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Hedging in Energy: The Case of LINN Energy, LLC

An Honors thesis submitted in partial fulfillment of the requirements for the degree of BSBA, Finance

by

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BSBA Finance, 2016

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Executive Summary:

This paper is a case study of LINN Energy, LLC over the period of Q1 2013 to Q4 2015. Due to volatility in commodity prices, energy companies choose to hedge their future production using forwards, futures, swaps, and options strategies. I selected LINN Energy as the subject for this study due to the breadth of detailed historical hedging information available through the company's website. LINN Energy disclosed much more than is required for independent oil and gas companies, making them the perfect case study for this thesis. LINN Energy, LLC is one of the few publicly traded LLC's and is based out of Houston, Texas. They operate domestically and, due to a combination of the current downturn in the energy market and expiring hedge contracts, will likely be facing Chapter 11 bankruptcy within the next year.

Section I: Introduction

Motivation:

Fluctuations in oil and natural gas commodity prices expose energy companies to a large degree of risk. Commodity price forecasts are the basis on which the drilling of wells are made. Once a commercial well is producing, it can have a related payback period of up to several years. Energy companies reduce the risk of volatile oil and gas prices by hedging their production. The current environment has seen staggering decreases in the prices of West Texas Intermediate, Henry Hub Natural Gas, and Natural Gas Liquids. Figures 1-8 show each one's historical price data from January 2013 to present, price projections provided by the Energy Information Administration, and lines of best fit for the data provided. Data in these charts contribute to the notion that oil and natural gas prices may not begin to recover until 2017. Changes in oil and gas prices and their effect on the performance of energy companies is an important topic to research because of the recent volatility we have seen, not just in the energy sector, but throughout the entire stock market. CNN Money recently argued that the United States stock market is no longer trading on fundamentals and has become surprisingly correlated with declining energy stocks. When oil prices dropped to $26 per barrel, the S&P 500 followed, dropping to its lowest level since April 2014. The same was seen when prices moved in the opposite direction. When oil prices increased by 23% over the course of one week in January, stocks were carried "sharply higher." CNN Money's analysis found that "the S&P 500 is now almost perfectly correlated to the price of oil" even though the energy sector only accounts for 6.53% of the index [Egan, 2016]. Theoretically, if oil and gas producers are able to hedge their cash flows far enough into the future to withstand downturns, their equity prices would not suffer to the extent that we have seen when oil and gas prices decrease.

Independent oil and gas companies, like LINN Energy, protect themselves from commodity risk through the practice of hedging made possible by imperfect capital markets. Independent oil and gas companies are defined as non-integrated companies that receive almost all of their cash flows from drilling operations. They are exclusively in the exploration and production segment of the energy sector. Hedging is performed in independent oil and gas companies in order to avoid financial distress at the company level and avoid underinvestment problems. Underinvestment problems occur when companies do not invest in low-risk projects. Instead, they elect to take on riskier projects in order to maximize returns in the interest of the shareholders. When this occurs, debt holders are not compensated for taking additional risk.

Two types of commodity risk that independent oil and gas companies encounter include price risk and basis risk. Commodity price risk refers to the risk that an input such as crude oil will narrow a company's profit margin, making it more difficult for independent oil and gas companies to budget appropriately. This is why futures, forwards, swaps, and options are so commonly used to lock in a price at which the future good will be purchased or sold. Commodity basis risk "occurs when spot price and the futures price do not converge when the futures contract expires." Basis, in this case, is defined as the cash price less the futures price. There are other types of basis risk including time, location, and form. By hedging with forward contracts, futures, swaps, or options, energy companies are able to lock in the future price at which they will be able to sell the underlying asset or exchange cash flows, effectively lowering cash flow volatility. Forward contracts are agreements to buy or sell an asset at a specified price and future date. Futures contracts are also agreements to buy or sell an asset at a specified price and future date. The difference between the two is that futures contracts are more standardized and are traded on exchanges. Swaps are derivative contracts that are not traded on exchanges in which two financial instruments are exchanged. Options, on the other hand, are derivatives of securities that are traded on exchanges. Option contracts provide the buyer of the security with the right, but not the obligation, to buy or sell the underlying security at a specified price on a future date. Companies like LINN Energy who hedge 100% of their cash flows use forwards, futures, swaps, and option contracts as true hedging instruments. Companies that hedge less than 100% are actually using these investment vehicles as speculative tools.

The majority of forward contracts used in energy hedging are for three to five years in the future. This can be an extremely valuable tool for companies if prices go into decline. With long contract lengths, companies have an extended period of time to react to volatile market conditions. Problems for energy companies arise when declining oil and natural gas prices fail to rebound as hedging contracts expire. One of the current problems companies like LINN Energy are facing is their expiring hedging contracts. As hedges expire, energy companies are left low on cash which prevents them from paying off their debt. Many experts in the energy field are of the opinion that oil and gas prices will not recover until 2017. This is too long of a time horizon for many already struggling companies to ride out. Danny Campbell, chairman of the Permian Basin Petroleum Association was recently quoted saying, "today our goal is to survive…keep your name in the phone book and your debt low." Surviving is really all many American oil and gas producers can do right now seeing as there are "virtually no wells in the United States profitable to drill" to keep them stable as contracts continue to expire [Krauss and Corkery, 2016].

LINN Energy is organized as an LLC and is one of only 20 publicly traded companies with this unique structure. Most companies similar to LINN are organized as MLP's. Both LLC's and MLP's benefit from a tax perspective in that they do not pay taxes at the corporate level. What differentiates them is the presence of General Partners in MLP's. LLC's like LINN Energy only have Limited Partners which means that, unlike General Partners, they do not have voting rights.

This paper examines why energy companies hedge their cash flows, what techniques they employ to do so, and the extent to which they choose to hedge through the examination of case company, LINN Energy, over the period of Q1 2013 to Q4 2015. As we have seen over the past 18 months, energy companies are volatile investments that fluctuate in value with oil, gas, uranium and coal commodity prices. Independent oil and gas companies are exposed to fluctuations in oil and natural gas prices as well as production volumes. When prices are high, independent oil and gas companies behave more aggressively, leasing additional mineral rights and increasing drilling activity. When prices

are low, independent oil and gas companies decrease their drilling presence and sell off assets to finance their debt. This is why it is difficult for these companies to survive in downturns in the absence of cash flow hedging.

This thesis finds that LINN Energy, LLC is at a high risk of filing for bankruptcy due to their highly leveraged position. LINN Energy is currently facing negative gross profits, negative EBITDA values, and negative Earnings Per Share. This coupled with staggering amounts of long-term debt liability, high long-term debt to equity ratios, negative Return on Assets, Return on Equity, and Return on Investment support the assumption of many investors that LINN Energy will not be able to recover. See Tables 9-12. Although the entire energy sector is struggling to stay profitable despite declines in oil and natural gas prices, LINN Energy is struggling more than their direct competitors to stay in business. LINN Energy is most comparable in size and business operations to Carrizo Oil & Gas Inc., Energen Corporation, Cabot Oil & Gas, and EQT Corporation. Out of these five competitors, LINN Energy reported the lowest values of Gross Profit, EBITDA, Operating Profit, and Adjusted Net Income. What is arguably more concerning is the amount of Long-Term Debt reported on LINN Energy's Balance Sheet. LINN currently has over 3.5 times more Long-Term Debt than EQT Corporation, which has the next highest long-term debt of the other four competitors. From a leverage perspective, LINN Energy is second only to Carrizo Oil & Gas. LINN reported a Long-Term Debt to Equity ratio of 226.6 while Carrizo reported 282.8, both numbers well above their other three competitors. See Tables 13-15.

As LINN Energy's hedging contracts continue to expire and their leverage increases, they will likely not be able to cover their $2.3 billion in outstanding debt. All of the financial statement data accompanied with the high probability that LINN will face another borrowing base decrease from banks in April 2016 leads me to think that their stock price will continue to fall until they either file for bankruptcy or are acquired. It is my recommendation that the stock should be shorted at $1.20 (February 2016) and put options with a longer maturity date, such as those which mature on January 20, 2017 should be purchased.

The rest of this paper proceeds as follows: literature review, background of case company, analysis, and discussion and conclusion.

Section II: Literature Review

The literature analyzed covers three topics related to LINN Energy, LLC. These three topics include the current state of the energy sector, hedging in energy companies, and the tax effects of organizing as an MLP of LLC.

Current State of the Energy Sector:

LINN Energy is part of the Oil & Gas Exploration and Production sub-industry. According to Glickman (2015), S&P has a negative outlook on this sub-industry for the next 12 months. S&P's opinion is that a recovery in oil and natural gas prices driven down by increased production and stagnant demand will be "slow coming." S&P Capital IQ estimates that even though not all energy companies throughout the industry are directly tied to oil prices, 75% of the overall market capitalization in the industry is driven by exploration and production. These upstream operations, which LINN Energy also operates in, do directly benefit from high oil and gas prices. Because of S&P's view that crude oil and natural gas prices will remain low in 2016, they believe that the industry will continue to experience high

levels of M&A activity, particularly in upstream companies. The energy sector's EBITDA margin, which is a proxy for cash flow, decreased by 25% over the course of one year to 17% in Q3 of 2015. According to S&P, 17% is the lowest reported EBITDA margin level in 10 years. S&P also notes that the market is looking at 2016 as a year for recovery although they do not share this particular view. They think the rebound will be slow because of how long it will take to "exhaust the excess supply that has created problems for the industry." S&P's concerns are amplified by the resiliency of supply and the fact that there are approximately 5,000 uncompleted wells that upstream companies will start to stimulate and bring on-line once crude oil prices increase. If exploration and production companies are not cautious as prices begin to rise, they could "put a dent in the price recovery by building supply back up too quickly" [Glickman, 2015].

Another concern for the industry, and LINN Energy specifically are the upcoming April borrowing base redeterminations. Every April and October banks reevaluate how much money they are willing to lend to oil and gas companies. Depending on what happens in April, small producers like LINN Energy that are already struggling with high debt on their books could face a borrowing base redetermination that puts them in a position they cannot recover from.

Hedging in Energy Companies:

Standard & Poor's Directors, Michael Grande and Sherman Myers (2011), stated that it is normal for energy companies to hedge 70% to 80% of their volumetric exposure. It is their opinion that companies only do not hedge all of their exposure in case they do not have enough of the physical commodity to act as collateral for the contract in the event of a decrease in production volume. Although hedging ensures the company's future cash flows, hedging in itself creates a separate risk if a company finds themselves "out of the money." The more a company chooses to hedge, the less liquid they become. If a company's hedging contract goes in the opposite direction of what they expected, they are, if they do not have cash to cover the amount owed, required to cover the contract with physical commodities as collateral. These margin calls are part of the problem that the case study company, LINN Energy, is currently facing. The inability for them to cover their positions poses significant counterparty risk to their lenders. Two specific ways companies choose to hedge are by using direct product hedges and proxy hedges. When a direct product hedge is used, a company hedges a particular commodity with a contract for that same commodity. On the other hand, proxy hedges, also referred to as "dirty hedges," are when one commodity is hedged with a contract for another commodity [Grande and Myers, 2011]. One common example of a proxy hedge is hedging crude with a contract for natural gas liquids. In addition to price risk, basis risk needs to be taken into consideration. Differences in basis occur owing to the fact that oil and gas can be stored, also bringing into account potential arbitrage opportunities across time, location, and form. In the latter case, crude oil can be sold as is, or processed into gasoline, diesel, and other refined products before sale aka "cross-hedges."

According to Jin and Jorion (2006), firms hedge in order to minimize the costs associated with volatile cash flows. Their argument is that "hedging reduces the expected cost of financial distress" and that "hedging can also increase a firm's debt capacity". These same themes are reiterated by Artez, Bartram, and Dufey (2007): "higher leverage increases firm value through the tax advantage of debt". The downside of this is that highly leveraged firms are still obligated to their bondholders. If a firm cannot pay back their bondholders, they face the risk of filing for bankruptcy which incurs additional costs for the company. The expected costs of financial distress are highly positively correlated with a firm's leverage and the volatility of their future cash flows and with the risk of bankruptcy. This is why

hedging, which reduces cash flow volatility, is a key component of a firm's survival. The issue of hedging's ability to increase a firm's debt capacity has contributed to issues LINN Energy has faced with their high level of debt and leverage that will be discussed in more detail later in this paper.

