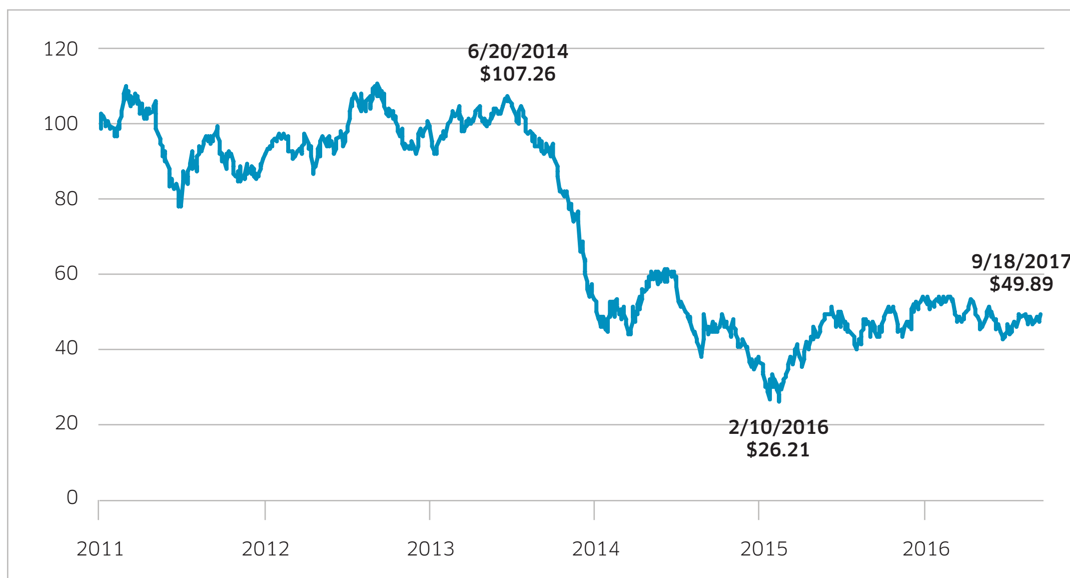
Nasdaq

Oil: An Ongoing Story of Supply and Demand

The new normal of oil prices

The crude oil market has experienced a “sea change” since 2014. Oil prices dropped sharply from above $100 in early 2014, bottomed at $26 in 2016 and have now stabilized at around $50 (Figure 1). The market has indicated that this will not be a short term price drop and will continue to be “lower for longer”. The futures curve is now significantly lower and inverse to the 2014 pre-crash levels. In 2014 before the oil price collapse, crude oil futures were traded in the shape of backwardation, with far term futures priced lower than near term futures to compensate for the storage costs (convenience yield). The current oil future curve, however, is in contango. A contango in the crude oil market means that traders avoid holding spot commodities by paying a premium for future deliveries. Since a contango position is highly unprofitable, it reflects a strong pessimism on the crude oil market at the current moment (Figure 2).

