

AN ANALYSIS OF THE DRIVERS OF EXPLORATION
AND PRODUCTION RESTRUCTURING

by

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AND PRODUCTION RESTRUCTURING

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ABSTRACT

This study focused on factors that surround mergers and acquisitions within the exploration and production vertical of the oil and gas industry. Prior research has focused on factors that surround mergers and acquisitions in the broad economy as a whole. Research within the industry largely focused on the price effects caused by oil and gas mergers. Based off of the prior research, this paper aims to identify drivers specific to exploration and production mergers. The three hypotheses put forward at the start of the research were proven to hold through the experiment.

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INTRODUCTION

Throughout the history of the United States, cities across the country have earned the classification of “boomtown” due to a sudden population influx. Although the impetus for the growth of these communities has been varied, the majority of boomtowns in the late twentieth and twenty-first centuries have been a result of an oil boom. Boomtowns and oil companies are prosperous in the face of high oil and gas prices and technological innovation but quickly falter in a negatively changing price, regulatory, and/or consumer environment. Restructuring through consolidation within the oil and gas industry significantly reduces jobs in boomtowns and across the country during every boom and bust cycle. However, restructuring could benefit investors having the predictive power of identifying potential merger targets because they could reap the price benefits of the increase in stock price at announcement of the merger.

Studies of restructuring and mergers and acquisitions have largely focused on drivers of mergers and acquisitions and consolidation within the overall economy. While some of these studies have used oil and gas companies to make generalizations of the economy as a whole, few researchers have committed to study drivers they find specific to the oil and gas industry. Other researchers have focused on the effects of consolidation within the industry regarding gasoline prices. Finally, other researchers have created case studies of previous successful mergers. However, few researchers have studied this topic from the root of the issue asking the question, “What causes this consolidation in the first place?” The following presentation aims to close that gap by identifying potential drivers and measuring their impact on the exploration and production vertical of the industry.

RESEARCH QUESTIONS

This paper will focus primarily upon three potential drivers of mergers and acquisitions in the oil and gas industry.

1. What effect does the spread between oil and gas prices have on the rate of consolidation in the industry?
2. What effect does increasing or decreasing regulation have on the rate of consolidation?
3. What effect does increasing consumer sentiment for alternative fuels have on the rate of consolidation within the industry?

The remainder of the paper will seek to answer these questions through a literature review, as well as a discussion of methods, results, and implications of the study.

LITERATURE REVIEW

Identified Drivers of Acquisitions

Acquisition drivers have been studied across many industries to develop acquisition theories that can be commonly applied across a variety of business sectors. A driver can be defined as “a factor that causes a particular phenomenon to happen or develop” (“Driver”, 2015). The acquisition and capital deployment decisions of each company are important to study in the oil and gas industry as these decisions have a large effect on the industry as a whole. Some important acquisition drivers identified in the review of literature for this study include: discipline of poor management, low antitrust regulation in the industry, changes in accounting guidance, commodity price, capital structure, purchases of quickly-depleting reserves and diseconomies of scale experienced by larger firms.

During the 1973 energy crisis, Reid (1973) suggested, “our energy crisis highlights the importance of capital budgeting decisions made by large firms and the impact of government policy upon the process” (p. 50). Mergers and acquisitions are a subcategory of capital budgeting that requires special attention from investors in the industry. “Mergers and acquisitions represent a special form of capital budgeting since decisions to expand via combination generally add capacity to the surviving or acquiring firm, but add nothing to industry and aggregate capacity” (Reid, 1973, p. 50). Therefore, a study of the drivers of these combinations and spin-offs sheds light in evaluating the value of these transactions and also focuses on important issues within the industry. “Agency theorists define the main problem of firms as the inefficient use of capital to maximize profit and they identify the main reason for the problem as a failure of internal organizational control by corporate managers” (Baxter, 1999; Jensen 1993, p. 272). However, it is important to note that even after a study of drivers of transactions within the industry, identifying takeover candidates would be difficult. “Public information alone would not provide an adequate guide to takeover candidate identification” (Anderson and Honeycutt, 1986; Hirschey, 1986, p. 3).