Hickey (2011) says oil and gas producers hedge about 33% of their oil production (4% of oil reserves) and 41% of their gas production (5% of gas reserves). These numbers are confirmed by Jin and Jorion (2006). Hickey also concludes that larger companies hedged more than their smaller counterparts. He states that as hedging activity increases and earnings volatility decreases, firms are able to increase their debt ratio by 3%. Another interesting point that Hickey (2011) details is the concept of "personal utility maximization for managers." Because managers are heavily exposed to the performance of their firm and cannot diversify as an individual investor can, they make decisions that protect themselves. This means that they will behave in a risk-averse manner, making hedging decisions for their company that protects their personal fortunes.

Tax Effects of Organizing as an MLP or LLC:

Many energy companies choose to organize themselves as MLP's based on the unique tax structure afforded to them. "MLP's are publicly listed partnerships that invest primarily in the energy sector" [Benham and et al, 2014]. MLP's do not pay taxes at the corporate level and work on a fee basis for handling products without direct commodity ownership. Any company that generates at least 90% of its income from real estate, natural resources, and commodities is allowed to organize under this structure. Both MLP's, LP's, and LLC's have the potential to generate high profit margins for investors because of their tax structure. The flipside of this is that investors "do not enjoy the same fiduciary duty protections that apply to stockholders of publicly-traded corporations" [Miller and Davis-Nozemack, 2015]. The state of Delaware, which most LLC's and LP's are organized under, permit these companies to waive their fiduciary duties, meaning they are not held accountable for acting in the interest of the stakeholder. MLP's, LLC's, and LP's all file their taxes using Schedule K1's. From the perspective of the company, K1's are less complex than the 1099's Corporations have to file with because they do not account for the entire company on one form. The company does not file a Schedule K1 but each partner in an MLP, LLC, or LP files their own K1 form to report income, losses, and dividends. However, as an investor, K1 filings add more complexity and tax burden to the individual.

While the LLC structure of LINN Energy shares the same tax benefits, the difference lies in the company structure. MLP's have both General Partners and Limited Partners. Limited Partners are investors that do not manage the company and, therefore, have limited voting rights. The units of the company that they own entitle them to receive the cash distributions from the company that other shareholders would. General Partners, however, own a small stake in the company but act as managers and receive voting rights. As seen in Figure 16, LLC's like LINN Energy do not have General Partners or Incentive Distribution Rights. It should also be noted that the vast majority of LLC's are not publicly traded. In fact, LINN Energy is one of 20 with this unique structure traded on an exchange compared to 110 MLP's that are publicly traded.

On the other hand, many companies in this sector still choose to organize as traditional corporations even though this corporate structure is more expensive from a tax and regulatory perspective. Profits under this structure are "double taxed" because profits are taxed as they are earned and again when they are distributed as dividends. One main benefit of corporations is the liability protection that comes with it because company debt is not personal debt to the owners. The

corporation itself, not the shareholders, are liable for the actions and debts incurred by the business. Corporations also have more flexibility when it comes to how they use their profits. MLP's and LLC's have to distribute their profits to shareholders while corporations can retain some of their earnings or buy back shares of stock.

Section III: Background of LINN Energy, LLC

I selected LINN Energy, LLC as the subject for this thesis because of the breadth of information provided on their company website regarding their historical commodity hedge positions. Independent oil and gas companies are not required to disclose their hedging strategies in as much detail as LINN Energy chose to which made LINN an excellent case study company for this thesis paper. LINN Energy is an independent oil and natural gas company based out of Houston, Texas. "Its properties are located in the Rockies, the Hugoton Basin (in Kansas), California, east Texas and north Louisiana, the Mid-Continent, the Permian Basin, Michigan/Illinois, and south Texas. As of December 31, 2014, the company had proved (gas) reserves of 7,304 billion cubic feet equivalent; and operated 19,591 gross productive wells" [LINE Profile | Linn Energy, LLC Stock, 2016]. LINN Energy is interesting in the fact that many of its direct competitors are organized as MLP's. LINN, however, is one of the few publicly traded LLC's.

The Discounted Cash Flow (DCF) and Comparisons (Comps) Models attached to this report further explain LINN Energy's current financial situation. The 85% drop in their equity value over the course of 2015 has led to their extremely low equity price compared to Carizzo Oil & Gas Inc., Energen Corporation, Cabot Oil & Gas, and EQT Corporation. Additionally, LINN Energy has, by far, the lowest EBIT and EBITDA values for the last 12 months. The Comps Model from Table 17 shows that LINN energy has the lowest Enterprise Value to EBITDA ratio out of the five companies. It also forecasts that they will have the lowest EV/Revenues and EV/EBITDA values in 2016. It also should be noted that, while LINN and three of the four comparable companies have no P/E value because each one failed to report earnings for the most recent quarter, LINN is the only company that has lost nearly all of its equity value. The DCF Model from Table 18 values LINN Energy shares of common stock at $.88 using the Fair Value Perpetuity Method and $.16 using the Fair Value Multiple method.

These facts highlight the going concern problems of LINN Energy. It is likely that they soon will not be able to cover their extreme levels of debt and will be forced to file for bankruptcy. In addition, LINN Energy is delaying filing their most recent 10K, leading more industry professionals to believe they have going concern issues. The company disclosed on March 1, 2016 that "it does not expect to remain in compliance with all of the covenants contained in its credit facilities throughout 2016." In April, the credit lines of LINN Energy and their subsidiary, Berry Petroleum, will be up for their semi-annual redeterminations. If their borrowing base is decreased again, they will be liable to make debt payments in a shorter time frame [Zeits, 2016]. All of these factors greatly increase the chance that they will have to file for bankruptcy.

Section IV: Analysis

My analysis finds that energy companies hedge the majority of their exposure to commodity price fluctuations. LINN Energy, typically hedges 100% of their production four to six years into the future. By locking in prices this far ahead in time, they are afforded more flexibility in the event of a commodity downturn to make key business decisions from a position with stabilized cash flows. Their

strategy is to maintain a hedging mix with 70% of their exposure hedged using swaps and 30% using put options [Presentations, 2015].

The case of LINN Energy does bring up some interesting anomalies. For a company that is so well hedged how could they be failing? How is it that their stock price has dropped 85% from January 1, 2015 to January 1, 2016? Even more dramatically, the stock was trading at $24.45 at the start of 2014 and opened at $0.48 at the start of 2016. In 2013, Gue (2013) said LINN Energy was one of his two favorite companies. He explicitly stated that LINN Energy's 100% hedging strategy would lock in the company's profit margin for the next seven years. Now we find ourselves three years into the seven and LINN Energy is in terrible shape. It is the opinion of Stifel analyst Brian Brungardt that LINN Energy could stay afloat through 2016 due to their cash flow and hedges but will probably be forced to file for bankruptcy [Blum, 2016]. This proves that even hedging 100% of a company's exposure still is not always enough to secure the future of a company during a prolonged downturn in the energy sector. LINN Energy's failure is linked to their highly leveraged position and the decisions by management to acquire parts of ExxonMobil and Devon Energy in 2014, before prices had reached the lows we have seen in 2016.

The 2015 capital budget for LINN Energy was based off of a $60 per barrel average for oil and a $3.50 per MCF average for natural gas. The company was too bullish on both oil and gas prices, creating a bad position for them when energy prices continued to trade at low levels as their hedging contracts continues to expire. This contributed to their financial distress forcing them to suspend distributions to shareholders and delay the release of their 10Q for the first quarter of 2016. Although LINN Energy paid off $1.8 billion in net debt last year, they did not prioritize their debt retirement in the most efficient way and still owe an additional $9 billion. They chose to pay off long-term debt instead of allocating cash to bank debt. The result of this mistake was that banks pulled back on the credit line that had previously been extended to LINN, lowering their available liquidity [LINN Energy, LLC's Worst Moves in 2015, 2015].

Aside from the company's loss of nearly all of their equity value, their bonds were recently downgraded to D+. All ten existing issues are callable and have very attractive coupons given their short-term maturity dates. Their maturity dates range from 5/15/2019 to 9/15/2022. The reason for their attractive yields, of course, is the risk that the company will be forced to file for bankruptcy and the debt will not be repaid. See Figure 19. Insider trading activity shown in Figure 20 should also be noted. Since 2014, all large transactions have been sales. It is arguable that if insiders thought the company would survive the downturn, they would be buying shares now that the equity price has dropped by 85% over the last year. However, they have continued to sell their stakes in the company throughout 2016.

From the period of Q1 2013 through Q4 2015, LINN Energy has modified the specifics of their hedging strategy. Throughout the period of study, their methods for hedging natural gas positions has remained constant. However, in 2013, LINN Energy reported hedging their oil exposure with fixed price swaps and put options. In 2014, they expanded their oil position hedging by adding collars and three-way collars to their hedging mix. In 2015, three-way collars remained a part of their strategy while traditional collars were removed. The benefit to hedging with a three-way collar option is the cost at which the company can purchase the option. Collars are protective options strategies that are implemented after a long position has experienced substantial gains. A collar is created when an out of the money put option is purchased at the same time that an out of the money call option is sold. In a three-way collar, an additional out of the money put option is sold. This option strategy creates additional risk to the

company in the event that prices decline and the lower priced put option expires in the money [Presentations, 2015].

LINN Energy's most recent hedging data from Q4 2015 is shown in Figures 21 and 22. From analyzing their quarter over quarter Commodity Hedge Positions reports, it seems as if LINN only made strategic changes in the first quarters of each year. The volume hedged using fixed price swaps for natural gas positions increased from 22,002 in Q4 2013 to 24,017 in Q1 2014. Similarly, 24,550 MMBtu's were hedged in Q4 2014 and 29,106 MMBtu's were hedged in Q1 2015. The same can be seen in their oil positions. In Q4 2013, 2,992 MBbl's were hedged. In the quarter following, they increased their hedged volume to $4,150 MBbl's. From Q4 2014 to Q1 2015, LINN decreased their hedged volume from 4,242 to 2,860 MBbl's. The intermittent quarters showed little or no change in production volume hedged [Presentations, 2015].

Section V: Discussion and Conclusion

While, in theory, hedging strategies are supposed to protect energy companies from declining oil and gas prices, we still see examples of companies like LINN Energy losing almost all of their value. LINN Energy's prevailing issue is their leverage. They merged with Berry Petroleum in 2013, not long before oil prices began dropping in mid-2014. Then they went on to acquire parts of ExxonMobil and Devon Energy in 2014. These transactions were leveraged and locked LINN Energy into high costs of debt. The debt the company would have to repay from 2019 to 2022 would take place following their hedges reaching maturity. By the time energy prices dropped even lower, LINN Energy had no money to invest in even better deals and lost out on the opportunity to dollar cost average down. Because of this, they are stuck with high costs of debt and leverage working against them [LINN Energy: Why Oil & Gas Limited Partnerships Fail, 2015]. Hedging strategies can only help them so much, and for so long. Since the terms of their debt are longer than their protective hedges, they have to wait out the high costs and de-leverage as much as possible.

Given the information provided in this thesis, I am recommending to short the equity at $1.20 (February 2016) and purchase put options. This leads me to the conclusion that the best put options to purchase are those with a maturity date of January 20, 2017. By the time this maturity date approaches, there is a high probability that LINN Energy will be in even deeper financial trouble because of additional expiring hedging contracts. It is also my recommendation to buy those available lots with strike prices of $.50, $1.00, $1.50, and $2.00 because of the low trading value of the shares of common stock. See Figure 23. By purchasing put options, the buyer is protected in the event of bankruptcy. The Options Clearing Corporation requires the seller of the put option to fulfil their obligation to sell shares to the option buyer at the higher price, guaranteeing profits for the put option buyer. The insolvency of the company is separate from the option selling entity, meaning that a buyer of put options is still guaranteed profit and delivery from the option writer if the company files for bankruptcy.