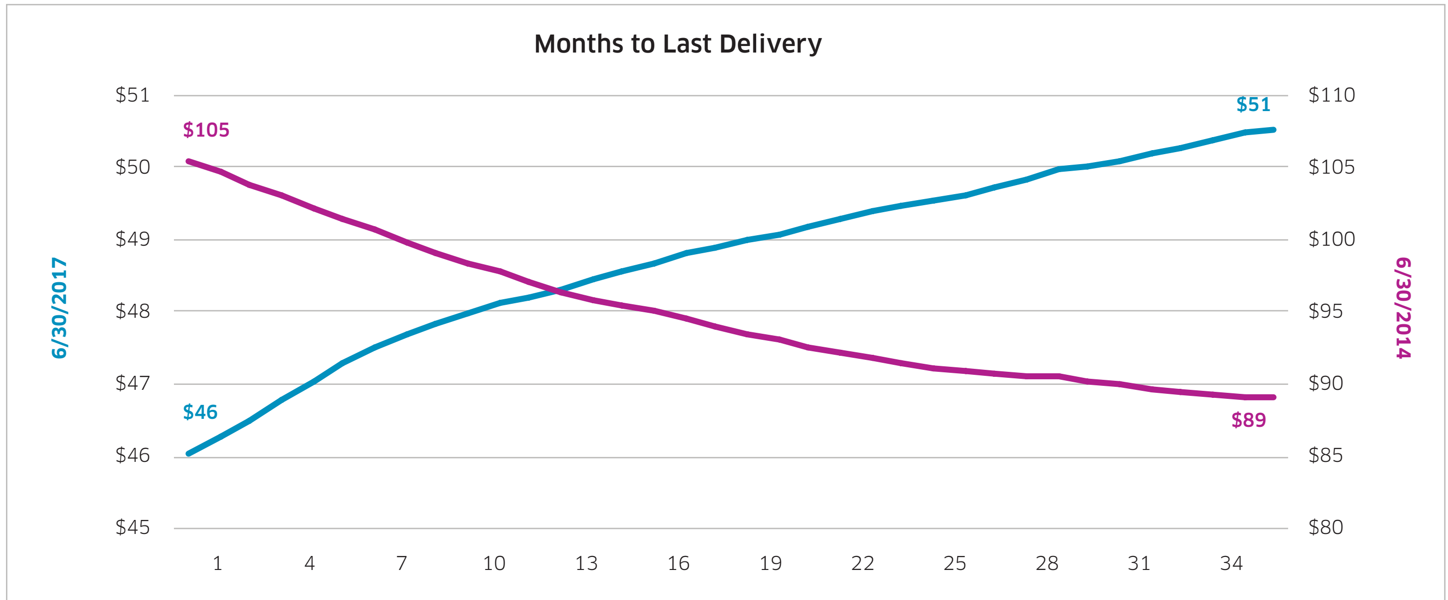
Figure 1: Crude Oil Price has sharply dropped since 2014



Source: Bloomberg

BY RICHARD LIN, CFA, NASDAQ GLOBAL INFORMATION SERVICES

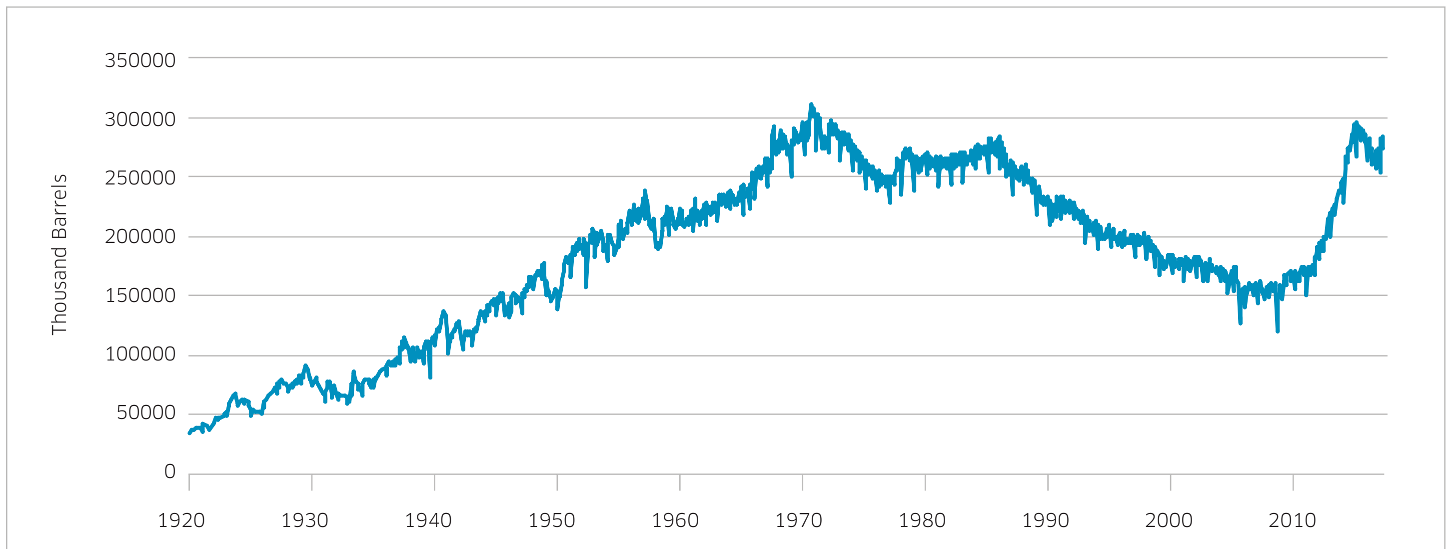
Figure 2: The Current Crude Oil Future Curve is lowered and reversed



