HEDGING, HEDGE ACCOUNTING AND SPECULATION: EVIDENCE FROM CANADIAN OIL AND GAS COMPANIES

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ABSTRACT

Using archival data, this paper presents the results of analyzing a sample of twelve primarily oil and gas, western Canadian energy firms and their use of financial derivatives to manage commodity price risk. The firms range in size from small to large based on total assets. All twelve companies document and disclose their risk strategies and derivative products they use to manage risk. Regardless of size, all companies make use of common commodity price risk strategies using derivatives. The large energy companies are more likely to utilize hedge accounting than are their small and mid-sized peers. All companies, except for the largest ones, claim they do not use derivatives to speculate. However, by clarifying the definition of speculation, all of the energy firms attempt derivative speculation to a different extent.

JEL: G32; M41

KEYWORDS: Hedging, hedge accounting, speculation

INTRODUCTION

Based on data taken from the Canadian Association of Petroleum Producers' website, Canada ranks as the world's third largest producer of natural gas and seventh largest producer of crude oil (CAPP, 2011). In 2007 and 2008, being the fifth largest energy producer in the world, the energy industry in Canada invested CDN $50 billion into the Canadian economy, making it the largest private sector investor in Canada (CAPP, 2011). Comprising 25% of the market value of the Toronto Stock Exchange, the energy industry in Canada, directly and indirectly, employs nearly half a million people (CAPP, 2011). Geographically, the largest producing area of crude oil in Canada is the western provinces followed by the Northwest Territories and Atlantic Canada (CAPP, 2011). In 2006, oil production from the tar sands area of northeastern Alberta surpassed conventional oil production, and though mature field production is declining, Canada's oil reserves are estimated to be the second largest in the world, exceeding 175 billion barrels (/bbls) (CAPP, 2010). The objectives of this paper are to determine whether Canadian, publicly-held, energy companies (primarily oil and gas, and pipelines) i) have documented risk management strategies for dealing with financial risks, ii) make use of derivatives to help manage their financial risks, iii) make use of common strategies with derivatives in managing their risks, iv) practice hedge accounting in conjunction with their risk management strategies, and v) speculate, as a result of the manner in which they use derivatives.These questions are of interest for a number of reasons.

(Whaley, 2006) points out that most of the major problems that have arisen as a result of derivatives have been caused by inadequate oversight and lack of knowledge by management. Although derivatives have been in existence for thousands of years (Whaley refers to asset-or-nothing put options used by grain farmers around 1750 BCE, for example), their use has come under increasing scrutiny in the last several years. For example, see the misuse of derivatives leading up to the demise of Barings Bank (Stein, 2002), or the Metallgesellschaft AG controversy (Krapels, 2001). Questions remain as to whether the benefits of risk management at the entity level are realized when there is variation between financial theory and how it is put into practice (Servaes & Tamayo, 2009). It is important that management address these risk

management issues in their annual financial statements and annual reports. Omitting discussion around the topic of financial risk management, for example, would suggest management is not aware of the issues, considers them immaterial, or does not understand them sufficiently to address them.

Examining the financial risk management strategies employed by companies in the Canadian energy industry will also show whether energy producers are consistent in the strategies used to manage commodity and other risks. The use of hedge accounting is of interest since Canadian public companies are in the midst of transitioning from the use of Canadian Generally Accepted Accounting Principles (Canadian GAAP) to International Financial Reporting Standards (IFRS) in preparing and disclosing their interim and annual financial statements. Canadian public companies with reporting year-ends ending after December 31, 2010 will be required to use IFRS. Although the current Canadian rules for accounting for derivatives and hedge accounting are similar to the current IFRS rules, the International Accounting Standards Board (IASB) has released an exposure draft dealing with hedge accounting, with comments to be received by March 9, 2011 (IASB, 2010). If this exposure draft is published in final form in 2011, it is expected to make hedge accounting a more realistic option for companies reporting under IFRS. The intent of the exposure draft is to better align the objectives and requirements of hedge accounting with the economics of hedging. Finally, it is of interest to know whether the companies examined here, and that use derivatives, only do so to hedge risk or do they also use derivatives to speculate.

Finally, in the analysis of the impact of derivative accounting on risk management, the use of archival data does not lend itself to the determination of whether companies use derivatives to speculate rather than to hedge (Lins, Servaes, & Tamayo, 2008). However, there is sufficient information provided in the annual financial statements of the companies examined in the current study to conclude on whether they are hedging or speculating.The paper develops as follows. It first offers a literature review focused on hedging followed by the method and data used in the research. The paper then presents results of the observations upon the data and conclusions based on the observations. The paper concludes with reference to the future direction of research based on a larger data sample.

