse ethics. Cortese et al. (2010) applied a critical discourse analysis tool to the process of setting IFRS 6. They concluded that IFRS 6 simply codifies the current industry accounting practices and provides much flexibility to extractive companies in choosing the reporting method as they see fit; Karapinar et al. (2012) concur. Cortese et al. (2009, 2010) claimed that while IFRS 6 provides a comfortable practice for extractive industries, it does not meet the espoused objectives of accounting standards in facilitating the creation of financial reports that provide guidance to stakeholders in making economic decisions.

Cortese and Irvine (2010) examined the role of powerful extractive entities in shaping IFRS 6. They concluded that the contributions of these entities might not always have been visible but that their influence certainly existed. The result of their role, according to Cortese and Irvine, was the issuance of IFRS 6, which not only allowed the existing accounting practices of extractive industries to continue but also codified these practices, thereby granting them some legitimacy. This last view agrees with Gallhofer and Haslam (2007) as they see that IFRS 6, in fact, opted for flexibility in accounting practices. In the same line of investigation, Cortese (2011) studied attempts to standardise oil and gas accounting practices in the UK since the 1970s, using a regulatory capture perspective, and concluded that because accounting regulators have been captured by industry constituents, standard-setting efforts have always failed to offer a harmonised accounting practice for the extractive industries.

Karapinar et al. (2012) tried to measure compliance of IFRS 6 from the global and Turkish perspectives. They analysed selected accounting policies of five international extractive firms and five Turkish firms. They concluded that information disclosed by extractive companies under IFRS 6 is insufficient to meet the obligations of the standard. Although this study is the only one of its kind, and seems to be the closest to our study, the sample size and the depth of analysis are problematic. Although Karapinar et al. (2012) claim to study the degree of harmonisation offered by, and compliance of companies with, IFRS 6, their study seems to focus on pre E&E expenditure (acquisition) and post E&E expenditure (rehabilitation), which are both beyond the scope

of IFRS 6 and drop evaluation expenditure, which is core to IFRS 6. These drawbacks of Karapinar et al.'s (2012) study mean it is not a solid base for the current research; in fact they confirm the need for a more robust study.

### Related literature on compliance with IFRS

Researchers have shared their concern about companies' lack of compliance with the requirements of IFRS. In this regard, Street and Gray (2004) investigated a number of financial statements using a worldwide sample of companies, in order to explore the extent of non-compliance with IAS. They concluded that non-compliance with IAS was driven by a number of factors, such as listing status of the companies studied, the type of auditing firms, the manner of reference to IAS in the accounting policies of the companies and the country of domicile of these companies. Similarly, Stadler and Nobes (2014) studied the influence of country, industry and topic factors on adopting IFRS. They concluded that the country factor has the greatest influence on IFRS policy choice. Furthermore, Street and Gray (2004) reported that compliance with IAS, in terms of disclosure and measurements, by mining companies was one of the highest (82% and 94% respectively) among the companies they investigated.

Carlin and Finch (2011) investigated the degree to which firms comply with the formal precepts of standards governing impairment-testing regimes of 200 goodwill-intensive firms listed on the Australian Securities Exchange in 2006. Their findings provide evidence of systematic non-compliance by Australian reporting entities adopting IFRS for the first time in relation to the disclosure requirements of IFRS goodwill impairment testing.

Compliance with the requirements of IFRS on segment reporting and goodwill has been a major concern for academic research. In this context, Kang and Gray (2013) investigated compliance of Australian companies with the requirements of the Australian equivalent standard of IFRS 8 *Operating Segments*, AASB 8. They found that Australian companies comply with the requirements of AASB 8, and the number of reportable segments and disclosures of segments have increased post adoption of AASB 8.

Similar to Street and Gray (2004), Glaum et al. (2013) analysed compliance for companies from 17 European countries with disclosures required by IFRS focusing on IFRS 3 and IAS 36. Their study focused on companies' disclosures related to business combinations and impairments testing of assets. Glaum et al.'s (2013) findings reveal that despite the adoption of IFRS by European companies, reporting practices continue to differ between these companies.

Ji (2013) and Guthrie and Pang (2013) studied compliance of companies with the requirements of disclosure

and impairments of goodwill in the Australian context. Ji (2013) found that a significant number of firms in her sample did not comply with the requirements of IFRS (IAS 36) and did not impair goodwill in a timely manner. Guthrie and Pang (2013) concluded that whilst there seems to be an improvement in companies' compliance with reporting goodwill, no full compliance exists for all reporting periods by the companies studied. These studies do, in fact, touch on the core of our study; this is because goodwill is similar in nature to E&E expenditure as both are intangible assets if E&E expenditure is to be capitalised (see Guthrie and Pang 2013: 218). Similarly, Carlin et al. (2014) studied compliance of 264 Hong Kong listed companies with the requirements of IFRS, concluding that, although IFRS had been adopted by Hong Kong for a number of years, there was a high rate of non-compliance. Therefore, the results of these studies may allow us to form some expectations about compliance with the requirements of IFRS 6; however, it would be more logical to undertake independent testing of the data in our sample companies before making a clear cut judgement on companies' compliance and the success of IFRS 6 in harmonising accounting practices by extractive companies.