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Figure 1: West Texas Intermediate Spot Price

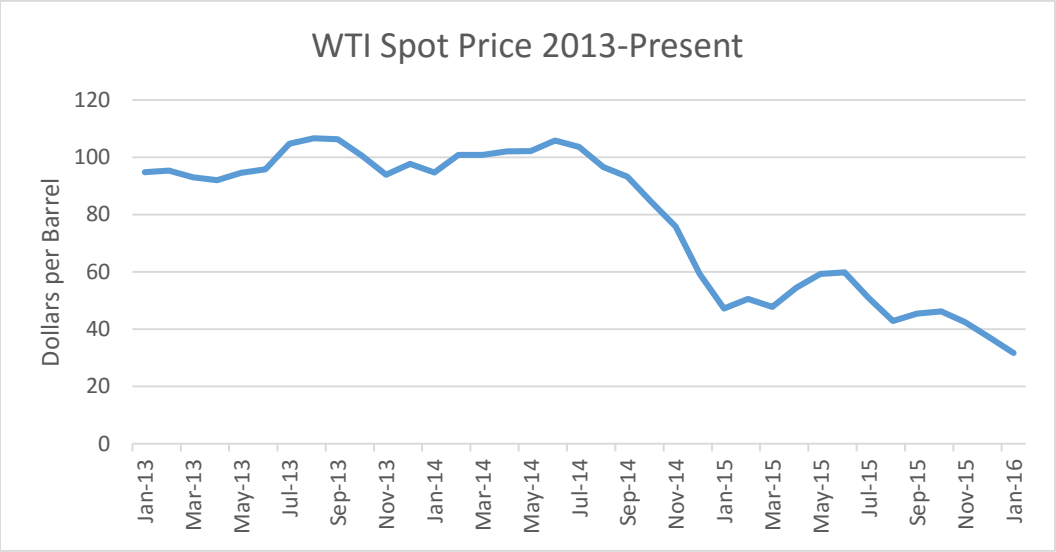


Figure 2: West Texas Intermediate Price Projections

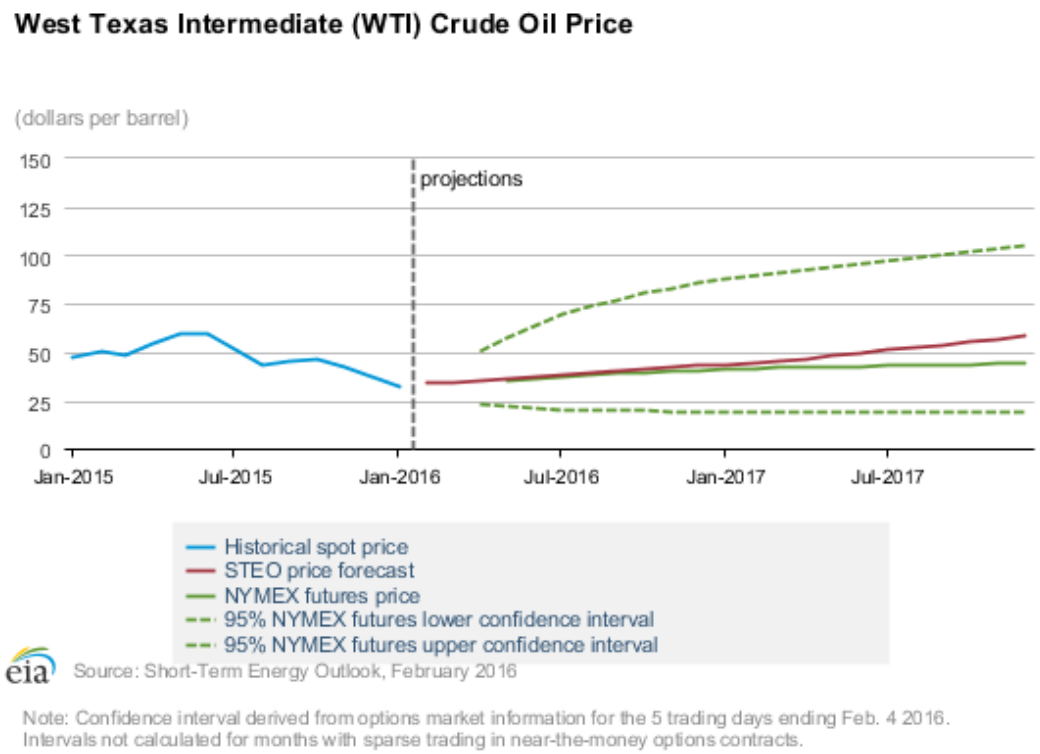


Figure 3: West Texas Intermediate Line of Best Fit Price Projections

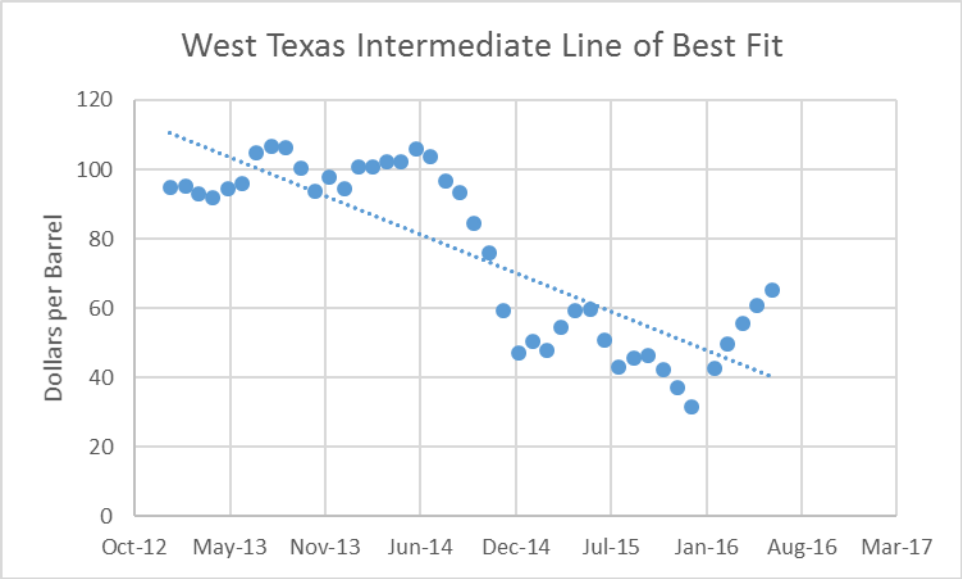


Figure 4: Henry Hub Natural Gas Spot Price

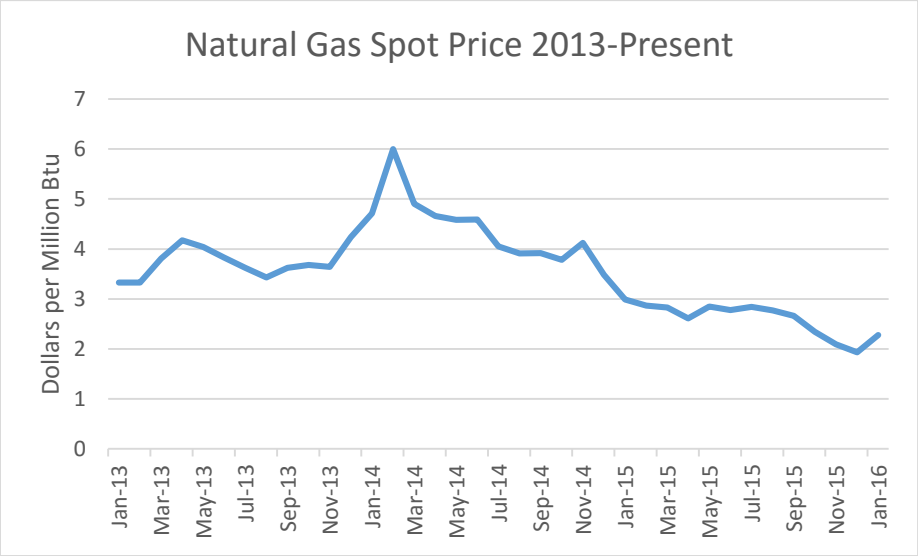
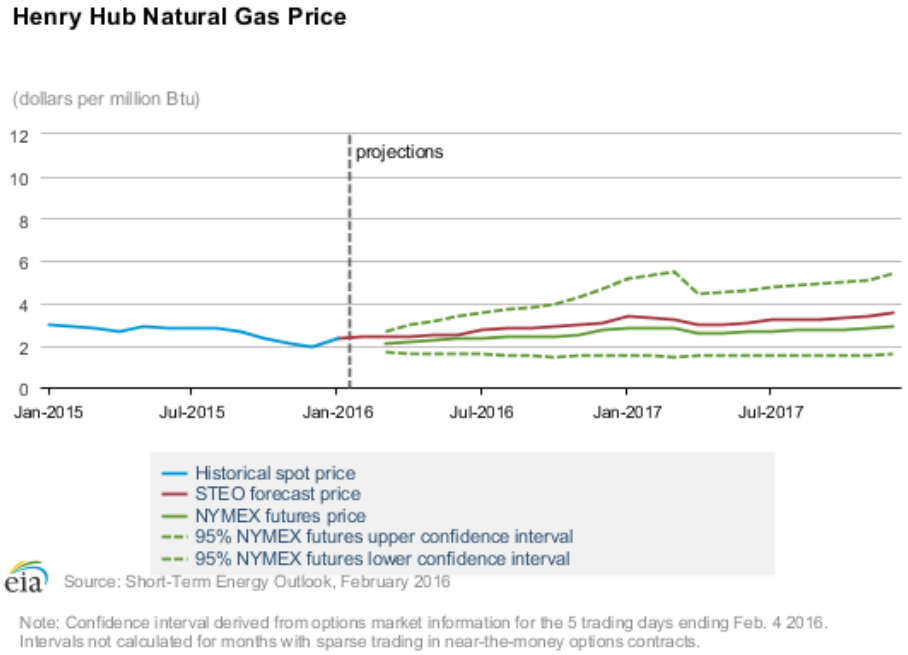


Figure 5: Henry Hub Natural Gas Price Projections



Note: Confidence interval derived from options market information for the 5 trading days ending Feb. 4 2016. Intervals not calculated for months with sparse trading in near-the-money options contracts.