Source: Bloomberg

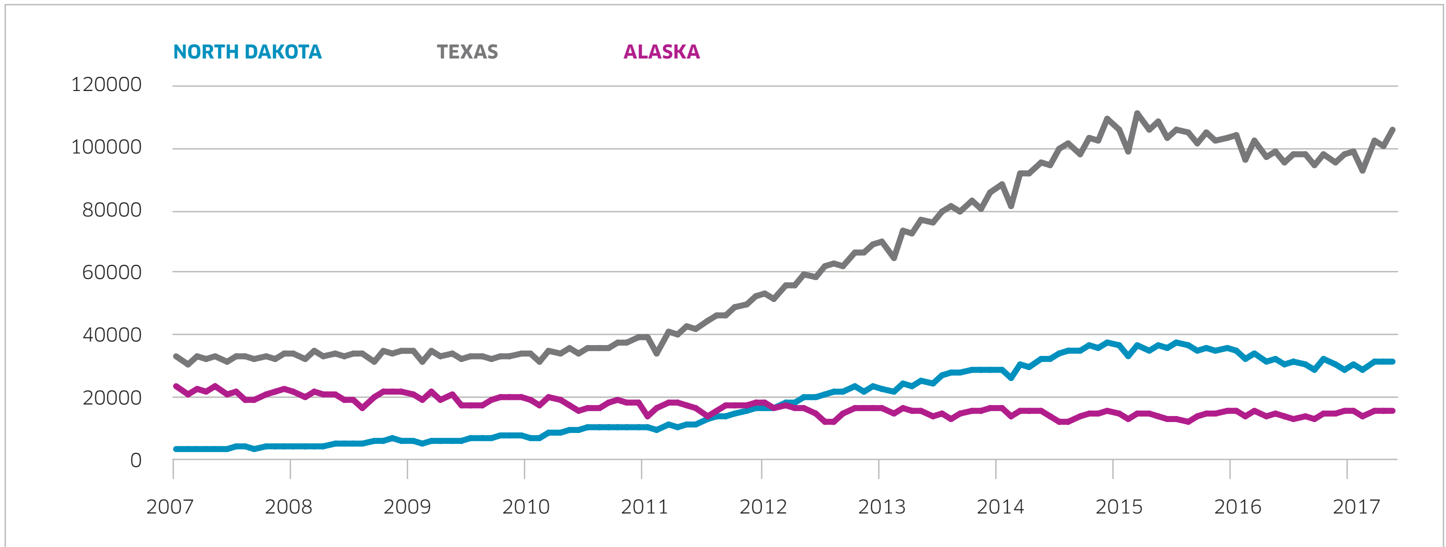
For readers who have not followed the story, the sudden slump in oil prices is due to the dramatic increase in the U.S. shale field production rooted in the breakthrough of the new formation technology, the so-called "Shale Revolution". This new technology uses a combination of horizontal drilling and hydraulic fracturing to tremendously stimulate the field oil and natural gas production in the United States, largely from shale-rich states such as Texas and North Dakota. With its domestic oil production more than doubled, the United States became the world's top energy producer in 2011. The U.S. Energy Information Administration (EIA) even predicted that the U.S. will become a net energy exporter within a decade. As the United States is persistently building up its energy surplus, the rest of the world's oil producers are inevitably facing a prolonged oversupply pressure. Since some of the world's large oil producing countries are dependent on oil exports to cover their fiscal deficits, they could not afford to reduce their long term productions in order to support oil prices. Instead, they increased the overall production to make up the losses due to the unit price reduction. The outcome we saw was oil prices in a downward trend (Figures 3, 4 and 5).