LITERATURE REVIEW

As defined by Whaley (2006) speculation is "a trading position established to profit from a directional move in the price of an asset" (p. 887). It is worthwhile examining whether companies speculate since assertions by management in annual reports and financial statements typically state that management does not enter into contracts for trading or speculative purposes. Much of the current literature dealing with hedging, hedge accounting, risk management and speculating is empirical in nature (Lins et al., 2008; Servaes & Tamayo, 2009) and consists of surveys of companies and their management practices vis-à-vis financial risk. Others have looked at the impact of hedge accounting on corporate risk management (Panaretou, Shackleton, & Taylor, 2009) and others consider the motivations behind why firms create and maintain costly derivative programs when their impact on overall risk at the entity level is minimal (Guay & Kothari, 2003). Lins, Servaes, & Tamayo (2008) surveyed approximately 4,000 firms across 48 countries, which resulted in 354 firms answering at least a portion of their survey. One of the key questions they asked was whether changes to accounting rules regarding derivatives, i.e., the introduction of Statement of Financial Accounting Standards (SFAS) 133 in the U.S., and International Accounting Standard (IAS) 39 internationally, impacted firms' risk mangement activities (Moore, 2002). The most significant impact of the change in accounting principles was the recording of all derivatives at their fair values on the balance sheet (Siegel, 1996), with any changes in those fair values recorded either in the income statement or in Shareholders' Equity via Other Comprehensive Income (OCI) and Accumulated Other Comprehensive Income (AOCI). Prior to these rule changes, derivatives were recorded at historical cost with no changes in value recorded when derivative fair values changed. The new accounting rules embodied in SFAS 133 also required increased financial statement note disclosure around the extent of derivative acivity.

Lins et al (2008) found that 42% of those firms responding to the question of whether changing accounting rules influenced their risk management function indicated the change in standards affected one or more of their risk management activities. From an economic viewpoint, it seemed the major reason for this affect was firms' increasingly compromised ability to hedge. The new accounting rules required firms to increase their documentation surrounding hedging transactions (Welch, 2003), and document, typically on a monthly basis, that the hedges they employed had been effective, and on a go-forward basis, were expected to continue to be effective. If hedges were determined to be effective, then any gain or loss on the hedging item (typically a derivative) could be offset either in net income or shareholders' equity, against the loss or gain on the hedged item (Sandor, 1973). Any portion of designated hedges where the change in fair value or cash flows of the hedging item was less than 80% or more than 125% of the change in fair value or cash flows of the hedged item, was required to be recorded in net income. In addition, any changes in the fair values of derivatives that were not designated as hedges were now to be recorded in net income (Berkman & Bradbury, 1996).

Lins et al (2008) determined that those firms most likely to have their risk management practices impacted by the changes in accounting standards were those listed on stock exchanges, resident in countries with high accounting standards (e.g., U.K., Canada, U.S.), where accounting rule compliance was enforced, and were most interested in managing income statement volatility. These companies, along with those operating in environments where contracts (e.g., management compensation contracts) were based on accounting numbers, were the firms most interested in qualifying for hedge accounting. The authors also found that the reduction in ability to hedge from an economic viewpoint also supported a decline in the use of derivatives for speculative purposes.

In their survey of 234 large corporations, Guay & Kothari (2003) found their median firms to hold derivatives that could hedge only three to six percent of the firm's total interest rate and foreign currency exposures. This led them to question why these firms even bother to create whole risk management departments, since these departments are not costless. Brown (2001), in a case study of the corporate treasury department of a large multinational corporation, found the annual costs to maintain the company's foreign currency hedging program to be U.S. $3.8 million, and the impact on net earnings to be in the area of U.S. $5.0 million. The net savings of U.S. $1.2 million were hardly enough to explain the motivation for continuing the program.