Figure 6: Henry Hub Natural Gas Line of Best Fit Price Projections

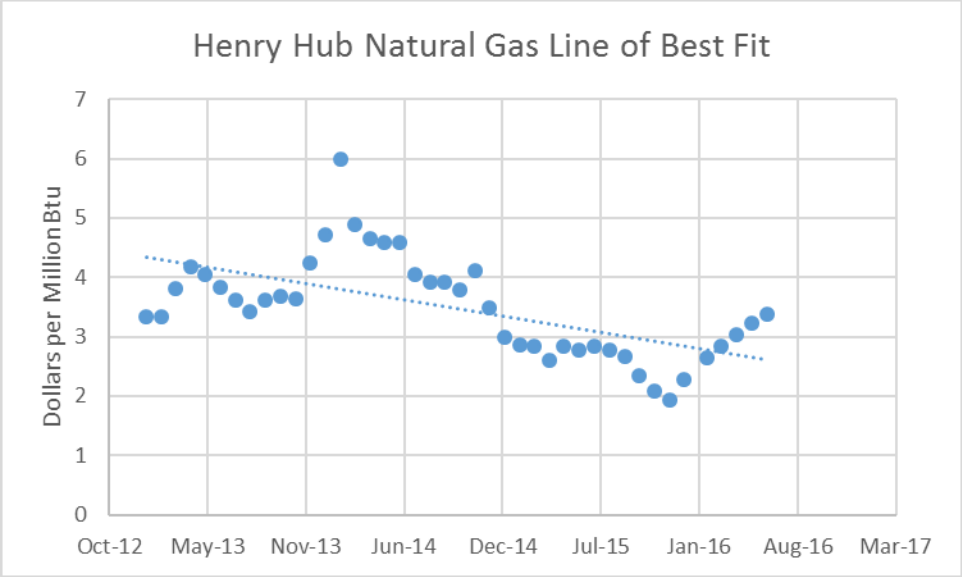


Figure 7: Natural Gas Liquid Spot Price

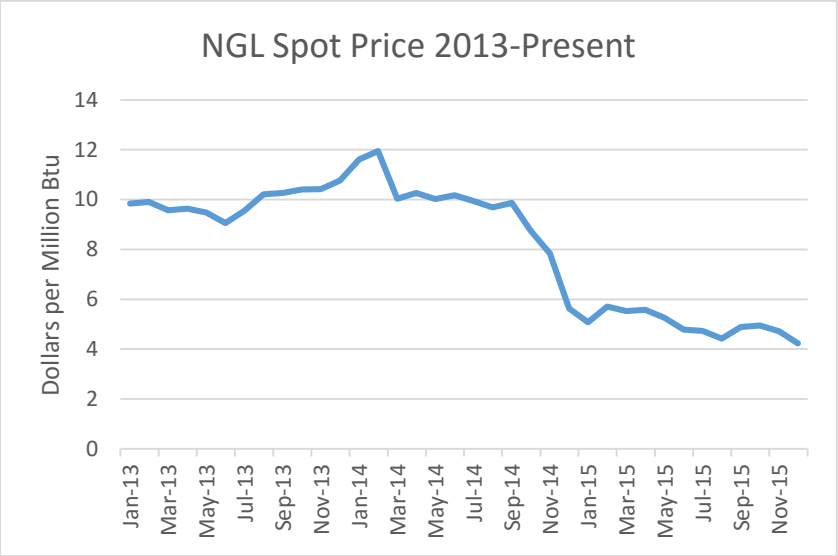


Figure 8: Natural Gas Liquid Line of Best Fit Price Projections

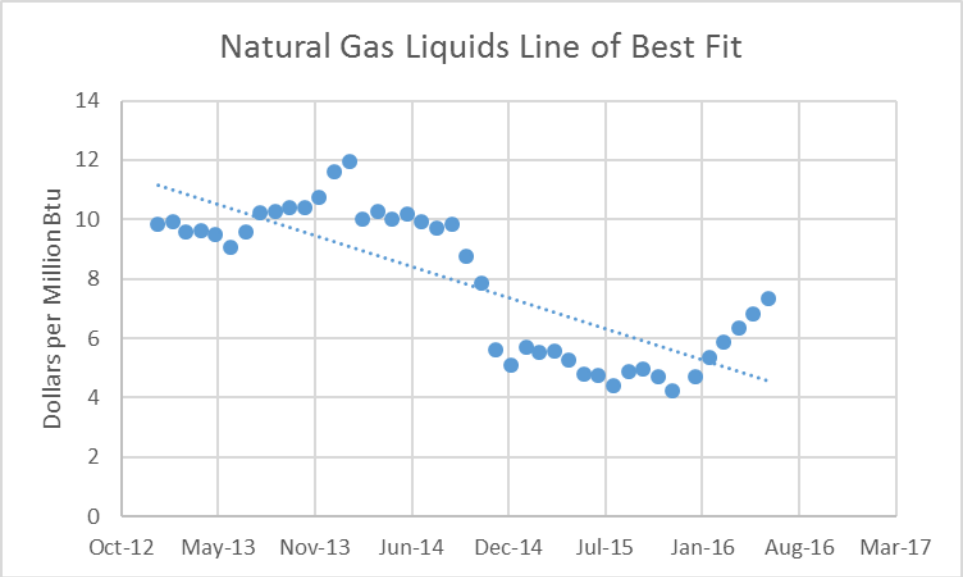


Table 9: Quarterly Income Statement and Projections

QUARTERLY INCOME STATEMENT
($ MILLIONS, EXCEPT PER SHARE)

LINN ENERGY, LLC
600 Travis
Houston, TX 77002
Ticker: LINE
Fiscal Year: 12

	Dec20	Dec19	Dec18	Dec17	Dec 16	Dec 15
Sales	3,943.115	3,828.267	3,716.764	3,608.509	3,280.463	2,982.239
Cost of Goods Sold	2,668.114	2,590.402	2,514.954	2,441.703	2,219.730	4,129.866
COGS/Sales						
68%						
Gross Profit	1,275.000	1,237.865	1,201.810	1,166.806	1,060.733	(1,147.627)
Selling, General, & Administrative Expense	426.212	413.798	401.746	390.044	354.586	322.351
Operating Income Before Deprec.	848.789	824.067	800.065	776.762	706.147	(1,469.978)
Depreciation, Depletion, & Amortization	977.232	930.697	886.378	844.170	803.971	837.004
Operating Profit	(128.443)	(106.631)	(86.314)	(67.408)	(97.824)	(2,306.982)
Interest Expense					570.112	570.112
Non-Operating Income/Expense	43.298	42.037	40.812	39.624	36.022	249.604
Special Items	0.000	0.000	0.000	0.000	0.000	284.703
EBIT	(85.146)	(64.594)	(45.501)	(27.784)	(61.803)	(1,772.675)

	Sep15	Jun15	Mar15	Dec14	Sep14	Jun14	Mar14	Dec13	Sep13	Jun13	Mar13	Dec12	Sep12	Jun12
Sales	998.304	321.828	916.547	2,217.650	1,435.115	596.951	733.587	623.059	494.562	833.752	369.060	567.999	48.328	782.320
Cost of Goods Sold	2,519.678	263.640	842.064	2,106.468	946.636	321.560	326.448	981.121	164.892	139.788	220.002	434.306	163.072	275.557
COGS/Sales	2.524	0.819	0.919	0.950	0.660	0.539	0.445	1.575	0.333	0.168	0.596	0.765	3.374	0.352
Gross Profit	(1,521.374)	58.188	74.483	111.182	488.479	275.391	407.139	(358.062)	329.670	693.964	149.058	133.693	(114.744)	506.763
Selling, General, & Administrative Expense	63.185	99.214	79.364	186.100	83.234	68.457	80.319	51.588	47.019	45.148	49.653	44.242	45.556	41.592
Operating Income Before Deprec.	(1,584.559)	(41.026)	(4.881)	(74.918)	405.245	206.934	326.820	(409.650)	282.651	648.816	99.405	89.451	(160.300)	465.171
Depreciation, Depletion, & Amortization	207.218	215.732	215.014	241.379	290.287	274.435	267.801	224.349	208.892	198.629	197.441	177.673	167.695	143.506
Operating Profit	(1,791.777)	(256.758)	(219.895)	(316.297)	114.958	(67.501)	59.019	(633.999)	73.759	450.187	(98.036)	(88.222)	(327.995)	321.665
Interest Expense	138.383	146.100	143.101	165.678	154.047	134.300	133.813	113.125	103.806	103.847	100.359	102.331	105.697	94.390
Non-Operating Income/Expense	165.279	11.850	10.074	329.236	33.956	(8.016)	(4.889)	(12.774)	(3.302)	(1.223)	(4.815)	(1.858)	(1.263)	(7.954)
Special Items	197.741	9.151	6.635	0.000	0.000	0.000	0.000	(28.851)	(1.117)	(1.089)	(11.139)	3.226	0.000	18.277
EBIT		125.099												
Pretax Income	(1,567.140)	(381.857)	(346.287)	(152.739)	(5.133)	(209.817)	(79.683)	(788.749)	(34.466)	344.028	(214.349)	(189.185)	(434.955)	237.598
Total Income Taxes	2.177	(2.730)	(7.127)	1.763	(1.033)	(1.947)	5.654	(4.200)	(4.406)	(1.129)	7.536	(1.690)	(4.950)	0.512
Income Before Extraordinary Items and Noncontrolling Interest	(1,569.317)	(379.127)	(339.160)	(154.502)	(4.100)	(207.870)	(85.337)	(784.549)	(30.060)	345.157	(221.885)	(187.495)	(430.005)	237.086
Noncontrolling Interest - Income Account	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Income Before Extraordinary Items & Discontinued Operations	(1,569.317)	(379.127)	(339.160)	(154.502)	(4.100)	(207.870)	(85.337)	(784.549)	(30.060)	345.157	(221.885)	(187.495)	(430.005)	237.086
Preferred Dividends	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Available for Common	(1,569.317)	(379.127)	(339.160)	(154.502)	(4.100)	(207.870)	(85.337)	(784.549)	(30.060)	345.157	(221.885)	(187.495)	(430.005)	237.086
Savings Due to Common Stock Equivalents	0.000	(1.662)	(1.781)	(0.828)	(2.097)	(2.154)	(2.199)	(2.139)	(1.266)	(2.629)	(1.301)	(0.410)	(1.398)	(2.232)
Adjusted Available for Common	(1,569.317)	(380.789)	(340.941)	(155.330)	(6.197)	(210.024)	(87.536)	(786.688)	(31.326)	342.528	(223.186)	(187.905)	(431.403)	234.854
Extraordinary Items	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Discontinued Operations	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Adjusted Net Income	(1,569.317)	(380.789)	(340.941)	(155.330)	(6.197)	(210.024)	(87.536)	(786.688)	(31.326)	342.528	(223.186)	(187.905)	(431.403)	234.854
Earnings Per Share Basic - Excluding Extra Items & Disc Op	(4.470)	(1.120)	(1.030)	(0.470)	(0.020)	(0.640)	(0.270)	(3.150)	(0.130)	1.470	(0.960)	(0.830)	(2.180)	1.190
Earnings Per Share Basic - Including Extra Items & Disc Op	(4.470)	(1.120)	(1.030)	(0.470)	(0.020)	(0.640)	(0.270)	(3.150)	(0.130)	1.470	(0.960)	(0.830)	(2.180)	1.190
Earnings Per Share Diluted- Excluding Extra Items & Disc Op	(4.470)	(1.120)	(1.030)	(0.470)	(0.020)	(0.640)	(0.270)	(3.150)	(0.130)	1.460	(0.960)	(0.830)	(2.180)	1.190
Earnings Per Share Diluted - Including Extra Items & Disc Op	(4.470)	(1.120)	(1.030)	(0.470)	(0.020)	(0.640)	(0.270)	(3.150)	(0.130)	1.460	(0.960)	(0.830)	(2.180)	1.190
EPS Basic from Operations	(4.850)	(1.130)	(1.040)	(0.470)	(0.020)	(0.640)	(0.270)	(3.020)	(0.130)	1.480	(0.910)	(0.840)	(2.180)	1.130
EPS Diluted from Operations	(4.850)	(1.130)	(1.040)	(0.470)	(0.020)	(0.640)	(0.270)	(3.020)	(0.130)	1.480	(0.910)	(0.840)	(2.180)	1.090
Dividends Per Share	0.313	0.313	0.313	0.313	0.725	0.725	0.725	0.725	0.725	0.725	0.725	0.725	0.725	0.725
Com Shares for Basic EPS	350.695	340.934	330.642	329.331	329.168	328.844	328.329	249.859	233.552	233.448	233.176	226.662	197.675	197.507
Com Shares for Diluted EPS	350.695	340.934	330.642	329.331	329.168	328.844	328.329	249.859	233.552	233.910	233.176	226.662	197.675	198.160

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Table 10: Quarterly Balance Sheet and Projections

QUARTERLY BALANCE SHEET
($ MILLIONS)