From the above studies it is evident that compliance with, and the effectiveness of, IFRS 6 in harmonising accounting practices for mining industries has been overlooked. Whilst the previous similar studies form a suitable basis for this current research, this study differs from them in a number of aspects. Our research is focused on IFRS 6 in terms of compliance of extractive companies with its requirements and on the success of this standard in harmonising accounting practices by extractive industries. Therefore, this study aims to bridge that gap in the literature through an interpretive approach using qualitative content analysis of the accounting policies, financial statements and notes on the financial statements of a number of listed extractive companies as disclosed in their annual reports.

## Accounting for the Extractive Industries

### Extractive industry investment cycle

Investment in the extractive industries involves five distinct stages: acquisition, exploration, evaluation, development and production. Each of these stages is characterised by unique activities and requires varying levels of finance and technical operations while being subject to differing types of risk (Wise and Spear 2002; Cortese et al. 2009 Cortese 2011).

Following the identification of areas with possible commercial deposits, extractive companies will typically seek to acquire the right to explore, develop and produce any commercial minerals that may exist beneath the

land (Gallun et al. 2001). The exploration stage involves the identification of areas that may contain mineral resources. If an area is proved to have probable reserves, an extractive company will then obtain a licence from the host government to be able to undertake its exploration activities. Finding mineral resources does not guarantee that they exist in economically producible quantities. Therefore, extractive companies have to drill evaluation wells to be able to identify whether the reserves discovered have sufficient commercial potential to accommodate extraction (Luther 1996; Gallun et al. 2001; PwC 2011).

The development stage includes establishing the necessary infrastructure needed for extracting and transporting commodities (Adelman 1996). After developing a field, an operator can start producing the minerals immediately if the economic environment and the necessary production conditions allow.

### Accounting methods for the extractive industries

In accounting for investments in the extractive industries as discussed above, oil and gas companies have the option to choose from a number of methods, but the most common are the SE method and the FC method (Flory and Grossman 1978; Cortese et al. 2009). These two methods differ as to which E&E expenditures are capitalised. This difference in treatment of the E&E expenses has historically led to significant controversy in the accounting literature over which of the two commonly used methods captures the underlying economic transaction (see Bryant 2003).

#### *Method choice effects and the need for harmonised treatment*

The main difference between FC and SE methods is related to their treatment of pre-development expenditures, specifically expenditures incurred during the E&E phase of mining investment. While pre-development expenditure is capitalised by FC companies, this expenditure is capitalised by SE companies only if it leads to commercially viable discoveries. Development expenditure is capitalised by both methods, as companies only develop reserves of mineral resources when they are certain the reserves contain commercially viable resources. Therefore, most of the debate regarding accounting for extractive industries centres on treatments of expenditures during the E&E stages of investment.

The choice of accounting method has implications for how the financial statements are portrayed, and it therefore affects the decisions of investors. Given the many differences between the two accounting methods,

several attempts to eliminate heterogeneous accounting practices by extractive industries have been made in order to provide a uniform accounting practice. Calls by the Financial Accounting Standard Board (FASB) have coalesced around solely favouring the SE method. However, due to strong lobbying by FC companies, these calls have not been taken on board by the regulators (Flory and Grossman 1978; Noël et al. 2010; Cortese 2011).

Calls for the harmonisation and restriction of alternative accounting practices in the extractive industries go back to 1905 (Curle 1905: 29, as cited in Cortese et al. 2009: 28). In 1908, the English Institution of Mining and Metallurgy established a Mine Account and Cost Sheets Committee to work toward a standard system for regulating the entire British mining industry (Luther 1996: 73). In 1977, Statement of Financial Accounting Standard (SFAS) No 19, issued by the FASB, called for the harmonisation of oil and gas accounting and disclosing practices in a bid to reduce bias and improve comparability (Luther 1996; Spear and Wise 2002). An Issues Paper published by the IASB in 2000 retained the choice of accounting method. As such, debate rages among the extractive industries, the academic community and the accounting profession on the advantages and disadvantages of each of the accounting methods used by extractive industries. In 2004, the IASB issued IFRS 6, with an effective date of 1 January 2006, in order to provide an interim solution to the conflicting views associated with the two common methods of accounting for the activities of extractive industries. This paper assesses the effectiveness of IFRS 6 as a regulatory standard aimed at harmonising the accounting treatments of extractive industries' expenditure. The paper also investigates the extent to which extractive companies comply with the requirements of IFRS 6.

### **IFRS 6 Exploration for and Evaluation of Mineral Resources**

In 2004, driven by the lack of an international accounting standard that addresses accounting for extractive industries, the IASB developed an IFRS for these industries. Further motivation was the exclusion of mineral rights and resources from the scope of IAS 38 *Intangible Assets* and IAS 16 *Property, Plant and Equipment*. Extractive companies were required to determine their accounting policies in accordance with IAS 8 *Accounting Policies, Changes in Accounting Estimates and Errors*. Also, the IASB recognised that the accounting practices of extractive industries vary under the requirements of other accounting standard-setting bodies. Therefore, IFRS 6 was intended to close the gap between variations in accounting practices by extractive companies.