Guay & Kothari (2003) found the costliness of derivative programs to be consistent with firms using them as an additional layer of financial risk management and as part of an overall risk management program that included other ways of managing financial risks such as geographical diversification of operations and long-term purchase and sale contracts. As well, they found firms used derivatives to help manage decentralized decisions based on accounting numbers used for performance evaluation and for speculation. Brown (2001) and Servaes & Tamayo (2009) raise the question of why companies even bother to enter into hedging activities. Providing the example of a jeweler purchasing gold for production, is it not irrelevant for the jeweler to hedge price risk exposure since investors would have access to the same derivative products as the jeweler and be able to manage risk just as easily from their own investment portfolio level. Moosa (2010) argues stereotyped definitions of the terms arbitrage, hedging and speculation have led to confusion as to what the terms really mean. Using a basic futures contract applied to a typical commodity, Moosa demonstrates that both speculators and hedgers act identically upon the same variables. Given that E_tS_{t+1} represents the expected commodity spot price one period into the future at time $t+1$, and F_t^{t+1} represents the price of a one-period futures contract on the same commodity, the expected cost for a firm buying a futures contract for hedging purposes would be $F_t^{t+1} - E_tS_{t+1}$. This also represents the profit expected by a speculator buying the commodity at the spot price and selling a one-period futures contract. Similarly, an oil or gas producer supplying a futures contract has an expected cost of $E_tS_{t+1} - F_t^{t+1}$, which also represents a speculator's expected profit for selling short the commodity at the spot price and buying a futures contract.

Moosa's point is that financial models do not distinguish between speculators and hedgers as they make their decisions based on the same expectations and variables. The stereotype that speculators seek out risk with an expectation of profit, and hedgers avoid every identified risk is not true. The actual act by a hedger of contemplating the options of hedging or not (either full or partial) has him assuming the same risk as a speculator.

DATA AND METHODOLOGY

Table 1 summarizes the companies examined to support this paper. The data came from annual audited financial statements, and management discussion and analysis reports published by 12 publicly held energy (primarily oil and gas and/or pipeline) companies with head offices in Calgary, Alberta. Four of the companies were classified as small in terms of asset size (total assets less than Cdn $1 billion), four companies were classed as mid-size (total assets greater than Cdn $1 billion but less than Cdn $10 billion), and four were classified as large (total assets greater than Cdn $10 billion). The smallest company examined was Crew Energy Inc. (Crew Energy Inc., 2010), with total assets of Cdn $963 million at December 31, 2009. The largest company examined was Suncor Energy Inc. (Suncor Energy Inc., 2010) with total assets approaching Cdn $70 billion as at the same date. All twelve companies examined had December 31, 2009 fiscal year-ends. The financial statements of all twelve companies were prepared in accordance with Canadian GAAP.

Table 1: Sample of Western Canadian Oil and Gas Companies

Firm	Total assets (Cdn or US $mill)	Total revenues (Cdn or US $mill)	Derivative products utilized
Crew Energy Inc.	$963.2	$162.2	Options, collars, natural gas & interest swaps.
Birchcliff Energy Ltd.	$837.1	$135.3	Commodity price risk contracts.
Fairborne Energy Ltd.	$940.4	$223.3	Collars.
Iteration Energy Ltd.	$897.6	$163.8	Costless collars, oil and gas swaps.
Progress Energy Resources Corp.	$2,458.4	$295.4	Crude oil & natural gas swaps, options & collars, US dollar & natural gas fwd contracts.
ARC Energy Trust	$3,914.5	$842.1	Crude oil collars, three way collars, natural gas swap contracts, basis swaps, US dollar forward contracts,
Bonavista Energy Trust	$3,092.1	$628.6	Costless collars, put options, natural gas swaps and electricity swaps.
Pengrowth Energy Trust	$4,693.6	$977.4	Forwards, futures, crude oil and natural gas price swaps.
Penn West Energy Trust	U.S. $13,876	U.S. $2,154	Collars, forwards, interest rate swaps, foreign currency forwards, foreign currency swaps.
Cenovus Energy Inc.	US $20,552	US $648	Crude oil & natural gas futures to sell production, crude fixed price swaps & options.
TransCanada Corporation	$43,841	$8,966	Forwards, futures, commodity swaps, interest swaps, options.
Suncor Energy Inc.	$69,746	$25,480	Revenue hedge swaps, collars, interest rate swaps, hedges of transactions, puts, collars.

This table displays the Canadian Oil and Gas companies examined in this paper. Ranking is from smallest to largest by total assets. The table also lists the typical derivative products used by the companies.