Management’s decision-making has been considered as a potential driver in acquisitions. Andersen and Honeycutt (1986) provide two viewpoints on this issue: (1) mergers serve to discipline management’s poor behavior; and (2) mergers are solely a result of management vision. Mergers are thought to discipline management’s poor behavior because “takeovers and the threat of takeover are actions to correct management’s failure to pass...excess cash flow through to stockholders” (Andersen & Honeycutt, 1986, p. 2). This viewpoint illustrates the competitive nature of the petroleum industry in regard to

stockholders. Companies in the industry produce essentially identical products so one company's failure to pass cash flow to stockholders will result in investors moving their invested capital to another company that will also give them exposure to the production of this commodity. This cycle will depress the low dividend company's stock price and thus increase the attractiveness of the company as a merger candidate. Alternatively, combinations through mergers and acquisitions can be seen as a result of management vision. Andersen and Honeycutt (1986) argue that macroeconomic and industry predictions of management will differ; therefore mergers and acquisitions demonstrate the testing of these expectations and cannot be inherently evaluated as irresponsible risk-taking.

Further researchers have gone on to examine the impact of antitrust regulation on transactions within the oil and gas industry. Antitrust regulation exists for the purpose of preserving competition within an industry. Several measures are used to evaluate this preservation of competition such as the Herfindahl-Hirschman Index, which is used to calculate overall industry concentration (Weston, 2002, p. 83). Antitrust regulation is not as burdensome on oil and gas mergers as on other industry mergers. Weston (2002) suggests an explanation for this phenomenon, "although individual oil companies are large, they are in an industry that is also large, whether measured by revenues, total assets, or reserves" (p. 85). In other words, antitrust regulation cannot be as strong because mergers of large companies within the oil and gas industry do not impose a large threat of anticompetitive nature in the industry as a whole. Other researchers have suggested this is a driver behind the overall larger volume of transactions in the oil and gas industry as compared with other industries. "The index of law enforcement as it relates to this industry has been quite low on a variety of matters related to

structure and behavior” (Reid, 1973; Ruttenger, 1973, p.55). As a result of this lower threshold for antitrust roadblocks, management in this industry has relatively more freedom to complete large transactions. This may be largely related to the economies of scale regulators foresee in production, causing regulators to be more likely to allow larger transactions. However, this relative freedom can lead to more shortfalls in maximizing return to shareholders, as management is free to test out potential combinations and spin-offs. “Separation of ownership and control could lead to circumstances where managers might choose not to serve the interests of the stockholders that they represent” (Andersen & Honeycutt, 1986, p. 8). Management’s control of these risky investment decisions could lead to violation of the principal-agent relationship, thus not maximizing return for shareholders.

Sudden changes in accounting guidance also have been hypothesized to have an effect on the rate of transactions within the oil and gas industry. Changes in accounting guidance change the reporting requirements for company’s financial statements and thus alter the appearance of company results to investors. It follows that if given a choice, management would choose the guidance that best benefits the appearance of their performance to investors “Managers of acquirer firms choose the methods or accounting for a merger that will maximize reported income over time” (Garsombke & Allen, 1983, p. 285). One example of the change in accounting guidance is SFAS No. 19, which requires that all oil and gas companies use the successful-efforts method of accounting for exploration and acquisition costs regardless of previous accounting methods utilized. “This switch would result in an increase in the debt/equity ratio of [previously non successful-efforts reporting] firms because unproductive property and capitalized unproductive exploration costs would have to be written off by

reducing retained earnings” (Garsombke & Allen, 1983, p. 285). In situations that would hurt the appearance of a company such as this one, it would be advantageous for management to acquire another firm to hide the potential hit to the company’s balance sheet. Garsombke and Allen studied the effect of this change on accounting regulation. They found that merging firms in the time period surrounding the implementation of SFAS No. 19 experienced less increase in its debt/equity ratio. This hid the underlying hit to the balance sheet that would have resulted if the company had had to solely restate previous balance sheets of the previously uncombined company. Therefore, management might be driven to undergo these combinations in an effort to improve the perception, instead of sharing the reality of the company to investors.