LINN ENERGY, LLC
600 Travis
Houston, TX 77002
Ticker: LINE

	Dec18	Dec17	Dec16	Dec15	Sep15	Jun15	Mar15	Dec14	Sep14	Jun14	Mar14	Dec13	Sep13	Jun13	Mar13	Dec12	Sep12	Jun12
ASSETS																		
Cash & Short-Term Investments	615.326	532.381	460.617	398.527	344.806	3.943	48.312	1.809	59.161	38.339	68.314	52.171	27.480	1.152	6.034	1.243	1.154	1.883
Net Receivables	483.894	418.666	362.230	313.402	271.156	305.404	340.838	471.684	522.633	549.589	522.945	488.202	349.426	343.002	320.609	371.333	436.132	321.012
Inventories	-	-	-	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Other Current Assets	2,220.679	1,921.335	1,662.342	1,438.261	1,244.386	1,148.973	1,267.301	1,233.097	2,367.796	199.493	207.246	275.567	272.400	347.226	472.838	438.852	399.088	559.414
Total Current Assets	3,319.900	2,872.382	2,485.190	2,150.190	1,860.348	1,458.320	1,656.451	1,706.590	2,949.590	787.421	798.505	815.940	649.306	691.380	799.481	811.428	836.374	882.309
	-	-	-	-														
Gross Plant,Property & Equipment	33,506.465	28,989.847	25,082.062	21,701.040	18,775.774	18,662.089	18,929.669	18,738.049	18,771.895	19,360.503	18,951.693	18,536.441	12,760.333	12,400.369	12,045.827	12,080.518	11,703.351	10,423.650
Accumulated Depreciation	(14,527.697)	(12,569.387)	(10,875.053)	(9,409.114)	(8,140.780)	(5,686.453)	(5,751.083)	(5,011.964)	(3,248.452)	(4,187.077)	(3,920.032)	(3,657.223)	(2,645.994)	(2,449.515)	(2,256.605)	(2,099.377)	(1,650.153)	(1,484.828)
Net Plant,Property & Equipment	18,978.768	16,420.460	14,207.008	12,291.926	10,634.994	12,975.636	13,178.586	13,726.085	15,523.443	15,173.426	15,031.661	14,879.218	10,114.339	9,950.854	9,789.222	9,981.141	10,053.198	8,938.822
	-	-	-	-														
Investments Long-Term- Total					@NA	@NA	@NA	@NA	@NA	@NA	@NA	@NA	@NA	@NA	@NA	@NA	@NA	@NA
Goodwill					0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Intangibles- Other					0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Assets Long-Term Other					@NA	@NA	@NA	@NA	@NA	@NA	@NA	@NA	@NA	@NA	@NA	@NA	@NA	@NA
Other Assets	1,932.903	1,672.351	1,446.921	1,251.878	1,083.127	1,078.070	1,085.138	990.834	453.961	307.817	644.522	809.806	809.113	788.760	631.122	658.669	694.623	1,358.971
TOTAL ASSETS	24,231.571	20,965.194	18,139.119	15,693.994	13,578.469	15,512.026	15,920.175	16,423.509	18,926.994	16,268.664	16,474.688	16,504.964	11,572.758	11,430.994	11,219.825	11,451.238	11,584.195	11,180.102
	-	-	-	-														
LIABILITIES	-	-	-	-														
Debt In Current Liabilities	-	-	-	-	0.000	0.000	0.000	0.000	1,300.000	0.000	207.502	211.558	0.000	0.000	0.000	0.000	0.000	0.000
Accounts Payable	1,014.252	877.532	759.242	656.898	568.349	579.289	608.926	814.809	826.976	860.171	797.460	849.624	659.170	673.926	662.687	707.861	688.968	667.541
Income Taxes Payable	-	-	-	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Other Current Liabilities	327.716	283.541	245.320	212.251	183.640	160.717	185.329	167.736	330.046	198.285	224.909	191.551	168.602	103.331	154.167	115.271	171.958	112.302
Total Current Liabilities	1,341.968	1,161.073	1,004.562	869.149	751.989	740.006	794.255	982.545	2,457.022	1,058.456	1,229.871	1,252.733	827.772	777.257	816.854	823.132	860.926	779.843
	-	-	-	-														
Long Term Debt	17,896.044	15,483.686	13,396.510	11,590.681	10,028.276	10,324.547	10,398.488	10,295.809	11,010.146	9,644.351	9,258.558	8,958.658	6,512.873	6,255.673	6,193.991	6,037.817	6,841.670	6,005.547
Deferred Taxes & Investment Tax Credits					@NA	@NA	@NA	13.877	@NA	@NA	@NA	12.375	@NA	@NA	@NA	6.307	@NA	@NA
Other Liabilities	1,077.693	932.422	806.733	697.986	603.899	586.144	600.929	587.673	527.693	404.734	395.307	389.771	191.955	166.532	163.544	156.802	316.596	263.049
TOTAL LIABILITIES	20,315.705	17,577.181	15,207.805	13,157.817	11,384.164	11,650.697	11,793.672	11,879.904	13,994.861	11,107.541	10,883.736	10,613.537	7,532.600	7,199.462	7,174.389	7,024.058	8,019.192	7,048.439
	-	-	-	-														
Redeemable Noncontrolling Interest	-	-	-	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	-	-	-	-														
EQUITY	-	-	-	-														
Preferred Stock					@NA	@NA	@NA	@NA	@NA	@NA	@NA	@NA	@NA	@NA	@NA	@NA	@NA	@NA
Common Stock					@NA	@NA	@NA	@NA	@NA	@NA	@NA	@NA	@NA	@NA	@NA	@NA	@NA	@NA
Capital Surplus					@NA	@NA	@NA	@NA	@NA	@NA	@NA	@NA	@NA	@NA	@NA	@NA	@NA	@NA
Retained Earnings					@NA	@NA	@NA	@NA	@NA	@NA	@NA	@NA	@NA	@NA	@NA	@NA	@NA	@NA
Less: Treasury Stock					0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Common Equity	3,915.865	3,388.013	2,931.314	2,536.178	2,194.305	3,861.329	4,126.503	4,543.605	4,932.133	5,161.123	5,590.952	5,891.427	4,040.158	4,231.532	4,045.436	4,427.180	3,565.003	4,131.663
Shareholders Equity Parent	3,915.865	3,388.013	2,931.314	2,536.178	2,194.305	3,861.329	4,126.503	4,543.605	4,932.133	5,161.123	5,590.952	5,891.427	4,040.158	4,231.532	4,045.436	4,427.180	3,565.003	4,131.663
Nonredeemable Noncontrolling Interest	-	-	-	-	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
STOCKHOLDERS EQUITY TOTAL	3,915.865	3,388.013	2,931.314	2,536.178	2,194.305	3,861.329	4,126.503	4,543.605	4,932.133	5,161.123	5,590.952	5,891.427	4,040.158	4,231.532	4,045.436	4,427.180	3,565.003	4,131.663
TOTAL LIABILITIES & EQUITY	24,231.571	20,965.194	18,139.119	15,693.994	13,578.469	15,512.026	15,920.175	16,423.509	18,926.994	16,268.664	16,474.688	16,504.964	11,572.758	11,430.994	11,219.825	11,451.238	11,584.195	11,180.102
Common Shares Outstanding					355,050,000.000	355.205	336.887	331.975	331.820	331.668	331.406	329.661	235.178	235.209	235.074	234.513	199.646	199.557

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Table 11: Quarterly Cash Flow Statement and Projections

QUARTERLY STATEMENT OF CASH FLOWS
($ MILLIONS)

LINN ENERGY, LLC
600 Travis
Houston, TX 77002
Ticker: LINE
Fiscal Year: 12

	Dec18	Dec17	Dec16	Dec15	Sep15	Jun15	Mar15	Dec14	Sep14	Jun14	Mar14	Dec13	Sep13	Jun13	Mar13	Dec12	Sep12
INDIRECT OPERATING ACTIVITIES																	
Income Before Extraordinary Items	(3,349.281)	(3,044.801)	(2,768.001)	(2,516.364)	(2,287.604)	(718.287)	(339.160)	(451.809)	(297.307)	(293.207)	(85.337)	(691.337)	93.212	123.272	(221.885)	(386.616)	(199.121)
Depreciation and Amortization	934.043	849.130	771.936	701.760	637.964	430.746	215.014	1,073.902	832.523	542.236	267.801	829.311	604.962	396.070	197.441	606.150	428.477
Extraordinary Items and Disc. Operations					0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Deferred Taxes	(12.098)	(10.998)	(9.998)	(9.089)	(8.263)	(9.857)	(7.158)	3.943	2.619	3.475	5.584	(2.541)	0.731	5.725	7.503	(0.360)	0.965
Equity in Net Loss (Earnings)					0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sale of Property, Plant, and Equipment and Sale of Investments - Loss (Gain)					0.000	0.000	@CF	0.000	0.000	0.000	@CF	0.000	0.000	0.000	@CF	0.000	0.000
Funds from Operations - Other	3,696.803	3,360.730	3,055.209	2,777.463	2,524.966	871.884	404.331	1,048.004	829.115	669.449	252.122	1,006.068	143.599	19.822	283.197	160.291	(130.059)
Receivables - Decrease (Increase)	303.159	275.600	250.545	227.768	207.062	169.978	135.230	5.064	(56.014)	(61.891)	(34.337)	89.188	22.877	36.174	55.544	(77.573)	(138.171)
Inventory - Decrease (Increase)					0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Accounts Payable and Accrued Liabs - Inc (Dec)	(53.624)	(48.749)	(44.317)	(40.289)	(36.626)	(47.474)	(29.868)	99.029	112.235	113.582	16.105	(76.993)	29.445	(5.319)	(13.609)	26.372	94.762
Income Taxes - Accrued - Increase (Decrease)					0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Other Assets and Liabilities - Net Change	(3.997)	(3.634)	(3.303)	(3.003)	(2.730)	(23.508)	(3.686)	(66.243)	12.639	(58.009)	12.544	12.516	45.685	(14.388)	26.403	22.643	87.578
Operating Activities - Net Cash Flow	1,515.005	1,377.278	1,252.070	1,138.246	1,034.769	673.482	374.703	1,711.890	1,435.810	915.635	434.482	1,166.212	940.511	561.356	334.594	350.907	144.431
INVESTING ACTIVITIES																	
Investments - Increase					0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sale of Investments					0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Short-Term Investments - Change					0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Capital Expenditures	812.188	738.352	671.229	610.209	554.735	445.634	277.219	4,123.669	3,828.548	862.919	430.339	1,449.590	1,037.462	615.427	276.775	3,685.554	3,236.217
Sale of Property, Plant, and Equipment					0.000	0.000	@CF	0.000	0.000	0.000	@CF	0.000	0.000	0.000	@CF	0.000	0.000
Acquisitions					0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Investing Activities - Other	533.218	484.744	440.676	400.615	364.195	58.714	27.500	2,203.565	(7.485)	(11.730)	(10.686)	196.273	210.297	210.899	(2.224)	0.725	1.438
Investing Activities - Net Cash Flow	(278.970)	(253.609)	(230.553)	(209.594)	(190.540)	(386.920)	(249.719)	(1,920.104)	(3,836.033)	(874.649)	(441.025)	(1,253.317)	(827.165)	(404.528)	(278.999)	(3,684.829)	(3,234.779)
FINANCING ACTIVITIES																	
Sale of Common and Preferred Stock	341.760	310.691	282.447	256.770	233.427	233.427	15.900	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1,973.989	761.362
Purchase of Common and Preferred Stock					0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Cash Dividends	(474.190)	(431.082)	(391.892)	(356.266)	(323.878)	(212.631)	(104.815)	(962.048)	(721.235)	(480.583)	(240.073)	(682.241)	(511.686)	(341.117)	(170.954)	(596.935)	(426.918)
Long-Term Debt - Issuance	2,057.061	1,870.055	1,700.050	1,545.500	1,405.000	645.000	395.000	5,940.024	5,300.024	1,095.000	540.000	2,230.000	1,260.000	775.000	300.000	5,439.802	4,929.802
Long-Term Debt - Reduction	(2,491.765)	(2,265.241)	(2,059.310)	(1,872.100)	(1,701.909)	(850.051)	(280.287)	(4,811.124)	(2,156.124)	(616.124)	(241.188)	(1,404.898)	(789.898)	(560.737)	(145.000)	(3,400.000)	(2,085.000)
Current Debt - Changes					0.000	0.000	@CF	0.000	0.000	0.000	@CF	0.000	0.000	0.000	0.000	0.000	0.000
Financing Activities - Other	(152.859)	(138.963)	(126.330)	(114.846)	(104.405)	(90.706)	(95.412)	(9.766)	(19.483)	(56.127)	(37.510)	(4.988)	(45.685)	(30.656)	(34.850)	(85.895)	(92.184)
Financing Activities - Net Cash Flow	(733.854)	(667.140)	(606.491)	(551.355)	(501.232)	(284.428)	(78.481)	157.852	2,407.213	(54.818)	22.686	138.033	(87.109)	(156.919)	(50.804)	3,334.051	3,090.388
Exchange Rate Effect					0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Cash and Equivalents - Change	502.182	456.529	415.026	377.297	342.997	2.134	46.503	(50.362)	6.990	(13.832)	16.143	50.928	26.237	(0.091)	4.791	0.129	0.040
DIRECT OPERATING ACTIVITIES																	
Interest Paid - Net	565.315	513.923	467.203	424.730	386.118	280.018	98.541	542.775	345.687	264.141	77.512	392.607	240.261	192.517	44.209	343.331	178.194
Income Taxes Paid	0.918	0.835	0.759	0.690	0.627	0.601	0.057	0.000	0.000	0.000	0.000	0.014	0.014	0.014	0.000	0.366	0.306

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Table 12: Annual Ratio Analysis and Projections

ANNUAL RATIO REPORT
(Ratio, Except As Noted)