Hedge Accounting

Canadian GAAP requires that companies report derivatives at their fair value at each balance sheet date. Any changes in the fair values of those derivatives are recorded in either Net Income (NI) or (OCI) for the period (CICA Handbook, Part V, Section 3855.76, 2011). This does not create an issue when the accounting rules are consistent with the economics of hedging. For example, a Canadian company may

have a US $1 million receivable due in 60 days from a U.S. company. When the U.S. company makes payment, the economic value of the receivable will likely have changed in terms of Canadian dollars, since the value of the Canadian dollar has changed vis-à-vis the U.S. dollar during that one-month period. For example, if the Canadian dollar has strengthened from Cdn $1.02 /US $1.00 to Cdn $.98/US$ 1.00, this would be reflected in the accounts by decreasing the value of the US $1 million receivable to Cdn $980,000 and recording a $40,000 foreign currency loss on the income statement at time of collection. If the Canadian company chooses to hedge this receivable by entering into a forward contract to sell US $1 million in 60 days for Cdn $1.02 million, the gain on the forward contract would offset any decrease in value of the US dollar receivable over the 60-day period. The Canadian company would record both transactions through the income statement and the forward contract gain would offset the Canadian dollar loss on collection of the receivable. In such a situation, there would be no need to hedge account for this transaction.Assume the same Canadian company enters into an agreement to sell a portion of its natural gas production in twelve months to customers in the U.S. and does not want to face the risk of natural gas prices declining over the coming year. The company could enter into a series of monthly futures contracts to sell a portion or all of its twelve-month production at a US dollar price determined today. The company could also enter into a series of monthly forward contracts to sell the US dollars received from its sales of natural gas, at a Cdn $/US $ exchange rate determined today. This effectively eliminates any uncertainty surrounding the company's twelve-month sales revenue denominated in U.S. dollars, and its sales revenue denominated in Canadian dollars.

Although these hedges make sense from an economic viewpoint, the accounting rules do not mirror the economics in terms of the timing of recognition of gains or losses. At each balance sheet date over the coming year, the company must mark-to-market its derivatives and any resulting change in fair value must go through the income statement. However, the actual sales of the natural gas will be recorded anywhere from one to twelve months hence. As a result, any of the interim gains or losses on the derivatives will be recorded in NI and not be offset by the losses or gains on the actual sales of the natural gas and collection of the receivables.

Under current Canadian GAAP, to remedy this accounting versus economic difference, the company can choose to hedge account (CICA Handbook, Part V, Section 3865.08, 2011). In doing so, the company would designate each of their forward sales contracts, or futures contracts, as hedges of their actual sales. When marking-to-market the contracts any gains or losses on the derivatives are recorded in OCI. When recording actual sales, the related accumulated net gains or losses transferred to NI from Accumulated OCI will net in the natural gas revenue account with revenue from the hedged items. The requirements for hedge accounting are onerous however. Canadian GAAP recognizes two types of hedges: fair value hedges and cash flow hedges. Fair value hedges are those designed to offset changes in the fair value of an underlying asset or liability. Cash flow hedges offset the variability of future cash flows (CICA Handbook, Part V, Section 3865.07, 2011). In our Canadian company examples, the forward contract protecting the value of the US dollar receivable is designated a fair value hedge, the futures contracts protecting the prices of future natural gas sales, cash flow hedges.

Under Canadian GAAP, to qualify for hedge accounting, documentation requirements are extensive. At hedge inception, a company must identify and document: i) the method of accounting for the hedge, ii) company risk management objectives and strategies, iii) the nature of the specific risk exposure, iv) the nature of the hedge, the hedging and hedged items, and the hedge term, and v) the method for assessing hedge effectiveness (CICA Handbook, Part V, Section 3865.08 (a) and (b), 2011).Throughout the term of the hedge and typically on a monthly basis, the company must also document the ongoing effectiveness of the hedge: i) by reliably measuring that the hedge has been effective over the past month, and ii) the hedging relationship is expected to continue to be effective into the future (CICA Handbook, Part V, Section 3865.08 (c), 2011).

Hedge accounting is onerous and costly. A company may enter into numerous hedging transactions. Each transaction, documented separately and measured regularly, must demonstrate past and expected future effectiveness. All hedge documentation requires updating in a timely manner. Hedge ineffectiveness occurs when the variability of the hedging item offsets less than 80% or more than 125% of the variability of the hedged item. Hedge ineffectiveness, recorded in NI (Accounting Standards Board, 2003) adds variability to the income statement.

RESULTS

Each of the twelve companies examined refers in their annual reports and financial statements to their risk management policies and strategies. All companies are consistent in their disclosure surrounding risk management. Crew Energy (Crew Energy Inc., 2010) for example, characterizes it's management of risk by i) highlighting the company's exposure to market, credit and liquidity risks, ii) recognizing that the company's Board of Directors has overall responsibility for creating and overseeing the company's risk management framework, iii) stating that the Board of Directors has implemented risk management policies and actively monitors compliance with these policies, and iv) clarifying that risk management policies are in place to identify and analyze risks facing the company. The risk management policies are to set risk controls and limits, monitor company adherence to policies and monitor market conditions.