### **Objectives**

The objective of IFRS 6 is to specify the financial reporting for the E&E of mineral resources. In particular, IFRS 6 (2015: paras, 1, 2) requires the following:

- (a) limited improvements to existing accounting practices for *exploration and evaluation expenditures*;
- (b) entities that recognise *exploration and evaluation assets* to assess such assets for impairment in accordance with this IFRS and measure any impairment in accordance with IAS 36 *Impairment of Assets*;
- (c) disclosures that identify and explain the amounts in the entity's financial statements arising from the exploration for, and evaluation of, mineral resources and help users of those financial statements understand the amount, timing and certainty of future cash flows from any exploration and evaluation assets recognised.

### **Scope of IFRS 6**

Although IFRS 6 was issued as an accounting standard for the extractive industries, it only covers the recognition, measurement and reporting of expenditure in the E&E phase of mineral investment and, hence, does not include expenditures in either pre- or post-E&E stages (IFRS6 2015: paras 3, 4, 5). The focus of IFRS 6 on the E&E stages is down to the significant expenditure incurred by extractive companies during these stages (IFRS Foundation 2010). The application of IFRS 6 begins from the point where an entity has obtained legal rights to explore an area and ends with the establishment of commercially viable mineral resources, that is, before the start of the development stage.

### **Measurement and recognition**

IFRS 6 specifies that E&E assets shall be measured at cost, and an entity shall determine an accounting policy that specifies which expenditure is to be recognised as an E&E asset, and this policy is to be applied consistently. IFRS 6 asserts that, in making this determination an entity considers the degree to which the expenditure can be associated with finding specific mineral resources (IFRS 6 2015: para 9). IFRS 6 defines activities prior to the acquisition of an exploration licence as pre-E&E. As expenditure during the pre-E&E activities cannot be assigned to specific mineral reserves, it should be expensed. This view aligns with the practice of the SE method. However, in some cases where pre-E&E expenditure may give rise to an E&E asset, an entity may capitalise that expenditure if it meets the criteria of asset recognition. After the initial recognition, an entity is permitted to apply either

the cost model or the revaluation model in measuring its E&E assets.

### Presentation

IFRS 6 requires extractive companies to clearly classify E&E assets into tangibles and intangibles. This classification is necessary for accounting policy choices related to the measurement of these assets after recognition and their disclosures (IFRS 6 2015: para 15). The standard requires the classification and split of E&E assets to be applied consistently. Also, when technical feasibility and commercial viability of extracting a mineral resource are demonstrable, E&E assets shall no longer be classified as such.

### Impairment

IFRS 6 requires E&E assets to be assessed for impairment when facts and circumstances suggest that the carrying amount of an E&E asset may exceed its recoverable amount. The standard requires that entities apply IAS 36 *Impairment of Assets* to measure and report the impairment of E&E assets (IFRS 6 2015: para 18).

### Changes in accounting policy

In terms of accounting policy, IFRS 6 requires entities to determine their accounting policies based on the entity's current national GAAP. IFRS 6 permits an existing user to change its accounting policy only if the change makes its financial statements more reliable and no less relevant, or more relevant but no less reliable (IFRS 6 2015: para 13). However, because IFRS 6 does not contain specific requirements and criteria for changes in accounting policies, the requirements of IAS 8 *Accounting Policies, Change in Accounting Estimates and Errors* apply when such a change takes place (IFRS 6 2015: para 13; IFRS Foundation 2010).

IFRS 6 requires that for each type of expenditure, an entity must adopt a clear policy of either immediate expensing or capitalisation of these expenditures as an E&E asset. This is to reflect the extent to which each type of E&E expenditure relates to specific mineral resources. Hence, this requirement of IFRS 6 is another clue that the standard aligns itself more closely with the philosophy of the SE method (see KPMG 2005, 2007; Ernst & Young 2009). This requirement, while providing for some consistency of accounting treatments of similar expenditures in the same entity and hence providing a base for horizontal comparison, does not provide consistency in recognising, measuring and reporting E&E expenses across the extractive industries.

### Disclosure of E&E assets

IFRS 6 requires reporting entities to disclose information that identifies the amount recognised in its financial statements as E&E assets. This information includes the accounting policies for E&E expenditure, as well as the amounts of assets, liabilities, income and expenses and operating and investing cash flows arising from the exploration for and evaluation of mineral resources (IFRS6 2015: paras 23–24).

## Research Approach

### Data collection method

The research method adopted for this research is archive-based; the use of this method is consistent with that used by Carlin and Finch (2011), Kang and Gray (2013) and Guthrie and Pang (2013). Annual reports of the sample companies were downloaded directly from companies' websites and these were saved on the author's computer. These annual reports were analysed thoroughly for relevant compliance practices, in accordance with the requirements of IFRS 6, disclosed by sample companies in the accounting policies sections of their annual reports. Compliance with the requirements of IFRS 6 was hand-picked from these companies' accounting policies and financial statements presented in their annual reports – a method consistent with Nobes and Perramon (2013).