LINN ENERGY, LLC
600 Travis
Houston, TX 77002
Ticker: LINE
Fiscal Year: 12

	Dec18	Dec17	Dec16	Dec15	Dec14	Dec13	Dec12	Dec11	Dec10	Dec09	Dec08	Dec07	Dec06	Dec05	Dec04
LIQUIDITY															
Current Ratio	2.552	2.318	2.105	1.912	1.737	0.651	0.986	1.260	2.256	1.956	2.371	0.743	3.867	0.404	0.731
Quick Ratio	0.439	0.449	0.460	0.471	0.482	0.431	0.453	0.579	1.335	0.628	0.730	0.605	1.427	0.335	0.710
Working Capital Per Share	4.960	4.039	3.289	2.678	2.181	(1.325)	(0.050)	0.722	2.489	1.540	2.859	(0.523)	1.207	(1.845)	(0.097)
Cash Flow Per Share	24.408	16.548	11.219	7.606	5.157	3.538	1.496	2.925	1.704	3.285	1.574	(0.394)	(0.159)	(1.061)	0.409
ACTIVITY															
Inventory Turnover					@NA	@NA	@NA	@NA	@NA	@NA	174.897	71.327	74.183	132.090	@NA
Receivables Turnover	42.455	29.856	20.996	14.765	10.383	5.399	5.345	6.916	5.255	2.149	10.120	(0.092)	10.548	(2.417)	@NA
Total Asset Turnover	0.367	0.349	0.333	0.318	0.303	0.166	0.180	0.233	0.150	0.060	0.337	(0.003)	0.320	(0.137)	@NA
Average Collection Period (Days)					35.153	67.602	68.294	52.776	69.461	169.835	36.067	(3,980.351)	34.604	(150.998)	@NA
Days to Sell Inventory					0.000	0.000	0.000	0.000	0.000	0.000	2.087	5.117	4.920	2.763	@NA
Operating Cycle (Days)					34.075	75.741	76.269	63.141	86.063	144.068	36.346	(6,892.238)	44.718	(239.264)	87.596
PERFORMANCE															
Sales/Net Property, Plant & Equip	0.384	0.379	0.373	0.368	0.363	0.156	0.176	0.233	0.153	0.074	0.393	(0.002)	0.253	(0.110)	0.221
Sales/Stockholder Equity	0.742	0.818	0.902	0.995	1.097	0.394	0.396	0.473	0.277	0.111	0.520	(0.004)	0.424	0.565	2.031
PROFITABILITY															
Operating Margin Before Depr (%)	(3,173.669)	(892.483)	(250.979)	(70.579)	19.848	26.987	34.152	70.488	57.260	(0.426)	79.829	2,333.121	66.526	156.977	65.410
Operating Margin After Depr (%)	(1,359.519)	(320.717)	(75.659)	(17.848)	(4.210)	(8.968)	(0.545)	49.897	21.375	(74.298)	64.198	3,641.177	54.398	184.521	48.175
Pretax Profit Margin (%)	(124.819)	(64.640)	(33.475)	(17.335)	(8.977)	(29.888)	(21.899)	27.360	(14.250)	(109.853)	57.725	4,985.160	39.665	212.515	(18.288)
Net Profit Margin (%)	(123.723)	(64.372)	(33.492)	(17.426)	(9.066)	(29.793)	(22.058)	27.023	(14.799)	(109.168)	69.658	5,034.531	41.446	212.798	(18.288)
Tax Rate, Effective (%)	(0.654)	(0.725)	(0.805)	(0.894)	(0.992)	0.317	(0.727)	1.231	(3.854)	1.407	0.327	(0.990)	(4.489)	(0.133)	0.000
Return on Assets (%)	(4.013)	(3.652)	(3.323)	(3.023)	(2.751)	(4.189)	(3.376)	5.480	(1.926)	(6.816)	17.485	(9.597)	8.642	(20.158)	(3.741)
Return on Equity (%)	(1,904.259)	(511.898)	(137.607)	(36.991)	(9.944)	(11.735)	(8.733)	12.787	(4.099)	(12.065)	29.908	(17.978)	17.559	120.328	(37.139)
Return on Investment (%)	(211.591)	(53.690)	(13.623)	(3.457)	(0.877)	(1.019)	(0.067)	7.812	2.156	(3.000)	14.604	(7.570)	11.814	(20.150)	@NA
LEVERAGE															
Interest Coverage Before Tax	0.291	0.281	0.270	0.260	0.251	(0.639)	(0.005)	2.696	0.434	(2.226)	9.682	(2.999)	3.973	(6.994)	(0.127)
Interest Coverage After Tax	0.282	0.272	0.262	0.253	0.243	(0.634)	(0.012)	2.675	0.412	(2.181)	9.653	(3.039)	4.106	(7.004)	(0.127)
Long-Term Debt/Common Equity (%)	589.488	464.164	365.483	287.782	226.600	152.063	136.381	116.470	98.375	64.797	59.897	71.241	94.962	(441.618)	679.208
Long-Term Debt/Shrhldr Equity(%)	589.488	464.164	365.483	287.782	226.600	152.063	136.381	116.470	98.375	64.797	59.897	71.241	94.962	(441.618)	679.208
Total Debt/Invested Capital (%)	694.940	390.635	219.581	123.430	69.382	60.885	57.695	53.804	49.590	39.319	37.460	41.615	48.759	121.326	87.175
Total Debt/Total Assets (%)	388.707	246.329	156.102	98.924	62.689	55.560	52.726	49.920	46.230	36.607	35.018	38.048	46.830	95.308	68.471
Total Assets/Common Equity	25.579	15.683	9.616	5.895	3.615	2.802	2.587	2.333	2.128	1.770	1.710	1.873	2.032	(5.969)	9.928
DIVIDENDS															
Dividend Payout (%)	(1,077.970)	(718.647)	(479.098)	(319.399)	(212.932)	(98.684)	(154.400)	106.397	(319.991)	(101.718)	29.003	(42.531)	40.482	@NA	@NA
Dividend Yield (%)					@NA	@NA	@NA	@NA	@NA	@NA	@NA	@NA	@NA	@NA	@NA

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Table 13: Comparative Income Statement as of 12/31/15

COMPARATIVE INCOME STATEMENT
($ MILLIONS, EXCEPT PER SHARE)

	LINN ENERGY, LLC Sep15	CARRIZO OIL & GAS INC. Dec15	ENERGEN CORP. Dec15	CABOT OIL & GAS Dec15	EQT CORPORATION Dec15
Sales	4,454.329	429.203	763.261	1,357.150	2,339.762
Cost of Goods Sold	5,731.850	1,341.357	449.770	623.803	834.938
Gross Profit	(1,277.521)	(912.154)	313.491	733.347	1,504.824
Selling, General, & Administrative Exp.	427.863	67.224	@NA	96.904	@NA
Operating Income Before Deprec.	(1,705.384)	(979.378)	313.491	636.443	1,504.824
Depreciation,Depletion,&Amortization	879.343	300.035	600.897	737.086	819.216
Operating Profit	(2,584.727)	(1,279.413)	(287.406)	(100.643)	685.608
Interest Expense	593.262	@NA	43.108	96.911	146.531
Non-Operating Income/Expense	516.439	@NA	(1,177.422)	10.281	9.953
Special Items	213.527	(38.137)	27.200	0.000	(122.469)
Pretax Income	(2,448.023)	(1,298.760)	(1,480.736)	(187.273)	426.561
Total Income Taxes	(5.917)	(140.875)	(535.005)	(73.382)	104.675
Minority Interest	0.000	0.000	0.000	@NA	236.715
Income Before Extraordinary Items & Discontinued Operations	(2,442.106)	(1,157.885)	(945.731)	(113.891)	85.171
Preferred Dividends	0.000	0.000	0.000	0.000	0.000
Available for Common	(2,442.106)	(1,157.885)	(945.731)	(113.891)	85.171
Savings Due to Common Stock Equiv.	(3.909)	0.000	0.000	0.000	0.000
Adjusted Available for Common	(2,446.015)	(1,157.885)	(945.731)	(113.891)	85.171
Extraordinary Items	0.000	0.000	0.000	0.000	0.000
Discontinued Operations	0.000	2.731	0.000	0.000	0.000
Adjusted Net Income	(2,446.015)	(1,155.154)	(945.731)	(113.891)	85.171
Earnings Per Share Basic - Excluding Extra Items & Disc Op	(7.226)	(22.502)	(12.431)	(0.275)	0.559
Earnings Per Share Basic - Including Extra Items & Disc Op	(7.238)	(22.449)	(12.431)	(0.275)	0.559
Earnings Per Share Diluted- Excluding Extra Items & Disc Op	(7.226)	(22.502)	(12.431)	(0.275)	0.557
Earnings Per Share Diluted - Including Extra Items & Disc Op	(7.238)	(22.449)	(12.431)	(0.275)	0.557
EPS Basic from Operations	(7.658)	(22.020)	(12.660)	(0.280)	0.850
EPS Diluted from Operations	(7.658)	(22.020)	(12.660)	(0.280)	0.847
Dividends Per Share	2.487	@NA	0.080	0.080	0.120
Com Shares for Basic EPS	337.954	51.457	76.078	413.696	152.398
Com Shares for Diluted EPS	337.954	51.457	76.078	413.696	152.939

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Table 14: Comparative Balance Sheet as of 12/31/15

COMPARATIVE BALANCE SHEET
($ MILLIONS)

	LINN ENERGY, Sep15	CARRIZO OIL & GAS INC. Dec15	ENERGEN CORP. Dec15	CABOT OIL & GAS Dec15	EQT CORPORATION Dec15
ASSETS					
Cash & Equivalents	344.806	42.918	1.272	0.514	1,601.232
Net Receivables	271.156	54.721	63.097	124.552	176.957
Inventories	0.000	0.000	11.255	17.049	@NA
Prepaid Expenses	@NA	@NA	@NA	@NA	@NA
Other Current Assets	@NA	@NA	@NA	@NA	@NA
Total Current Assets	1,860.348	232.182	246.340	144.786	2,251.019
Gross Plant,Property & Equipment	18,775.774	@NA	7,756.842	9,573.100	15,635.549
Accumulated Depreciation	8,140.780	@NA	3,454.510	4,596.221	4,163.528
Net Plant,Property & Equipment	10,634.994	1,716.861	4,302.332	4,976.879	11,472.021
Investments at Equity	@NA	@NA	0.000	@NA	@NA
Other Investments	@NA	@NA	48.358	@NA	0.000
Intangibles	@NA	@NA	@NA	@NA	@NA
Deferred Charges	@NA	@NA	@NA	@NA	@NA
Other Assets	@NA	@NA	@NA	@NA	@NA
TOTAL ASSETS	13,578.469	2,026.905	4,613.693	5,261.899	13,976.172
LIABILITIES					
Long Term Debt Due In One Year	@NA	@NA	@NA	@NA	@NA
Notes Payable	@NA	@NA	@NA	@NA	@NA
Accounts Payable	568.349	141.873	64.742	107.375	291.550
Taxes Payable	0.000	@NA	5.801	0.000	44.925
Accrued Expenses	@NA	@NA	@NA	@NA	@NA
Other Current Liabilities	@NA	@NA	@NA	@NA	@NA
Total Current Liabilities	751.989	285.484	287.521	235.552	795.819
Long Term Debt	10,028.276	1,255.676	776.087	2,005.000	2,793.343
Deferred Taxes	@NA	0.000	552.369	807.236	1,972.170
Investment Tax Credit	@NA	@NA	@NA	@NA	@NA
Minority Interest	0.000	0.000	0.000	@NA	(71.317)
Other Liabilities	603.899	41.691	101.856	204.923	386.798
EQUITY					
Preferred Stock - Redeemable	0.000	0.000	0.000	0.000	0.000
Preferred Stock - Nonredeemable	0.000	0.000	0.000	0.000	0.000
Total Preferred Stock	@NA	@NA	@NA	@NA	@NA
Common Stock	@NA	0.583	0.818	42.377	2,153.280
Capital Surplus	@NA	1,411.081	980.995	721.997	0.000
Retained Earnings	@NA	(967.610)	2,046.279	1,551.649	3,028.590
Less: Treasury Stock	0.000	0.000	132.232	306.835	104.079
Common Equity	2,194.305	444.054	2,895.860	2,009.188	5,077.791
TOTAL EQUITY	2,194.305	444.054	2,895.860	2,009.188	8,028.042
TOTAL LIABILITIES & EQUITY	13,578.469	2,026.905	4,613.693	5,261.899	13,976.172