The company goes on to explain the nature of the various risks faced by the company and the strategies followed to manage these risks. With regard to credit risk, for example, Crew Energy Inc. describes market risk as a situation where a "customer or counterparty to a financial instrument fails to meet its contractual obligations" (p. 33). Crew Energy Inc. also incorporates into its contracts with joint venture partners, the ability to withhold production in the event that a partner is not paying. All companies examined described the business practices they employ to manage their credit risk. These included policies such as establishing business relationships with only large, creditworthy purchasers and the marketing of their production through many purchasers.

All companies examined made reference to liquidity risk in the notes to their financial statements or in their annual reports. Suncor Energy Inc. (Suncor Energy Inc., 2010) is typical, describing liquidity risk as "the risk that an entity will encounter difficulty in meeting obligations associated with financial liabilities" (p. 79). In managing liquidity risk, all companies made reference to their cash management practices and their use of high quality corporate or government short-term money market securities as investments for their excess cash. Reference is also typically made to the management of working capital to ensure there is cash available to meet current obligations, and should the need arise, the company's ability to draw on unused lines of credit.

The 12 companies examined typically employ derivatives in the management of market risk including commodity price risk, foreign currency risk, and interest rate risk. Each of the energy companies examined makes use of derivatives to help manage their financial risks. Regardless of entity size, each company uses a variety of derivative instruments, as deemed necessary, and from time to time, to help manage financial risks resulting from fluctuations in commodity prices, interest rates and foreign exchange rates. The most common types of hedging transactions entered into by energy companies examined were oil and/or natural gas swaps, collars or forward contracts, including futures contracts, and interest rate swaps. An oil or natural gas swap is similar to an interest rate swap. For example, a crude oil producer may wish to reduce the variability of its crude oil selling prices over the next twelve months. The producer can do this by entering into a series of forward contract payments through a swap dealer. The producer pays a notional amount multiplied by a floating price, and receives in return, a series of payments at a fixed price, multiplied by the same notional amount. The floating rate payments made by the producer to the swap dealer should approximate the same amounts paid to the producer by its customers for the actual physical delivery of oil. By netting the swap with the payments received for

physical delivery, the producer should receive the fixed price per barrel negotiated with the swap dealer. By entering the swap, the producer gains control over crude oil sales revenues and eliminates, depending on the notional amount hedged and the hedge's effectiveness, some or all of the company's revenue variability. The hedge may not be entirely effective if the grade of oil in the swap contract does not share the same characteristics of that physically sold by the producer.

An oil or natural gas producer desiring to protect its production from falling prices employs costless collars. For example, a producer wishing to receive no less than US $75.00/bbl for its monthly oil sales, and willing to cap its monthly revenues at US $85.00/bbl over the upcoming year, could purchase a series of out-of-the-money put options with an exercise price, say, of US $75.00/bbl. The company simultaneously sells out-of-the-money call options with an exercise price of, say, US $85.00/bbl with the same maturity dates and quantities as the put options. By so doing, the producer effectively ensures its production revenues will be no less than US $75.00/bbl, or more than US $85.00/bbl. The collar is costless proceeds from selling the call options offset payments for purchasing the put options.

The producer continues to sell its oil to customers at market prices, but if actual crude oil prices fall below US $75.00/bbl, the "gain" on exercise of the put option will offset the "loss" on the actual sales of crude. The "gain" on crude sales in excess of US $85.00/bbl offset the "loss" on the written call options. For any actual sales between the upper and lower bounds, the call and put options will be out-of-the money and not exercised. To fix the amount of revenue received from their oil and/or natural gas production four of the twelve companies examined entered into forward contracts. It is normal for these contracts to extend up to two years into the future. By fixing the future prices today, management gains control and certainty around at least a portion of future revenues. The counterparties to these agreements are typically end users who also gain certainty around a portion of their future costs.

Four of the companies examined make use of interest rate swaps from time to time. Companies use these swaps as cash flow hedges in situations where one party to the contract "swaps" payments with the other contracting party. Typically, a bank acts as the intermediary between the contracting parties. In a market of rising interest rates for example, a company may have issued new debt at floating rates in response to investor demand. Management might be concerned about rising interest rates and the impact on its variable rate debt. A common course of action in this situation would be for management to enter into a swap agreement whereby the company makes fixed interest payments to the counterparty and receives in return floating rate interest payments. A company typically nets these payments. In those instances where the fixed interest payment is larger for a given payment period than the floating rate interest payment, the company holding the floating rate debt makes a payment of the net difference to the intermediary. The intermediary, in turn, passes the net payment to the company holding the fixed rate debt. The company holding the floating rate debt makes its normal interest payment to investors and, if the floating interest rate is higher than the swapped fix rate, will receive from the intermediary the difference between the fixed and floating rates multiplied by the notional amount of the debt. The company nets this receipt with its floating rate interest expense on its income statement, effectively recognizing interest expense at the fixed rate.