### Sampling

Since IFRS 6 is intended to be an international standard, obtaining data from every extractive company around the world is not feasible. Also, this study focuses on evaluating the extent to which IFRS 6 has been a success in unifying accounting practices by extractive industries. Therefore, the use of sample companies seems to be a best fit for this study. Our sampling technique is based on elimination and nomination. Since the oil and gas industry is the largest in the extractive industries, it has been nominated for this study.<sup>2</sup>

In checking the compliance of oil and gas exploration and production companies with IFRS 6, upstream oil and gas companies listed on major stock markets were searched and a checklist was developed for this purpose. Oil companies listed on our nominated stock markets that do not have E&E activities were eliminated. Six major stock exchanges were initially identified for this task: FTSE 350, Fortune, Toronto Stock Exchange, ISEQ, NYSE and Hang Seng. However, as companies in the US are required to prepare their financial statements in accordance with US GAAP, the NYSE was eliminated from this study.<sup>3</sup> The choice of stock markets was based on the idea of having companies from around the world rather

than focusing on one geographical area. In addition, these are the most active and largest stock exchanges, where oil and gas companies are more likely to list given the large financing requirements.

In defining our sample companies, we first of all filtered the oil and gas companies in our nominated stock markets; this was done by selecting the option of 'oil and gas producers' from a drop down menu of industry sector available on the stock markets' websites. Then we eliminated any downstream oil and gas companies from our sample. Our focus is directed only on upstream oil and gas companies listed in these stock markets, as these are the ones that have E&E activities. Since the number of exploration and production oil and gas companies listed in these five stock markets is relatively small (23 companies) we extended our search to companies listed on the Alternative Investment Market (AIM).<sup>4</sup> We checked the companies listed on the AIM, using the sector company search option, and identified 108 oil and gas companies. From these 108 companies we eliminated 12 companies that are not upstream oil and gas companies and we excluded one further company due to unavailability of this company's annual reports. This brought our sample to 118 upstream oil and gas companies (see Table 1). Accounting policies and financial statements of every upstream oil and gas company listed on these stock markets that fall within our sample definition were checked. The analysis covers the period 2006–2014. Our sample companies were categorised according to their listing.

## The analysis

Content analysis is defined by Holsti (1969: 14), as cited in Bryman and Bell (2007: 302), as 'any technique for making inferences by objectively and systematically identifying specific characteristics of messages'. Content analysis can be used as a quantitative and/or a qualitative technique (Mayring 2000) and can take one of two forms: conceptual analysis (thematic analysis) or relational analysis. The objects of content analysis can be any sort of recorded communication, such as transcripts of interviews, mass media materials, companies' annual reports, letters, lecture notes or newspaper articles (Mayring 2000; Bryman and Bell 2007). Beardsowrth (1980), as cited in Bryman and Bell (2007: 303), states that content analysis focuses on, besides the linguistic structure of the text, themes within the text, which entails searching for certain ideas within the text. Based on this account, content analysis as a research method fits the purpose of our research. This is because our analysis of the accounting policies and practices of oil and gas companies, incorporated in these companies' annual reports, besides being systematic, will emphasise the determination of whether these companies comply with

the requirements of IFRS 6. In so doing, we are, in fact, applying the inductive approach, which moves from data collection and analysis to theory building (Saunders et al. 2003).

The use of thematic analysis is considered most appropriate for this study. The themes that arise from the literature review, particularly from the description of the IFRS 6 requirements of extractive companies as presented above, will be used in our analysis. These themes are: measurement and recognition of E&E assets, presentation of E&E assets, impairment assessment for E&E assets and disclosure of E&E assets and of accounting policy. Furthermore, to assess compliance or otherwise of oil companies with the requirements of IFRS 6, a checklist of IFRS 6 required measurements and disclosures is created for this purpose. Table 2 provides a summary of the data collection checklist. On the checklist, each of the IFRS 6 requirements was coded as disclosed by the individual companies as (Yes) complied and/or (No) did not comply. Following the analytical technique applied by Street and Gray (2004) and Carlin et al. (2014), we checked statements of compliance in the companies' accounting policies, as per their annual reports, against companies' financial statements. This was to see if compliance with IFRS 6 was in fact stated and applied by these companies. This investigation, whilst examining the level of companies' compliance with IFRS 6, will address the extent to which IFRS 6 has been a successful accounting standard, introduced by the IASB, in harmonising accounting practices for the extractive industries.

The analysis will document the extent to which upstream oil and gas companies have continued with their existing accounting policies and practices or amended them in line with the requirements of IFRS 6. Accounting policies of oil and gas companies usually clearly disclose how E&E expenditure is accounted for; therefore our investigation will be directed mainly at checking whether or not E&E expenditure is accounted for in accordance with IFRS 6 requirements. Further, the analysis will extend to check whether our sample companies adhere to the measurements, presentation, impairment and disclosure requirements of IFRS 6.

## Results and Discussion

### Descriptive statistics

Our initial analysis indicates that, of the 118 sampled companies, 33 (28%) use the FC method of accounting, 55 (47%) use the SE method, of which at least four changed from FC to SE post 2004, 11 (9%) use the Area of interest method, and 19 (16%) of the companies do not specify a particular method<sup>5</sup> (see Table 1).