Finding optimal capital structure has also been hypothesized to influence the rate of combinations through the industry. However, for this hypothesis to hold, it must follow that some form of an optimal capital structure would be essential to a firm’s survival. Chung, Na, and Smith conducted a study examining oil and gas firms with “extreme” capital structures to determine if the companies failed or became merger targets. Through the research, the authors found, “capital structure policy bears little relationship to survival probability” (Chung, Na, & Smith, 2013, p. 100). Although the authors could not prove that there indeed is an optimal capital structure within the industry that all companies should target, the optimality of a capital structure is in the eyes of the beholder. In other words, finding an optimal capital structure could be a driver for management to undergo an acquisition, but management of each company would pursue a different capital structure due to their different viewpoints. “When an investment proves to be in error it is difficult, given uncertainty, to distinguish between management incompetence or irresponsibility, managerial optimism, or mere bad luck”

(Andersen & Honeycutt, 1986, p. 8). However Reid (1973), suggests, “lagging growth in domestic petroleum refining capacity can be traced directly to capital budgeting in the industry and to governmental policy that influenced it” (p.51). Therefore, capital structure and budgeting may not be a determinant of a firm’s survival but capital budgeting may later have an impact on the industry’s survival as a whole. In summary, although capital structure does not inherently have a material effect on the chances of a firm’s survival, seeking of appropriate capital structure as determined by management can still be a driver in the acquiring of other firms in order to maximize the total potential return to shareholders.

Perhaps the most obvious driver of oil and gas combinations is the price environment for the valuable commodity. Although North America now accounts for a large share of global oil and gas production, the influences of the Organization of Petroleum Exporting Countries (OPEC) still has a profound effect on the pricing of the commodity across the world. OPEC operates as a cartel and in effect fixes oil prices if the countries that comprise OPEC stick to their straight quota system. OPEC is largely able to produce gasoline at lower prices than firms in the United States due to the mix of its countries’ resources compared to the United States’ largely more unconventional resources. OPEC consistently has members that do cheat on this quota system; however this is anticipated within a system of a cartel. Weston (2002) suggests, “economic development requirements in OPEC countries create internal pressures for production increases”, thus encouraging these poor countries to cheat on the established quota system (p. 70). Because OPEC has the ability to quickly increase crude oil supply to the market, OPEC has a profound effect on the price environment for oil and therefore a profound effect on the merger and acquisition activity within the space. Weston (2002) suggests, “the M&A activity

of the oil industry can be viewed as a response to price instability” (p. 72). This merger and acquisition motivation can be explained by the desire of firms to acquire new technology and assets that allow the companies to cut costs in oil production and therefore be more competitive with OPEC on price and cost structure. In summary, although mergers have an effect on the retail price of gasoline, mergers can also be driven by the wholesale price of gasoline.

Another unique aspect of the oil and gas industry is the limited supply of oil and gas reserves within the United States. Unlike other industries, oil and gas is a natural resource and once all reserves have been tapped, there will be no more reserves for oil and gas companies to refine into gasoline and other crude products. Companies can be separated in the oil and gas industry by who has rights to valuable reserves and who does not. Companies that have plentiful reserves have been proven to be able to reduce the need for restructuring and restructuring costs better than their counterparts. “Employment levels were significantly higher for large oil companies when the value of their proven oil reserves increased” (Baxter, 1999, p. 284). Furthermore, transactions within the industry have been tested to see whether purchasing of reserves or of entire companies are influenced by changing price environments. “Managers can be motivated to purchase energy reserves and to time prices in the commodity markets when making takeovers in the energy industry” (Ng & Donker, 2013, p. 167). Thus, both pricing and reserves are added to the list of components driving the level of acquisitions within the industry. These two components make sense in a commodity driven industry. “The real gain and motivation for acquirers is to gain reserves because this is the greatest source of wealth to their shareholders in the long-term” (Ng & Donker, 2013, p. 168). In other words, Ng

and Donker agree with Reid that acquisitions simply provide an alternative capital budgeting technique that enables management to increase shareholder value.