With regard to hedge accounting, nine of the twelve companies examined do not employ hedge accounting, while three of the largest four corporations do hedge account. Suncor (2010), for example, does not use hedge accounting for derivatives related to commodity price risk (options and swaps) and any fair value changes to these derivatives are "immediately recognized as a gain or loss in the same revenue or expense account where the hedged transaction is recorded" (p. 76). For some cash flow hedges, such as forwards, futures and collars used to help manage changing market prices, Suncor uses hedge accounting. TransCanada Corporation (TransCanada Corporation, 2010), another large energy company, applies hedge accounting to transactions that qualify for such treatment. The company records fair value changes in NI for those derivative instruments not qualifying for hedging treatment.

TransCanada treats these as held-for-trading investments. Cenovus Energy Inc. (Cenovus Energy Inc., 2010) does document certain transactions as hedges for hedge accounting treatment. The company records all other derivatives not designated as hedges, using the same mark-to-market accounting treatment as that applied by TransCanada Corporation. Penn West Energy Trust (Penn West Energy Trust, 2010) is the one large oil and gas-producing company examined which does not use hedge accounting. Penn West states in their financial statements "All risk management assets and liabilities are derivative financial instruments designated as held-for-trading" (p. 8). The company records any fair value changes in these derivatives in NI. Pengrowth Energy Trust applies the same classification and treatment with its derivatives: "All derivatives are classified as held-for-trading which are measured at fair value with changes in fair value over a reporting period recognized in net income." (p. 41). Another mid-sized company, Bonavista Energy Trust (Bonavista Energy Trust, 2010) states that "all derivative contracts are classified as held-for-trading and are recorded on the balance sheet at fair value, with changes in the fair value recognized in net income, unless specific hedge criteria are met" (p. 6). For the remaining two mid-sized and for all the small companies examined, derivatives used for hedging purposes are classified as held-for-trading with changes in fair value recorded in NI for the period in which the changes occur. These companies do not use hedge accounting.

With regard to whether those companies using derivatives speculate, 11 of the 12 companies examined state outright that they do not use derivatives to speculate. For example, Crew Energy Inc. (Crew Energy Inc., 2010), when referring to how it accounts for financial instruments, states, "The Company does not use these derivative instruments for trading or speculative purposes" (p. 29). Similarly, in accounting for its derivative financial instruments, Birchcliff Energy Ltd. (Birchcliff Energy Ltd., 2010) states that the company's "policy is not to utilize derivative financial instruments for speculative purposes" (p. 70). Fairborne Energy Ltd. (Fairborne Energy Ltd., 2010) states in its annual financial statements that the "Company's practice is not to utilize financial instruments for trading or speculative purposes" (p. 28). Of the twelve companies examined, only Suncor Energy Inc. (2010) explicitly stated in their financial statements that they utilize derivatives for trading as well as non-trading activities. In the notes to their annual financial statements, Suncor states that the company "also uses derivatives for trading purposes" (p. 74), and "When used in a trading activity, the company is attempting to realize a gain on the fluctuations in the market value of the derivative" (p. 74).

All companies examined were consistent in their understanding of the financial risks facing their companies. Without exception, each company identified commodity price, foreign currency, interest rate, liquidity and credit as the main risks that their risk management programs and strategies dealt with. In addition, all companies shared the same view regarding the derivatives that best manage their financial risks, especially commodity price risk. Derivatives of choice were oil and natural gas swaps, collars and forwards. Larger companies also used interest rate swaps; while those in broader energy related lines of business also used electricity swaps and specific transaction hedges. However, in terms of managing commodity price risk, all firms were consistent in their derivative use.

With regard to hedge accounting, nine of the twelve firms examined do not use hedge accounting. As mentioned previously, the cost of hedge accounting can be onerous. The majority of the small and mid-sized companies examined do not use hedge accounting and one reason is likely the ongoing cost to do so. Only the large oil and gas companies employ hedge accounting. Arguably, since small and mid-sized oil and gas companies are measured against their peers by analysts and shareholders, as long as they are consistent in their accounting and presentation, the fact they don't use hedge accounting is likely not an issue. If failing to use hedge accounting introduces volatility to their reported earnings, it is not so much an issue if all their peers are reporting in like manner. For the large oil and gas companies, the costs of compliance with hedge accounting are not as significant as they are to the smaller energy companies, so they are more likely to see the benefits of hedge accounting and not just the costs.