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Table 15: Comparative Ratio Report as of 12/31/15

COMPARATIVE RATIO REPORT
(RATIO, EXCEPT AS NOTED)

	LINN ENERGY, Dec14	CARRIZO OIL & GAS INC. Dec15	ENERGEN CORP. Dec15	CABOT OIL & GAS Dec15	EQT CORPORATION Dec15
LIQUIDITY					
Current Ratio	1.737	0.813	0.857	0.615	2.829
Quick Ratio	0.482	0.342	0.224	0.531	2.234
Working Capital Per Share	2.181	(0.914)	(0.523)	(0.219)	9.539
Cash Flow Per Share	5.157	6.493	9.075	1.790	7.977
ACTIVITY					
Inventory Turnover	@NA	@NA	35.268	40.148	402.865
Receivables Turnover	10.383	5.889	6.914	7.832	9.688
Total Asset Turnover	0.303	0.171	0.142	0.254	0.180
Average Collection Per (Days)	35.153	61.981	52.789	46.602	37.677
Days to Sell Inventory	0.000	0.000	10.349	9.091	0.906
Operating Cycle (Days)	34.075	45.898	38.769	42.878	@CF
PERFORMANCE					
Sales/Net PP&E	0.363	0.250	0.177	0.273	0.204
Sales/Stockholder Equity	1.097	0.967	0.264	0.675	0.461
PROFITABILITY					
Oper.Margin Before Depr (%)	19.848	(228.185)	41.073	46.896	64.315
Oper.Margin After Depr (%)	(4.210)	(298.090)	(37.655)	(7.416)	29.302
Pretax Profit Margin (%)	(8.977)	(302.598)	(194.001)	(13.799)	18.231
Net Profit Margin (%)	(9.066)	(269.139)	(123.907)	(8.392)	3.640
Return on Assets (%)	(2.751)	(57.126)	(20.498)	(2.164)	0.609
Return on Equity (%)	(9.944)	(260.753)	(32.658)	(5.669)	1.677
Return on Investment (%)	(0.877)	(38.495)	(4.422)	(1.587)	4.184
LEVERAGE					
Interest Coverage Before Tax	0.251	(17.770)	(33.349)	(0.932)	3.319
Interest Coverage After Tax	0.243	(15.734)	(20.939)	(0.175)	1.463
Long-Term Debt/Common Eq.(%)	226.600	282.776	26.800	99.792	55.011
Long-Term Debt/Shrhldr Eq.(%)	226.600	282.776	26.800	99.792	34.795
Total Debt/Invested Cap.(%)	69.382	73.875	21.136	50.196	27.808
Total Debt/Total Assets (%)	62.689	61.950	16.821	38.484	22.126
Total Assets/Common Equity	3.615	4.565	1.593	2.619	2.752
DIVIDENDS					
Dividend Payout (%)	40.482	@NA	21.553	5.891	31.932
Dividend Yield (%)	@NA	@NA	@NA	@NA	@NA

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Figure 16: Company Structure Comparison

LINN LLC STRUCTURE & BENEFITS

Characteristic	LINN Energy	Typical MLP	Typical Corporation
Non-Taxable Entity	✓	✓	✗
Tax Shield on Distributions / Dividends	✓ Distribution [1]	✓ Distribution	✗ Dividend
Tax Reporting	Schedule K-1	Schedule K-1	Form 1099
General Partner	✗	✓	✗
Incentive Distribution Rights	✗	✓ (Up to 50%)	✗
Voting Rights	✓	✗	✓

[1] Management and the Board have elected to suspend LINN's distribution indefinitely, effective September 30, 2015

Table 17: Comps Model

Comparable Company Analysis

Name	Ticker	Market Capitilization (M)	Enterprise Value		Last 12 Months (2015) Revenues	EBITDA	EBIT	EPS	Year 1 Forecast (2016) Revenues	EBITDA	EBIT	EPS	Year 2 Forecast (2017) Revenues	EBITDA	EBIT	EPS	Long-Term Growth Rate
LINN Energy, LLC	LINE	156.04	9.83 B		4,454.33	-1,705.38	-2,448.02	-7.25	3,280.00	745.00	-62.00	0.11	3,609.00	607.00	-28.00	-0.21	2.50%
Carrizo Oil & Gas Inc.	CRZO	1,250.00	2.66 B		429.20	-979.38	-1,298.76	-13.15	386.71	-1,085.15	86.90	-20.73	348.43	-1,202.35	123.50	-18.03	1.00%
Energen Corporation	EGN	2,110.00	2.86 B		763.26	313.49	-1,480.74	-12.43	337.36	220.07	-251.30	-56.96	149.11	154.49	-100.30	-25.72	6.00%
Cabot Oil & Gas	COG	8,460.00	10.36B		1,357.15	636.44	-187.27	-0.28	-826.50	--	-68.90	-1.25	-1,149.67	--	321.10	0.85	29.55%
EQT Corporation	EQT	8,660.00	10.00 B		2,339.76	1,504.82	426.56	0.56	1,665.91	993.18	152.80	-0.50	1,186.13	655.50	350.30	-0.35	25.00%
				Mean	1,868.74	-46.00	-997.65	-6.51	968.70	218.28	-28.50	-15.87	828.60	53.66	133.32	-8.69	12.81%

Name	Ticker	Last 12 Months EV/ Revenues	EV/ EBITDA	EV/ EBIT	P/E	Year 1 Forecast EV/ Revenues	EV/ EBITDA	EV/ EBIT	P/E	Year 2 Forecast EV/ Revenues	EV/ EBITDA	EV/ EBIT	P/E	PEG Ratio
LINN Energy, LLC	LINE	4.49	3.56	-5.30	N/A	3.61	6.93	17.39	3.81	--	--	--	N/A	N/A
Carrizo Oil & Gas Inc.	CRZO	5.40	4.94	-2.00	N/A	4.85	7.12	28.29	47.76	4.52	6.44	19.91	42.14	N/A
Energen Corporation	EGN	3.78	6.75	-1.96	N/A	5.84	13.23	-13.66	N/A	4.74	8.24	-34.21	N/A	N/A
Cabot Oil & Gas	COG	8.06	16.47	-114.64	N/A	9.29	21.31	-169.05	N/A	6.35	11.55	36.27	105.95	N/A
EQT Corporation	EQT	5.20	6.58	22.37	101.57	7.03	11.23	89.48	N/A	6.05	8.82	39.03	N/A	406.28
	Mean	5.39	7.66	-20.31	--	6.12	11.96	-9.51	25.79	5.42	8.76	15.25	74.05	406.28

*figures in blue are from Bloomberg, Yahoo Finance, NASDAQ, CNN Money, and Guru Focus

Report Generated: 2/28/16

Table 18: Discounted Cash Flow Model

Discounted Cashflow Model - Valuation

Assumptions

10 Year US Treasury	1.76%	
Expected market return	9.03%	Arithmic return over 2006-2015 Averaged
Market risk premium	7.3%	
Beta	0.95	
CAPM cost of equity	**8.7%**	
Cost of debt	3.2%	
Tax rate	35.0%	
After tax cost of debt	**2.1%**	
Equity %	8.70%	
Debt %	91.30%	
WACC	**2.7%**	
Perpetual growth of firm cash flows (post year 5)	2.50%	* Tied to 10 year US GDP Outlook
Valuation date	28-Feb-16	

Model Summary

	Projected Fiscal Years Ending March 31						
Forecast Summary	**2014`**	**2015E***	**2016E**	**2017E**	**2018E**	**2019E**	**2020E**
Revenues	4,983	2,982	3,280	3,609	3,717	3,828	3,943
Revenue Growth Rate	114.8%	(59.8%)	10.0%	10.0%	3.0%	3.0%	3.0%
EBITDA	800	(847)	745	607	622	637	652

Valuation Model - Discounted Cash Flow Valuation

Valuation

	Projected Fiscal Years Ending March 31						
Free Cash Flows	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	
EBIT	(1,773)	(62)	(28)	(46)	(65)	(85)	
EBIT * (1-tax rate)	(1,684)	(59)	(26)	(43)	(61)	(81)	
Capex	-	-	211	222	233	244	*Lag by 2 years
Depreciation And Amortization	837	804	844	886	931	977	*Lag by 1 years
Net change in working capital	1,694	1,417	-	-	-	-	
EBITDA	**(847)**	**745**	**818**	**843**	**869**	**896**	
Free cash flows to the firm (FCFF)	(847)	745	607	622	637	652	
Years to Discount	1.00	2.00	3.00	4.00	5.00	6.00	
Cost of Capital	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%	
Discount Factor	1.03	1.05	1.08	1.11	1.14	1.17	
PV Free cash flows to the firm (FCFF)	(825)	707	561	560	559	557	

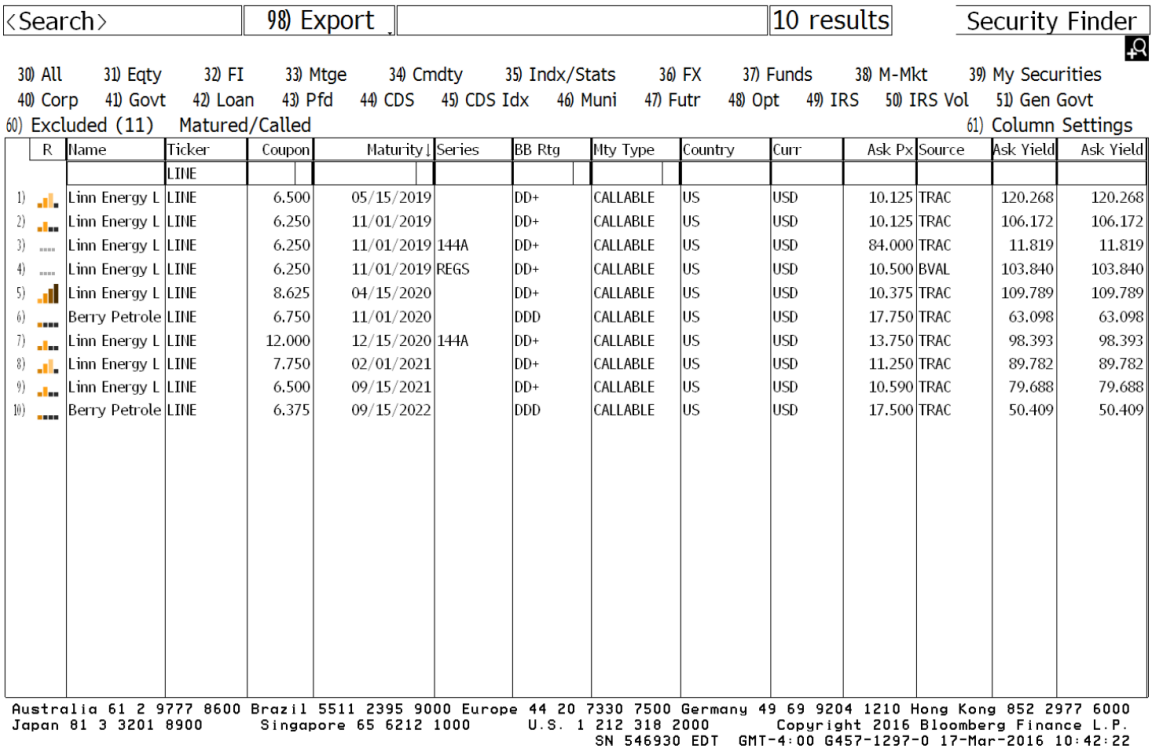
FCFF Fair Value Perpetuity Method

Grown TV FCFF	571
Terminal Value	373,251
Present Value of Terminal Value	318,985
Terminal Value as % of Total Value	*99.3%*
Present Value of Forecast FCF	2,119
Forecast Period as % of Total Value	*0.7%*
Enterprise Value	**321,104**
- Debt	10,028
+ Cash (hardcoe as of valuation date)	345
Net Debt	9,683
Equity Value (Market Cap)	**311,420**
Shares outstanding	355,050
Fair value share price	**0.877**