If quickly depleting resources are so important to firm survival, why then do some companies spin-off portions of their business or sell these valuable assets? Of course, there is always the issue that the mineral deposits contained in these assets simply do not fit with the company's product niche; meaning the company is not specialized enough in that mineral type to efficiently and effectively get that resource out of the ground. After following mergers in the industry, it is also clear that many divestitures occur in an effort to pass hurdles of antitrust regulation and preserve the competitive landscape of the industry (Karikari et al., 2006, p.47). Reid (1973) suggests divestiture exists in the oil and gas space because "larger firms in the industry may be realizing diseconomies as related to scale, integration, or diversification (either product or spatial), or a combination of each" (p. 56). This suggests that a main driver in the divestiture of assets or business units by oil companies is a result of the company becoming too big. Although the super majors are always discussed as being the leaders of the industry and the guiding force, Reid found that the smaller majors were in fact outperforming the super majors and the industry as a whole. Reid (1973) further suggests, "separate producing, refining, transportation, and marketing companies could stimulate competitive behavior in the industry" (p. 56). Although the focus of transactions in the most recent downturn has been to integrate as opposed to disintegrate, Reid suggests that maybe disintegration is the way to restore a truly competitive environment to the industry as a whole. Thus, diseconomies of scale have proven to be a driver of divestiture transactions within the space and should be a point of focus for the large super majors of the industry.

Price Effects of Acquisitions

The consolidation of the oil and gas industry leads to fewer players in the production and refining of oil and gas, but how does this effect gasoline prices further down the value chain? From a simple analysis of economics supply and demand, it is evident that fewer suppliers should mean less price competition and therefore allows suppliers as a whole to be able to sell their product at a higher price to customers in order to meet the unchanged demand. However, Karikari et al. (2006), argues, “the effect of these mergers on gasoline prices depends on two opposing forces: the combined market power that tends to increase prices and efficiency gains that tend to decrease prices” (p.47). Although combinations of major companies could be negative, there also might be price decreases as producers pass on cost savings to customers. However, as Simpson and Taylor point out, this is a heavily debated topic. “While these firms claim that these transactions have benefitted society by generating billions of dollars in cost savings, others claim that these mergers and acquisitions have harmed society by enabling the firms to raise gasoline and diesel prices” (Simpson and Taylor, 2008, p. 2). A further study of oil and gas merger price effects can shed more light on the legitimacy of each side of the argument.

Gasoline is distributed to consumers through means of branded and unbranded stations. Unbranded gasoline is defined by Clover (1953) as, “brands that are not advertised nationally or regionally. Very little, and usually no use of brand names [is] made by these [gas stations]” (p. 388). Therefore, branded gasoline can be defined as gasoline that is regionally or nationally advertised. The main distinction between these two types of gasoline is the additives that refiners put in the branded gasoline. However, these additives show little sign of improving

the actual quality of the gasoline. In addition, branded gas stations are required to buy from one supplier whereas unbranded stations are allowed to shop for best price. Karikari et al. (2006) found that “price increases were slightly larger for unbranded gasoline than for branded, consistent with the fact that disruptions tend to reduce the supply of unbranded gasoline more than branded gasoline as refiners meet the demand of their branded distributors first” (p. 54). Therefore, consolidations within the oil and gas industry have a lesser effect on prices for the branded gasoline stations than unbranded stations. Although, “industry mergers...generally led to average increases in wholesale gasoline prices for branded and/or unbranded gasoline of about 2 cents per dollar” (Karikari et al., 2006, p.55). Even though branded gasoline is protected from supply disruptions, these customers cannot be fully insulated from the price increases resulting from industry consolidation.

Pricing pressures are one of the key factors that the Federal Trade Commission (FTC) evaluates in determining if a potential oil and gas merger causes anticompetitive harm. According to the FTC regarding the Sunoco / El Paso merger, “the two ‘most plausible concerns of anticompetitive harm’ [were]: (1) an increase in gasoline prices in Philadelphia, and (2) an increase in gasoline prices along locations served by the Laurel pipeline” (Silvia and Taylor, 2013, p. 97). An important note here is that mergers in the oil industry generally will not have a profound gasoline price effect across the entire country. Instead the vast majority of oil and gas mergers would only affect gasoline prices in the area surrounding those firms’ specific assets. Simpson and Taylor (2008) define geographic markets for the oil and gas industry as “almost certainly no larger than a metropolitan area, since few people commute outside a metropolitan area on a regular basis” (p. 3). This explains why oil and gas mergers typically only affect prices

in certain geographical markets. Only mergers of oil giants such as Exxon and Mobil could result in a major price effect throughout the United States. However, the FTC would evaluate this potential risk and block a merger that would impact gasoline prices negatively for consumers. Even so, Silvia and Taylor (2013) tested retail rack prices in several regional mergers and found “no positive impact on either retail or branded rack prices, a finding that was robust across all control areas” (p. 111).