Figure 3: U.S. Crude Oil Field Production has doubled



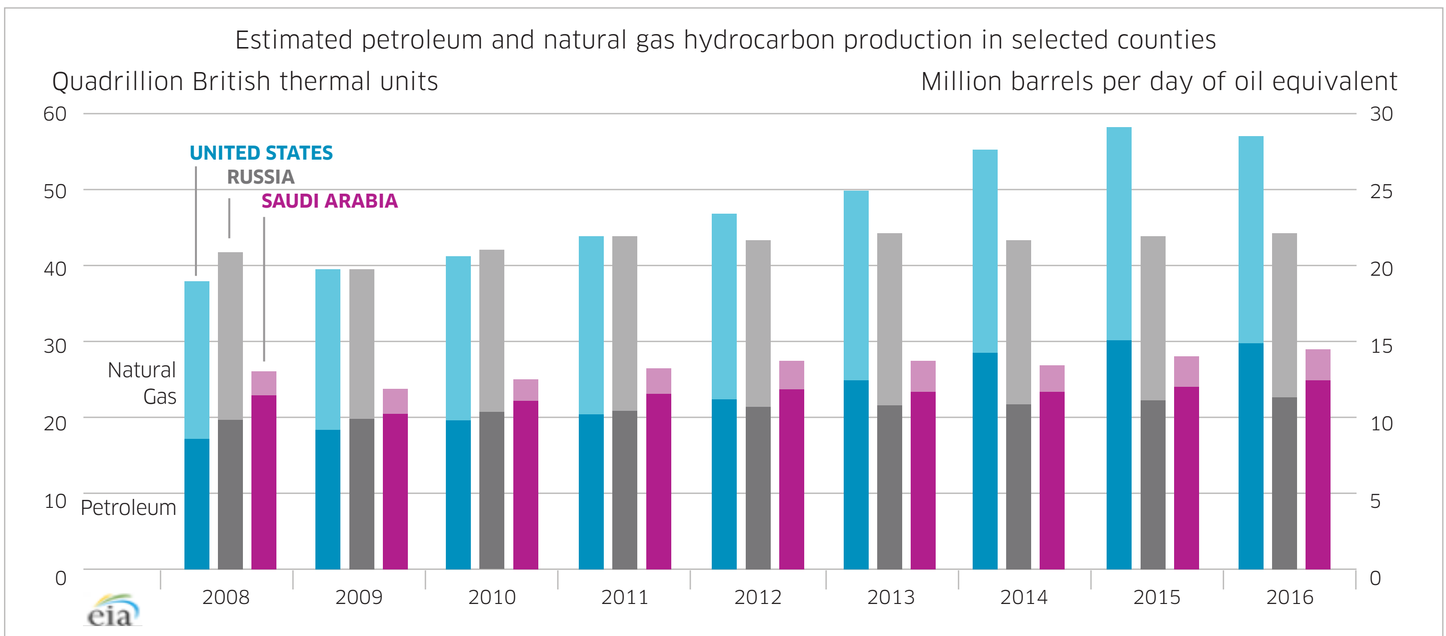
Source: U.S. Energy Information Administration (EIA)

Figure 4: U.S. Shale Drives overall Production



Source: U.S. Energy Information Administration (EIA)