It is interesting to note that 19 companies, all from the AIM panel, do not disclose the adoption of a certain

**Table 1** Sample companies

Stock	FTSE 350	Hang Seng	Toronto TSX	Fortune	ISEQ	AIM	Total number of companies	%
Successful efforts	12	3	0	0	2	38	55	47
Full cost	2	0	2	1	0	28	33	28
Area of interests	1	0	0	0	0	10	11	9
Not clearly stated	0	0	0	0	0	19	19	16
Number of companies	15	3	2	1	2	95	118	100

**Table 2** Compliance with IFRS 6 requirements

Stock market criteria		FTSE 350	Hang Seng	Toronto TSX	Fortune	ISEQ	AIM	Totals	%
Measurement of E&E assets	Cost	15	3	2	1	2	94	117	99
	valuation	0	0	0	0	0	1	1	1
Presentation of E&E assets as intangibles and non-intangibles	YES	15	3	1	0	2	85	106	89
	NO	0	0	1	1	0	9	11	11
Impairment assessment for E&E assets	YES	15	3	2	1	2	90	113	95
	NO	0	0	0	0	0	5	5	5
Disclosure of E&E assets	YES	15	3	2	0	2	90	112	95
	NO	0	0	0	1	0	5	6	5
Total number of companies researched		<b>15</b>	<b>3</b>	<b>2</b>	<b>1</b>	<b>2</b>	<b>95</b>	<b>118</b>	100

accounting method, and six of the 11 Area of interest companies are based in Australia. Also, whilst the two Toronto TSX companies follow the FC method, the three Hang Seng and the two ISEQ companies follow the SE method. The majority of the FTSE 350 companies follows the SE method (12 companies) while two follow the FC and one follows Area of interest.

### Compliance with IFRS 6 requirements

Compliance with the requirements of IFRS 6 in terms of measurement and recognition, presentation of E&E assets, impairment of E&E assets and disclosure of accounting policy differs between companies in the different stock markets (see Table 2).

Whilst FTSE 350, Hang Seng and ISEQ companies seem to follow IFRS 6 requirements, not every company from the other stock markets does so. It is worth mentioning that companies that do not follow IFRS 6 requirements use FC, Area of interest, or not specified accounting methods; SE companies by default follow IFRS 6 requirements. Nobes and Perramon (2013) and Stadler and Nobes (2014) suggest that there is a strong association between IFRS policy choice and nationality of companies. Our analysis shows that the companies that do not comply with IFRS 6 are, in fact, from different nationalities, however, they are all in the AIM panel companies (see Table 3). This, however, does not mean that Nobes and Perramon's (2013) and Stadler and Nobes' (2014) results are not justified, as the number of companies in our sample that do not comply with the requirements of IFRS 6 is relatively small. On the contrary, on analysing our sample companies in terms of

nationality and compliance with IFRS 6 we found evidence to support Nobes and Perramon's claim. In this regard, all three companies from the Hang Seng panel, Petro China, Sinopec Corp and CNOOC, use the SE method to account for their operations and, therefore, comply with the requirements of IFRS 6. This is not a surprising result, as Chinese companies have been required to adopt China Accounting Standards (CAS) since 2006, and these standards are, in fact, based on, and generally consistent with, IFRS (IFRS 2014). Further, Street and Gray (2004) report that Chinese listed companies have high levels of compliance with IAS.<sup>6</sup> Therefore, we assert the association between companies' nationality and IFRS 6 policy choice.

IFRS 6 requires companies to specify their accounting policy, and this should include the accounting method disclosed along with the amount of E&E assets. From our 188 sample companies, 19 AIM companies do not specify which accounting method they use. A number of these companies seems to be following the other requirements of IFRS 6, for example Gaza Oil and Gas, Engi Oil, Independent Resources, to name a few. However, other companies from the same panel and category do not follow any of the IFRS 6 requirements; these include Eland Oil and Gas, Fastnet Oil and Gas and Westmount Energy.

Since companies in our sample report their financial figures in different currencies, it was not feasible to make a link between compliance with the requirements of IFRS 6 and the size of the reporting company. Therefore, we cannot claim that we have evidence to support, or reject, an association between size and compliance, but the literature provides evidence of such an association



**Table 3** Companies that do not comply with IFRS 6

Company	Listing	Base	Accounting method	Measurement of E&E assets	Classification of oil and gas assets	Impairment assessment for E&E assets	Disclosure of E&E assets	Reference
Panel A: AIM companies								
Chariot Oil and Gas	AIM	London / UK	Full cost	Cost	NO	NO	NO	Annual Report 2013
Eland Oil and Gas	AIM	Aberdeen / UK	Not clearly stated	Cost	NO	NO	NO	Annual Report 2013
Fastnet Oil and Gas	AIM	Stockport / UK	Not clearly stated	Cost	NO	YES	NO	Annual Report 2014
Frontera Resources	AIM	Texas / USA	Full cost	Cost	NO	NO	NO	Annual Report 2013
Global Petroleum Ltd	AIM (and ASX)	Australia	Area of interest	Cost	NO	YES	YES	Annual Report 2014
Westmount Energy	AIM	Jersey / France	Not clearly stated	Cost	NO	NO	NO	Annual Report 2014

(see Street and Gray 2004; Nobes and Perramon 2013; Stadler and Nobes 2014).