In the study of merger price effects, it is important to control for the effects of supply shocks as well. A supply shock is “an unexpected event that changes the supply of a product or commodity, resulting in a sudden change in its price” (“Supply Shock”, 2015). Simpson and Taylor argue that previous studies on merger price effects may be inconsequential due to the failure of these studies to account for supply shocks. “Those papers that examined the effects of many oil industry mergers in many markets run a serious risk of incorrectly attributing to a merger a price increase or decrease that was caused by a local supply or demand shock” (Simpson and Taylor, 2008 p. 2). Therefore, although price effects are important for investors to understand for a full understanding of the FTC’s considerations when evaluating the competitive nature of mergers, studies of merger price effects cannot fully be relied on for statistical accuracy due to the other factors potentially affecting gasoline price swings.

Merger Case Study—Exxon-Mobil

The Society of Petroleum Engineers (SPE) is the largest member organization within the petroleum industry. SPE is trusted to administer guidance and report on many industry-specific issues. SPE has issued four steps for merging oil and gas companies:

1. “Structuring and merging operating units on a logical “business unit” basis to realize synergies
2. Building a common understanding of how work processes are defined and structured
3. Achieving cross-functional integration as low as possible in the organization
4. Merging technical and support functions to systematically pursue efficiencies and incorporate industry best practice” (Knabe et al., 2002, p. 1).

SPE has identified these issues as the guiding principles for energy company consolidation due to the unique merger environment within the industry. The main issue that SPE cites as the failure of energy consolidation is the failure to realize valuable synergies that originally were the root motivation in pursuing the transaction in the first place. Knabe et al. (2002) identifies two reasons for this failure to realize synergies: (1) “merged organizations often operate in a cumbersome fashion, with poorly defined work processes”; and (2) “technical and administrative functions remain fragmented, resulting in limited information sharing and poor integration of functional expertise into operational decisions” (p. 1). These synergies have in fact been overvalued and unrealized in many oil and gas combinations over the years, especially in times of uncertain oil prices as companies scramble to combine in order to stay alive. One such example of this scrambling is the Halliburton and Baker-Hughes transaction, which is set to close at the end of this year. Many analysts have suggested that Halliburton has paid much too high of a premium for Baker-Hughes. However, only time will tell if this was the right decision for both companies as they struggled to stay running in the current price

environment and compete with their largest competitor, Schlumberger (Gold and Kendall, 2014, p. 1).

The Exxon-Mobil merger in 1998 is considered the best example of how a merger should look in the oil and gas industry. Although projected synergies are not often perfectly realized by merging companies, Exxon-Mobil's management team was able to appropriately monetize the projected synergies. By 2000, Exxon-Mobil reported having realized \$4.6 billion in synergies, over half of the \$7 billion predicted by analysts to be achieved by 2002. Management cited reasons for combining stating, "by combining complementary assets, Exxon-Mobil would have a stronger presence in the regions of the world with the highest potential for future oil and gas discoveries. The combined company would also be in a stronger position to invest in programs involving large outlays with high prospective risks and returns" (Weston, 2002, p. 72). The merger was one of the biggest mergers across the industry as a whole and enabled the combined company to supplement the uncombined companies' slowing organic growth.

As with any merger, the stockholders of the target company must be bought out by some premium valuation. Exxon offered Mobil shareholders 1.32 shares for each share of Mobil outstanding. This all-stock offer equated to a total valuation of \$74.2 billion for Mobil or a 26.4% premium at the time of announcement (Weston, 2002, p. 73). Although there is a common misconception that the terms of all-stock transactions do not matter, Weston (2002) argues, "the terms of the deal determine the respective ownership shares in the combined company" (p.73). As a result of the deal terms, Exxon shareholders retained a 70% stake in the combined company with Mobil shareholders holding the remaining 30% of the company.