With regard to speculation carried out by oil and gas company management, only one company, Suncor (2010), specifically refers to its trading of derivatives for profit. The other companies examined specifically state in their financial statements they do not use derivatives to speculate. However, referring again to Whaley's (2006) definition of speculation, being that "a trading position established to profit from a directional move in the price of an asset" (p. 887), there is a strong argument to be made that these companies do in fact, speculate. Although all companies are consistent in their view of what constitutes commodity price risk, and the strategies and derivatives used to mitigate that risk, they are inconsistent in what portion of that risk to hedge. For example, Crew Energy's (2010) policy is to "enter into commodity price contracts when considered appropriate to a maximum of 50% of forecasted production volumes for a period of not more than two years" (p. 33). Iteration Energy Ltd. (Iteration Energy Ltd., 2010), another smaller oil and gas company "may commit up to 35% of its production hedged spanning up to two years forward" (p. 6). The Board of Directors of Bonavista Energy Trust (Bonavista Energy Trust, 2010) one of the mid-sized oil and gas companies examined "has approved a commodity price risk management limit of 60% of forecast production" (p. 5). One of the large energy companies, Penn West Energy Trust (Penn West Energy Trust, 2010) in their MD&A report state they will use derivatives to manage their commodity price risks up to 50 percent of forecasted sales volumes up to two years out and up to 25 percent for one additional year thereafter.

Not only is there variance in risk management oversight in terms of a limit in the percentage of production hedged, there is variance in the actual percentages hedged. For example, Iteration Energy Ltd. (2010), with a 35 percent hedging limit on commodity risk, had hedged 23 percent of forecast 2010 production at its December 31, 2009 year-end. Pengrowth Energy Trust (Pengrowth Energy Trust, 2010) as at the same date had 34 percent of 2010 oil production hedged and 45 percent of natural gas volumes. The variances between companies in terms of hedge limits and the production volumes hedged gives rise to the question of what exactly is the purpose of having hedge limits approved by the Board of Directors.

In addition, once limits are established, why do companies not hedge right to the Board approved limit? Concerning the first question, it is not clear from the financial statement information examined, what the reason is behind different companies setting different hedge limits. If all management teams are in the same industry, with the same price, demand and supply information, how do they each arrive at a different hedge limit? If the goal of hedging is really to manage financial risk, why do these companies not hedge 100 percent of their forecasted production for the year? By analogy, a Canadian company purchasing new equipment manufactured in the United States and concerned about foreign currency risk would likely fully hedge the transaction and not simply a portion of it. If management were to hedge, say, 50 percent of the purchase on the expectation of the Canadian dollar strengthening so they would end up paying fewer Canadian dollars than if it were fully hedged, they would be speculating. If they hedged 100 percent of the transaction, then subsequently determined the Canadian dollar was going to strengthen vis-à-vis the U.S. dollar and then lifted a portion or the entire hedge in anticipation of a gain, they would be speculating. Extending this example to the oil and gas industry, if the management teams in these energy companies really wanted to remove price risk on their oil and gas commodities, why are they not hedging 100 percent of their forecasted production? If the company's risk management goal is to eliminate price risk, why hedge only a portion of anticipated production? Management of these companies consistently state they do not use derivatives for hedging, yet they vary from year to year the percentage of their production they hedge.

Effectively these companies are speculating by deciding to stay exposed to a portion of their identified risk. If they were not speculating, they should consistently be hedging to the full hedge limit authorized by their respective Boards of Directors. These various management teams must be using their judgment regarding current and future commodity prices and deciding at different points in time, how much of their production to hedge. It is possible the companies' Boards of Directors set maximum hedging percentages to limit the amount of speculation that management carries out.

Guay & Kothari (2003) provide several reasons explaining why companies might maintain a derivatives program even though that program has a relatively small impact on total company risk. One of the applicable reasons for oil and gas companies' use of derivatives might be to manage internal decisions (e.g., performance evaluation). Another might be to use derivatives "for purposes other than those predicted by traditional risk-management such as to speculate on asset prices or to mitigate the likelihood that changes in asset prices increase analyst forecast errors" (p. 453). It is difficult to determine from external financial statements how the use of derivatives might influence internal decisions such as performance evaluation, since companies do not disclose that type of information in annual reports and financial statements. However, there is a strong argument that management teams in the energy industry use derivatives in a manner not only to hedge but also to speculate. It is not clear from examining annual financial statements whether derivatives are used to manage analyst forecast errors as, again, this type of information or management decision making is not disclosed in annual financial reports.