FCFF Fair Value Multiple Method

EBITDA Multiple	84.9x	EV/EBITDA Average
Last forecast EBITDA	896	
Terminal Value	76,100	
Present Value of Terminal Value	65,036	
Terminal Value as % of Total Value	*96.8%*	
Present Value of Forecast FCF	2,119	
Forecast Period as % of Total Value	*3.2%*	
Enterprise Value	**67,154**	
- Debt	10,028	
+ Cash	345	
Net Debt	9,683	
Equity Value (Market Cap)	**57,471**	
Shares outstanding	355,050	
Fair value share price	**0.16187**	

Figure 19: Fixed Income Offerings



	R	Name	Ticker	Coupon	Maturity	Series	BB Rtg	Mty Type	Country	Curr	Ask Px	Source	Ask Yield	Ask Yield
			LINE											
1)		Linn Energy L	LINE	6.500	05/15/2019		DD+	CALLABLE	US	USD	10.125	TRAC	120.268	120.268
2)		Linn Energy L	LINE	6.250	11/01/2019		DD+	CALLABLE	US	USD	10.125	TRAC	106.172	106.172
3)		Linn Energy L	LINE	6.250	11/01/2019	144A	DD+	CALLABLE	US	USD	84.000	TRAC	11.819	11.819
4)		Linn Energy L	LINE	6.250	11/01/2019	REGS	DD+	CALLABLE	US	USD	10.500	BVAL	103.840	103.840
5)		Linn Energy L	LINE	8.625	04/15/2020		DD+	CALLABLE	US	USD	10.375	TRAC	109.789	109.789
6)		Berry Petrole	LINE	6.750	11/01/2020		DDD	CALLABLE	US	USD	17.750	TRAC	63.098	63.098
7)		Linn Energy L	LINE	12.000	12/15/2020	144A	DD+	CALLABLE	US	USD	13.750	TRAC	98.393	98.393
8)		Linn Energy L	LINE	7.750	02/01/2021		DD+	CALLABLE	US	USD	11.250	TRAC	89.782	89.782
9)		Linn Energy L	LINE	6.500	09/15/2021		DD+	CALLABLE	US	USD	10.590	TRAC	79.688	79.688
10)		Berry Petrole	LINE	6.375	09/15/2022		DDD	CALLABLE	US	USD	17.500	TRAC	50.409	50.409

Note: Berry Petroleum is a subsidiary of LINN Energy, LLC

Figure 20: Insider Trading

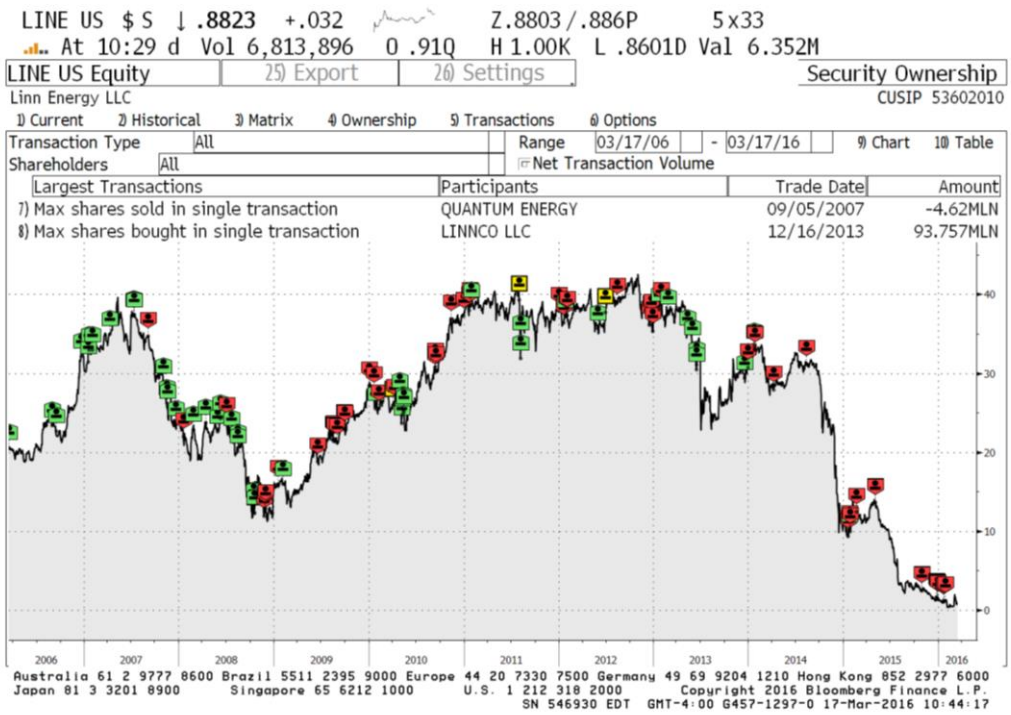


Figure 21: Specifics of LINN Energy Oil Hedging Positions as of 12/31/15

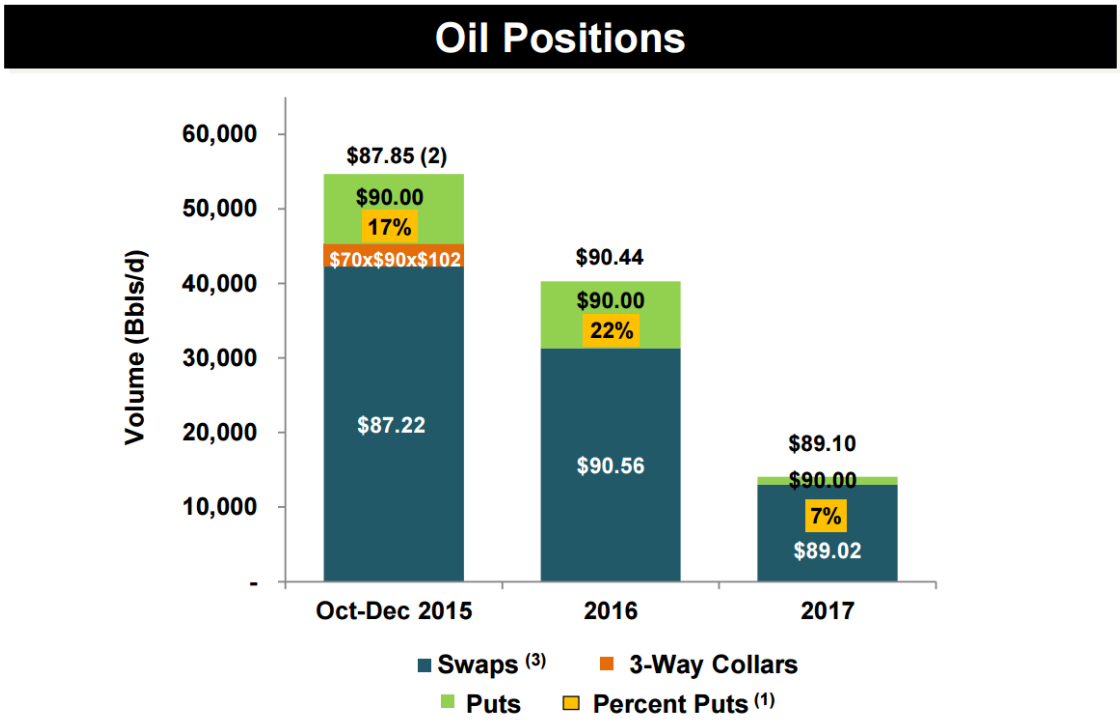


Figure 22: Specifics of LINN Energy Natural Gas Hedging Positions as of 12/31/15

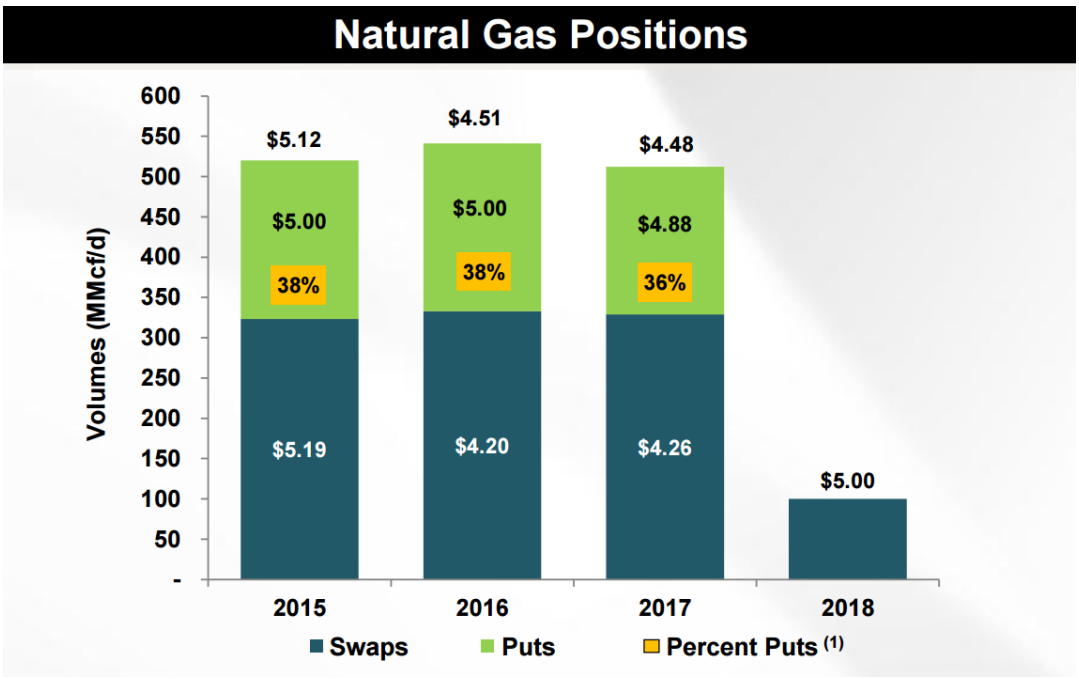


Figure 23: Put Options

LINE US $S ↓ .8803 +.03 J.8803 / .886P 3x32
.. At 10:28 d Vol 6,811,435 O .91Q H 1.00K L .8601D Val 6.35M

LINE US Equity | 95) Actions | 97) Settings | Option Monitor

LINN ENERGY LLC ↓.8803 .0303 3.5647% .8803 / .886 Hi 1.00 Lo .8601 Volm 6811435 HV 530.03

Center .8804 Strikes 18 Exp 18-Mar-16 Exch US Composite 92) 04/21/16 E | ERN »

Calc Mode As of < 17-Mar-2016 >

81) Center Strike 82) Calls/Puts 83) Calls 84) Puts 85) Term Structure 87) Moneyness

Strike	Puts				
	Ticker	Bid	Ask	Last	Volm
4.00	43) LINE 10/21/16 P4	3.20	3.60	3.50y	
18	20-Jan-17 (309d); CSize 100; IDiv .44 USD; R 1.14; IFwd .45				
.50	44) LINE 1/20/17 P0.5	.25	.40	.35y	
1.00	45) LINE 1/20/17 P1	.65	.80	.80y	
1.50	46) LINE 1/20/17 P1.5	1.10	1.25	1.20y	
2.00	47) LINE 1/20/17 P2	1.40	1.70	1.55y	
2.50	48) LINE 1/20/17 P2.5	1.85	2.15	2.00y	
3.00	49) LINE 1/20/17 P3	2.30	2.60	2.55y	
3.50	50) LINE 1/20/17 P3.5	2.80	3.10	3.25y	
4.00	51) LINE 1/20/17 P4	3.20	3.60	3.50y	
4.50	52) LINE 1/20/17 P4.5	3.70	4.10	4.10y	
5.00	53) LINE 1/20/17 P5	4.30	4.60	4.50y	
5.50	54) LINE 1/20/17 P5.5	4.70	5.00	4.78y	
8.00	55) LINE 1/20/17 P8	7.20	7.50	7.60y	
10.00	56) LINE 1/20/17 P10	9.30	9.50	9.40y	
13.00	57) LINE 1/20/17 P13	12.10	12.40	12.40y	
15.00	58) LINE 1/20/17 P15	14.10	14.40	14.50y	
18.00	59) LINE 1/20/17 P18	17.10	17.40	17.40y	
20.00	60) LINE 1/20/17 P20	19.10	19.40	19.40y	
23.00	61) LINE 1/20/17 P23	22.10	22.40	22.70y	

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Japan 81 3 3201 8900 Singapore 65 6212 1000 U.S. 1 212 318 2000 Copyright 2016 Bloomberg Finance L.P.
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