Although the Exxon-Mobil merger was a large transaction by industry standards, the companies had to divest relatively few of their assets to pass United States regulatory approval. This is mainly because the merger had little effect on competition levels among the industry as a whole. “The reason for this is that although individual oil companies are large, they are in an industry that is also large, whether measured by revenues, total assets, or reserves” (Weston, 2002, p. 85). Exxon-Mobil’s combination did not have a profound effect on the competition within the industry largely due to synergies and economies of scale that allowed lower prices to be passed on to consumers. However, Exxon-Mobil is an industry giant with few firms rivaling the company in terms of size and integration of the verticals.

With the recent price downturn, there have been many rumblings of potential combinations of exploration and production companies. Royal Dutch Shell and BG Group announced this year that they would be merging in a \$70 billion deal. Shell cited wanting to grow its liquid natural gas business as its motivation for pursuing the deal. (Scheck, Williams, and Gilbert, 2015, p. 1). In addition, Anadarko withdrew a preliminary bid for Apache in November of this year (Stynes, 2015, p. 1).

METHODOLOGY

Relationships between hypothesized drivers and exploration and production transactions were studied using regression analysis and t-tests. This paper aims to address three hypothesized drivers: (1) the spread between crude oil and natural gas prices (2) regulation pertinent to the industry (3) consumer sentiment towards alternative fuels.

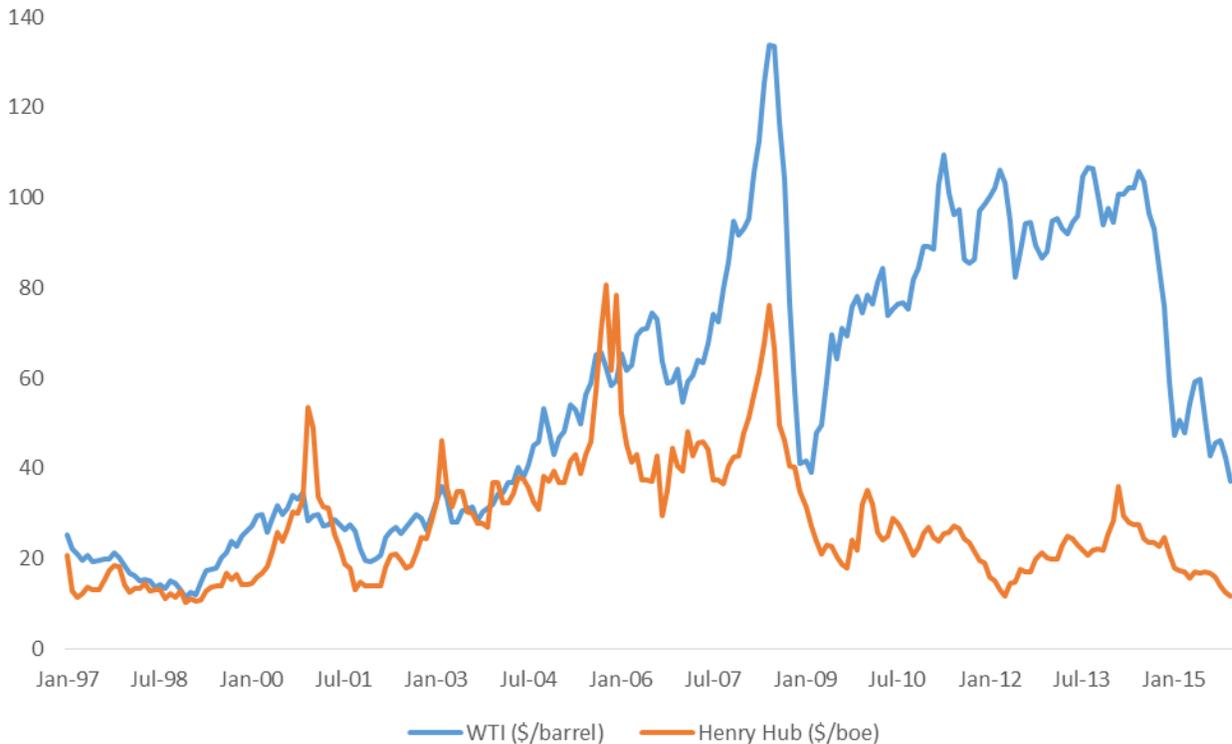
Utilizing IHS Connect, this paper uses a transaction sample spanning from 1997 to 2015. All transactions included in the sample are transactions with a deal value greater than one

billion dollars. All transactions are solely in the upstream vertical instead of spanning the oil and gas industry as a whole. Additionally, at least one party in each transaction is headquartered in the United States. This condition was added in order to centralize the discussion of results in the United States as we face a tumultuous time in our domestic energy industry.