### Qualitative analysis

The above descriptive statistical analysis gives the impression that compliance of oil and gas companies with the requirements of IFRS 6 is maintained to a high degree and the standard has been successful in harmonising accounting practices for extractive industries. To obtain a clearer picture it is vital to take a closer look at companies' annual reports in order to measure the extent of these companies' compliance with the standard, and hence the success of IFRS 6 in harmonising accounting practices for extractive industries. Therefore, this section details the qualitative content analysis of annual reports of the sample companies. It discusses level of compliance of the sample companies to the requirements of IFRS 6, and in so doing it provides evidence on compliance, or otherwise, of companies in our sample with the requirements of IFRS 6. In undertaking the qualitative analysis in this section, we follow the order of IFRS 6 requirements criteria set out above.

### Measurement and recognition

Table 2 shows that while 117 of our sample companies measure their E&E assets at cost only, one company, Andes Energia plc, uses the valuation model. As IFRS 6 permits extractive companies to use the cost model or the revaluation model for measuring E&E assets

after recognition,<sup>7</sup> our analysis confirms complete compliance with the measurement requirement of IFRS 6. Therefore, we state that extractive industries comply with the recognition and measurement requirements of IFRS 6.

### Presentation

Our analysis reveals that the majority of our sample companies (106 companies) adhere to the disclosure of IFRS 6 in terms of classification of their E&E assets into tangible and intangibles and disclosure of their accounting policy (see Table 2). However, the degree of the detailed disclosures varies between companies.

In terms of E&E assets classification, we found evidence of different levels of compliance between oil and gas companies. For instance, Dana Petroleum (an AIM), a FC method company, and BP (an FTSE 350), a SE company, both follow IFRS 6 disclosure requirements in that they classify the intangible assets into goodwill arising from the acquisition of subsidiaries and E&E assets. Furthermore, the capitalised E&E assets are classified into intangible E&E assets and tangible assets as Property, Plant and Equipment (PPE) (see annual reports and accounts of Dana Petroleum 2011: 32 & 51, and BP 2011: 214). However, while Dana Petroleum separates its intangible assets into goodwill and E&E assets, BP (in addition to identifying goodwill as a separate asset) classifies its intangible assets into E&E assets and other intangibles. On the other hand, other companies such as Lundin Petroleum (from the Toronto stock market) seem not to follow the IFRS 6 assets classification

requirements. A closer look at these three companies' sizes, although they report their financial figures in different currencies, gives an indication of the association between company size and adoption of IFRS 6. The total assets of BP, Dana Petroleum and Lundin Petroleum stand at US\$300 193 million, £2885 million and US \$3 million. BP, the largest in terms of assets value, reports more detailed information than the other two companies.

This closer look at the presentation of E&E assets allows us to claim that whilst IFRS 6 sets the base for harmonising presentation of E&E assets in extractive companies' financial statements, it tolerates differences in the extents of detailed presentation of these assets. This finding is not surprising, as studies such as Guthrie and Pang (2013) found different levels of compliance with the disclosure of goodwill impairment among firms that apply AASB 136. Also, Kang and Gray (2013) found similar results in regard to segment reporting.

We also found strong evidence that oil and gas companies follow the reclassification requirement of IFRS 6 of E&E assets after technical feasibility and commercial viability of extracting a mineral resource are demonstrable. This is another positive sign of compliance of oil and gas companies with IFRS 6.

### *Impairment of E&E assets*

The descriptive statistics of our data from our sample companies show that, of the 118 companies searched, five seem not to take impairment tests seriously. Our thematic analysis to impairment practices by oil and gas companies provides evidence of a relatively consistent compliance with this requirement of IFRS 6 across the industry. For an example of this see Ascent Resources plc (Annual Report 2011: 45).

This evidence allows us to claim that impairment of E&E assets is taken seriously by the oil and gas industry and extractive companies abide by the requirements of IFRS 6 in terms of impairment of E&E assets. This statement seems to align well with the literature. A similar conclusion was reached by Guthrie and Pang (2013) who show that energy companies comply with goodwill allocation to CGUs (see Table 3, panel B: 223).

### *Changes in accounting policy*

Disclosure of accounting policy and compliance with IFRS 6 has been met by most of our sample companies; however, as Table 1 shows, 19 companies (16% of our sample) do not clearly disclose their accounting policies or the accounting methods they use for their E&E expenditure. The bulk of these companies are found in the AIM panel (see Table 1). An example of this stream of

companies is Serica Energy, an AIM panel company (see Serica Energy, Annual Report 2013: 33).

Compliance with IFRS 6 requirements in relation to disclosure and changes in accounting policies varies between companies. In this regard, a number of extractive companies seem to have changed their accounting policies and practices to align with the standard. For example, Forum Energy, an AIM panel company, uses the FC method in accounting for its oil and gas activities, but applies IFRS 6 in accounting for its E&E assets (see Forum Energy, Annual Report 2013: 27). This, in fact, indicates that companies, driven by an institutional request, follow the requirements of IFRS 6 and amend their accounting practice so they fulfil the guidance of the standard. Other companies that followed the same path are Heritage Oil and Cadogan Petroleum plc. This result is consistent with the claim of Nobes and Perramon (2013) that there is an association between country and accounting policies, and this seems to be driven by governance of, and institutional effects on, the type of accounting policies applied in certain countries or regions.