It is interesting that it is the largest company examined (Suncor Energy Inc.) that states clearly it does trade in derivatives for profit. Perhaps, being one of the largest oil and gas companies in Canada with total assets approaching Cdn $70 billion and total revenues of Cdn $25 billion, Suncor is in a much better financial position than its peers to take on more financial risk and absorb more losses, should they occur. It may also be a situation where, being such a large company with a significant internal trading group, Suncor may attract more talent in the derivative area than its peers in the energy industry. F. A. Hayek (Hayek, 1945) observed that in any given economy, no single mind has all knowledge necessary to understand and manage that economy. However, there is "knowledge of the particular circumstances of time and place" (p. 521). By attracting experienced and knowledgeable employees around which to build a trading department, the likelihood of having the necessary expertise within the company for profitable trading activities increases.

CONCLUDING COMMENTS

The goals of this paper were to examine the publicly available financial reports of a sample of Western Canadian oil and gas companies to determine whether they i) have documented risk management strategies for dealing with financial risks, ii) make use of derivatives to help manage their financial risks, iii) make use of common strategies with derivatives in managing their risks, iv) practice hedge accounting, and v) speculate. In answering these questions, annual financial statements and MD&A reports of twelve publicly held energy companies (primarily oil and gas, and piplines) were examined. There was sufficient publicly available information to conclude that i) all companies examined have documented risk management strategies; ii) all companies examined use derivatives to help manage their financial risks; iii) common risk management strategies using derivatives are employed by all companies examined; iv) nine of the twelve companies examined do not employ hedge accounting, and the three that do are large companies, and; v) all companies may not use specific derivatives to speculate but they do in fact speculate by choosing not to hedge all of their risks.

The benefit of these results includes the acknowledgement that all oil and gas companies deem it important to have a documented risk management strategy disclosed to shareholders and other users of the company's financial statements. The results of this paper show that financial managers of publicly held oil and gas companies do manage a portion of their commodity price risks and use common derivatives and derivative strategies to do so. With regard to the lack of hedge accounting employed in the oil and gas industry, the results provide a useful benchmark to help measure the oil and gas industry impact of the current IASB exposure draft on hedge accounting, once it is implemented. It will be interesting to see if the the exposure draft's objectives of better aligning hedge accounting with risk management practices is acknowledged by Canadian energy companies through increased use of hedge accounting. In the IASB's strategy to have financial statements better reflect economic reality (e.g., balance sheet accounts carried at fair value rather than historical cost), it will be interesting to see whether

the small and medium sized oil and gas companies do adopt hedge accounting. This paper demonstrates there is a disconnect between oil and gas companies financial statement disclosures surrounding definitions of hedging and speculation and whether firms do, in fact, speculate. This may simply require a clearer definition and understanding in the financial statements of what constitutes hedging and speculation. This could more accurately portray the actions and positions financial risk managers take when they decide to hedge only a portion of an identified risk.

Relying on archival data, here audited annual financial statements and annual reports, does not provide all the information necessary to draw definitive conclusions on some of these research qestions. For example, in trying to determine why companies use derivatives in managing financial risk, it would be necessary to actually immerse oneself in a company's operations, and engage with those involved in company risk management activities to understand the motivations, analysis and thought processes behind their actions. There are many opportunities for future research in the area of financial risk management, financial accounting, and the use, measurement, recording and disclosure of derivative activity in publicly available information such as company annual reports and financial statements. For example, there are research opportunities in determining the true motivation(s) for entity-level derivative use, versus the individual shareholder/investor level. Also, there are real opportunities to measure the impact of hedge accounting changes and whether and how they influence the oil and gas industry reporting. There are also opportunities to engage company management including Directors, investors, analysts and other users of financial statements in discussion concerning the financial risks companies face, including how and why derivatives are used to mitigate or eliminate these risks. Opportunities also exist to investigate why there is such variability between firms as to commodity hedge limit percentages, and why and how firms choose to hedge less then their authorized limits.

Future research envisions the use of a larger sample of companies. The types of derivatives used by those companies can yield a number of potential correlations between the company size and the type of hedging used by the members of the companies of each size. This research can also verify the validity of the division of the companies using size criteria.

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