After the sample of transactions was collected, the data was coded by month for comparison to price and regulation data in the regression analysis. The transactions were grouped monthly and the number of transactions occurring in that respective month were reported accordingly. This coding was then used as the independent variable in each of the regression analyses.

In the testing of the first hypothesis, data for crude oil and natural gas prices were pulled from the U.S. Energy Information Administration. Prices for West Texas Intermediate (WTI) were used as a proxy for crude oil prices. WTI is a light crude only found in the continental United States. The United States government banned the export of crude until late 2015. Therefore, WTI serves as a proxy for the price of crude in an isolated United States economy. Additionally, historical Henry Hub prices were used for the price of natural gas. The spread between WTI and Henry Hub over the time of the study can be seen in the graph on the next page.

Figure 1: Spread between WTI and Henry Hub



In the testing of the second hypothesis, five legislative events were identified for analysis of the correlation between the events and transactions. The legislative events were coded as dummy variables with the legislation proposed to have an effect for the six months following the passing of the legislation. These legislative events were chosen based upon their relevance to the industry as a whole and the breadth in the type of legislation across the five events. The legislative events are as follows:

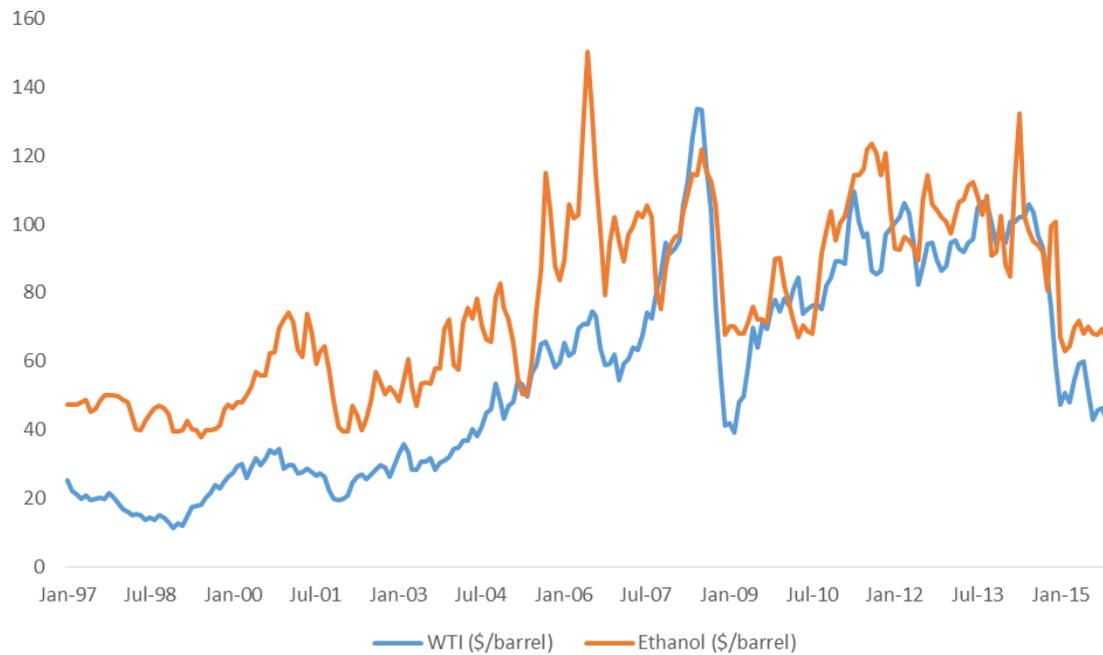
1. Order No. 637, which ordered the unbundling of the oil and gas industry increasing buyer power in the delivery of gas to wholesale customers. This legislation was enacted in February 2000 (Federal, 2015, p. 1).
2. Energy Policy Act of 2005 enacted to prop up the energy industry in anticipation of a forecasted energy crisis. This legislation included tax credits for developing

alternative forms of energy such as operating wind turbines. This legislation was enacted in August 2005 (H.R., 2005)