These examples, whilst providing evidence of compliance with the requirements of IFRS 6, provide evidence that Cortese and Irvine (2010) were not very accurate in claiming that IFRS 6 codified accounting practices of extractive companies, as a number of companies changed their accounting practices to bring them into line with IFRS 6.

Other forms of changing accounting policies are practised by a number of companies. For example, SOCO International, a FC company, declared that it adheres to IFRS in line with EU requirements; however, the company disclosed that it uses FC as a method for accounting for its investment expenditure, including E&E expenditure (SOCO International plc 2012: 74, 75). It is interesting to note that SOCO International plc applied IFRS 6 to new E&E expenditure, where there was no existing established cost pool (see SOCO International plc, Annual Report 2012: 75).

This practice of SOCO International indicates that the company is, in fact, converting its accounting treatments to comply with the requirements of IFRS 6; this applies to newly explored oil and gas reserves, where no cost pools have yet been established. In the longer term, this leads to SOCO International, and similar companies, adopting IFRS 6 in accounting for its entire E&E expenditure. Although there is only a small number of these types of company, at least in our sample, the practice indicates that IFRS 6 is making progress in harmonising accounting practices for this type of company to align with SE companies.

In order to comply with the requirements of IFRS 6, a number of companies changed their accounting methods from FC to SE. Good examples of disclosures focusing on the change in accounting method from a FC

approach to the SE method as a response to IFRS 6 were offered by Premier Oil and Cairn Energy, both from FTSE 350 panel companies, and Petroceltic plc (formally Melrose Resources) from AIM group. All three companies changed their accounting method from FC to SE in 2005 (see Premier Oil 2012, Annual Report: 61, 83).<sup>8</sup>

Institutional influence on companies to follow IFRS 6 does have an effect. In this context, Salamander Energy, BP, BG Group, Enquest, Ophir Energy, JKC, Royal Dutch Shell Oil and Tullow (all from the FTSE 350 and AIM panel companies) disclosed that E&E expenses are accounted for in accordance with the SE method. This is in line with the guidance and requirements of IFRS 6 (see, for example, the annual reports of Salamander Energy 2012: 78; JKC 2012: 115, Ophir Energy 2012: 83). These companies highlighted that they follow IFRS in preparing their accounts as a response to the European Union (EU) requirements of companies listed on EU stock markets to follow the IFRS. This EU requirement is an essential driver for harmonising accounting practice, and enforcing compliance with IFRS, among extractive companies listed on stock markets in the EU<sup>9</sup> (Glaum et al. 2013). However, in some cases, companies, while indicating that they adhere to the EU requirement in terms of using IFRS, do not adopt IFRS 6. This pool includes, for example, Chariot Oil and Gas, Eland Oil and Gas, Fastnet Oil and Gas, Frontera Resources and Westmount Energy.

### *Disclosure of E&E assets*

Table 2 indicates that out of 118 companies only six (5%) do not comply with the IFRS 6 disclosure requirement. Whilst this sounds like significant compliance with this requirement, our thematic analysis reveals that extractive companies seem not to comply fully with the disclosure requirements, which is a conclusion that seems to agree with Guthrie and Pang (2013). Whilst it is true the majority of the companies in our sample disclose the amounts of E&E assets in their financial statements and the accounting policies applied to account for E&E expenditure, they do not disclose amounts of liabilities, income and expense and operating and investing cash flows arising from the exploration for and evaluation of mineral resources expenditure. This seems not to be to the advantage of decision makers and Cortese et al.'s (2009, 2010) claim of IFRS 6 not providing guidance to stakeholders in making informed economic decisions seems to hold true.

Following the investigation of the accounting practices of the 118 sampled companies based on the requirements of IFRS 6 (illustrated in section 5 above), six categories of company were identified:

1. companies that already comply with the requirements of IFRS 6 and use the SE method in accounting for their operations;
2. companies that follow the FC method, or methods other than SE, and do not adopt IFRS 6 for accounting for their E&E expenditure;
3. companies that follow the FC method of accounting but adopt IFRS 6 to account for E&E expenditure;
4. companies that changed their accounting method from FC to SE merely to be aligned with the requirements of IFRS 6;
5. companies using the FC method but applying IFRS 6 for new E&E properties where there is no existing cost pool in the area of new discoveries; and
6. companies that do not disclose a certain accounting method but follow the requirements of IFRS 6.

### **Conclusion**

This paper examines the success of IFRS 6 in harmonising accounting practices by extractive industries. In doing so, the paper investigates compliance of 118 upstream oil and gas companies with the requirements of IFRS 6.

The evidence suggests that IFRS 6 has made a positive impact on harmonising accounting practices by extractive industries, as a number of companies comply with the guidance of the standard. This should ensure greater comparability of reported information for the stakeholders of these industries. However, the success of IFRS 6 in harmonising accounting practices for extractive industries is limited, as a number of companies opted not to follow the standard, as IFRS 6 did not enforce changes of accounting treatments for E&E expenditure, but only suggested that companies adopt the right method to suit their purposes as far as providing relevant and reliable information disclosed to stakeholders.

Meeting the objectives of IFRS 6 can be driven by a number of factors. Institutional interventions in the accounting practices of extractive industries have a significant enforcement effect in providing for a uniform application of IAS and, hence, in harmonising accounting practices amongst firms in the extractive industries sector. In this context, the move to IFRS has been a key driver for companies listed on regulated markets in the EU to adopt IFRS 6. This adoption in itself is a measure of the success of the standard in terms of harmonising accounting practices among extractive industries in the EU. In other words, a wider acceptance of, and compliance with, IFRS 6 seem to be driven by successful enforcement of the standard; this result is consistent with Street and Gray (2004), Glaum et al. (2013) and Guthrie and Pang (2013).

However, implementation of IFRS 6 faces a number of challenges. First, the political lobbying of extractive companies and the resistance of a number of corrupted mineral resource-rich governments limited the scope of

IFRS 6.<sup>10</sup> It is well recognised that the extractive industry sector consists of a number of financially strong companies that have the power to lobby against proposed changes, should those changes not be in their interests. The accounting method preferred by these companies would be the one that produces the most favourable results for them. Smaller and premature companies prefer FC methods, and larger and well-established companies prefer the SE method (see Karapinar et al. 2012). Second, changing accounting methods for established extractive companies comes at a significant cost (Nobes and Perramon 2013). Those companies that changed their accounting method have been subject to significant financial impact in terms of their opening net asset values. The financial distress that comes with changing accounting methods may have acted as a push back factor from adopting IFRS 6 by a number of companies. Third, some countries, such as the US, require their companies to adopt their national GAAP, which may not be aligned with IFRS, thus impeding the goals of IFRS. Despite being tailored for extractive industries, IFRS 6, in its current form, lacks a strong message that extractive industries should use one common accounting method for their operations. This conclusion, which agrees with Carlin et al. (2014), that presenting a fairly suitable standard does not guarantee its fair implementation by companies.

Almost eight years after it was first implemented, although not completely fulfilling the aim of a comprehensive harmonised accounting practice among extractive companies, IFRS 6 has, in fact, made a positive impact in this regard. The IASB needs to revisit IFRS 6 and possibly extend its scope to cover pre-exploration expenditures. In addition, there needs to be more institutional pressure on extractive companies to adopt and apply IFRS 6.

An overall conclusion can be drawn on the success of IFRS 6 in harmonising accounting practices among firms in the extractive industries sector. Although there seems to be six different categories of company that differ in terms of their compliance with IFRS 6, it can be said that the standard has been a key factor in providing some degree of harmonisation in the accounting practices of firms in the extractive industries sector. This is evident in the adoption by many companies of IFRS 6 for recording their E&E costs. However, it cannot be claimed that IFRS 6 has witnessed complete success in this area, as compliance with IFRS 6 requirements varies among extractive companies. This seems to be a concern that the regulator and the accounting standards setters need to carry forward.

Further exploration of the disclosures made by firms in the extractive industries, other than the oil and gas industry, is needed to allow for a stronger generalisation to be made. In addition, a more detailed analy-

sis of the information provided by these firms would yield more robust results and allow more definitive claims to be made about the state of reporting among firms in the extractive industries sector post-IFRS 6. This study could be expanded by investigating compliance of extractive companies with IFRS 6, according to the companies' nationalities and sizes. However, the results of this study should be of interest to extractive companies, professional accounting bodies and other stakeholders.

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- 1 In 1978 the SEC introduced the RRA for the oil and gas industry to improve the valuation reporting practices of oil companies' natural resources reserves. However, due to its lack of popularity and impracticality the SEC decided to abandon the RRA in 1982.
- 2 The choice of the oil and gas industry as a representative of the extractive industries is consistent with the study conducted by KPMG (2007).
- 3 The effect of eliminating the NYSE is minimal to this study as there are only four upstream oil and gas companies registered in this stock market; two of these use the FC method of accounting and the other two use the SE method.
- 4 AIM companies were checked on 14 November 2014.
- 5 This is not a surprising result, as Kang and Gray (2013) found 10 of their sample companies did not specify the standard under which segment information was reported in their 2008 annual reports. This implies that companies sometimes prepare accounts and disclose information without making a reference to specific accounting standards or reporting practices.
- 6 Nguyen and Gong (2014) state that China has successfully undertaken convergence as Chinese Accounting Standards (CAS) moved to 77% convergence with IFRS/IAS in 2006 from 20% in 1992.
- 7 See IFRS 6 (2015) para 12.
- 8 KPMG (2007) examined the implementation of IFRS 6 by British companies. They applied the study on 12 oil and gas companies trading on the LSE, and they found that five companies changed their accounting method from FC to SE to align with the requirements of IFRS 6. These companies are: Premier Oil, Cairn Energy, Dana Petroleum, Emerald Energy and Melrose Resources.
- 9 On 19 July 2002, a regulation was passed by the European Parliament and the European Council of Ministers requiring the adoption of IFRS: Regulation (EC) No 1606/2002 of the European Parliament and of the Council of 19 July 2002 on the application of IAS. As a result of the Regulation, all EU listed companies were required to prepare their financial statements following IFRS from 2005 (ICAEW 2014).
- 10 Owing to political and economic corruption, a number of governments of mineral resource-rich countries prohibit transparent disclosure of mineral operations and reserves. This allows extractive companies to escape tax payments and corrupt governments to hide part of their wealth from their people (Gallhofer and Haslam 2007).

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