3. The increased regulation following the Macondo oil spill, which included the reorganization of governing bodies of offshore drilling and increased barriers to entry in the offshore drilling space. These regulations were enacted in May 2010 (Dionnet, 2014, p. 1).
4. Laws at the state level banning hydraulic fracturing began in June 2013. States with these harsh regulations include Illinois and New York. These regulations limit the unconventional resources that oil and gas companies are able to access (Illinois, 2013).
5. Increased CFTC regulations, requiring annual trade option reports filed by companies to the CFTC. These reports have reportedly been hurting the performance of local distribution companies. The first of these annual reports was required in March 2014 (Heslin, 2014).

The third hypothesis was tested using ethanol prices as a proxy for consumer sentiment for alternative fuels. Historical prices for ethanol were retrieved from the United States Department of Agriculture Economic Research Service. WTI served as the proxy for crude prices again in the testing of the third hypothesis. The spread between ethanol and crude prices can be seen in the graph on the following page.

Figure 2: Spread between WTI and Ethanol



RESULTS

In the testing of the first hypothesis, the results of the regression analysis showed strong correlation between the number of transactions in a given month and the movement of the spread between crude and natural gas prices. The value of the X variable was positive with a P-value significantly less than .05. However, the P-value was so low that we can safely conclude that other factors must also be having effects that result in higher volumes of transactions. This is an issue resulting from a simplified single independent variable test. The hypothesis can be tentatively supported by the test.

The regression analysis for the second hypothesis also yielded a positive value for the X variable. Additionally the P-value was .07% insinuating high correlation between the various

legislations and the rate of transactions in the upstream space. With this positive correlation, the data support the second hypothesis.

Finally, the regression analysis for hypothesis 3 exhibited a positive X variable and a P-value of .01%. With this positive correlation, the third hypothesis is supported as a potential driver for upstream transactions.

DISCUSSION & IMPLICATIONS

From the testing of the first hypothesis, we can conclude that the spread between crude and natural gas prices does affect management's decision making in pursuing acquisition opportunities. This makes sense because management should want to shift its asset mix between natural gas producing assets and crude producing assets towards the more favorably priced commodity at that point in time. However, since the P-value of this test was so low, further research should be conducted with a multifactor model including other macroeconomic factors in order to ascertain what other factors in conjunction with the spread in crude and gas affect management's decision making in acquisition opportunities.

Hypothesis 2 exemplified the pressure that pending legislation puts on upstream companies to change operating structures in order to be better apt to comply with the evolving regulatory environment. The legislative events used in the study varied across five different legislative areas affecting the oil and gas industry. Further study in this area could include the collecting of more samples of legislation in each category to see which category of legislation has the most profound effect on the rate of oil and gas transactions.

Finally, Hypothesis 3 proved the relationship between alternative fuel prices and their correlation with oil and gas company acquisitions. This could be due to oil and gas companies

seeking to acquire these alternative fuel producing assets or the need for consolidation as oil and gas takes a tumble with the rising demand for alternative energy. Further study could be done with different indicators of consumer's sentiment towards alternative fuel such as the rate of wind turbine installations, rate of consumer adoption of solar panels, or the study of consumer sentiment surveys on the energy environment.

CONCLUSION

In conclusion, the three studies conducted in this research showed that there are a variety of factors driving the rate of oil and gas asset sales and acquisitions. First, the widening spread between crude oil and natural gas prices is directly related to the volume of transactions within the exploration and production industry. Second, the threat of increasing regulation causes management to seek transactions that will benefit the company should the legislation pass. Finally, the spread between crude oil and ethanol is directly related to the volume of transactions within the exploration and production industry. There may in fact be many more factors that are industry specific, however identification of these factors would require further research.

Further research should be conducted to study how these factors interlock in management's decision-making process. However, it is clear from the results of this study and review of previous literature that oil and gas transactions are driven by more factors than the factors that drive acquisitions in the broad market. Therefore, we can conclude that since oil and gas is such a volatile and price sensitive industry, industry players must react in different ways than major players in other industries.

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