Figure 5: U.S. becomes the world's top energy producer



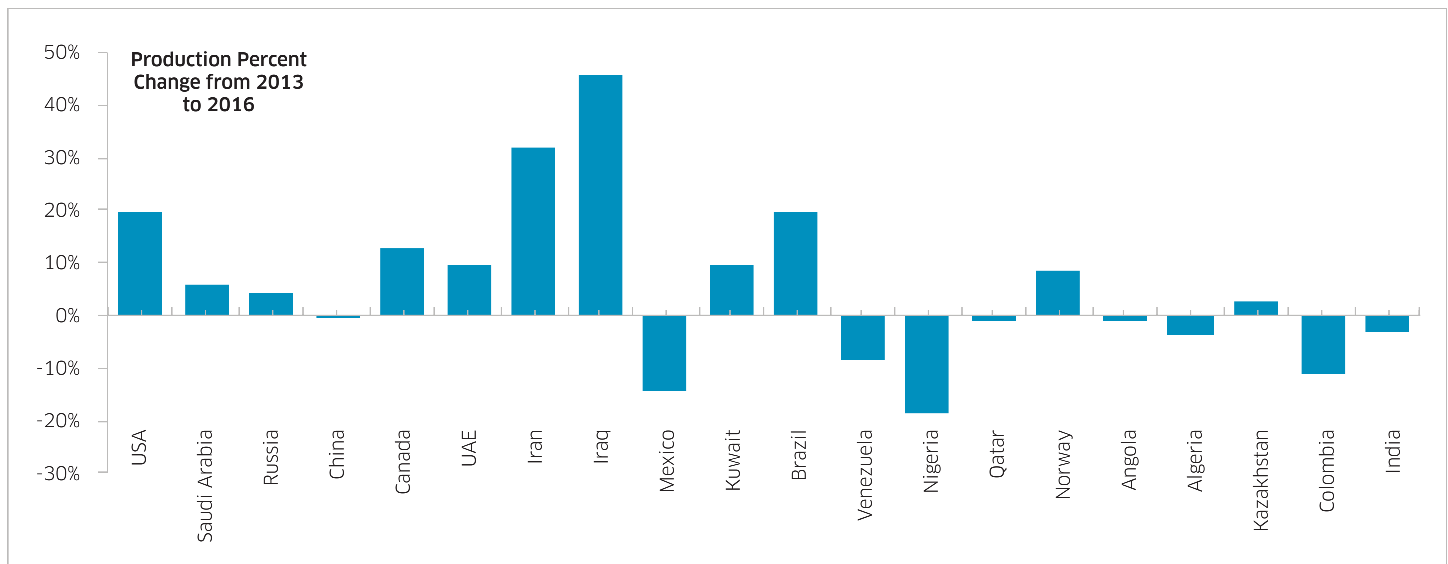
Source: U.S. Energy Information Administration (EIA)

A tug of war for oil prices

When the price of oil bottomed at $26, many high-cost producers were forced to cease or reduce their production (Figure 6). Oil production capacity seems to have reached its limit in the short term and oil prices have stabilized in a range of ~$40 to ~$50. However, market expectations have diverged and many traders are actively speculating on both sides of the market.

Figure 6: 9 out of the top 20 oil producing countries have reduced outputs since 2013

Nigeria, Mexico, Colombia and Venezuela all had significant production cuts since 2013. Other countries such as Algeria, India, Qatar, Angola and China just had moderate to minor cuts of less than 4%. The decision to cut oil production is possibly influenced by individual country's operating costs (Nigeria, Colombia, Venezuela, Angola) and market demand (Mexico, Algeria, Qatar) while being negatively offset by domestic demand (India, China). After the latest round of OPEC cut talk, Saudi Arabia and Russia will share the majority of the cut. But the other two OPEC members, Iran and Iraq, are taking advantage and increasing their production instead.



Source: U.S. Energy Information Administration (EIA)

Reasons to be bearish

The massive U.S. shale oil production supply is the major fundamental reason for traders to stay bearish about crude oil prices. In addition, bears often cite concerns from the demand side, such as the regulatory pushes for a cleaner alternative source of energy, or the changing consumer habits with the preference of electric over fossil energy powered vehicles , etc. The latest headline is Texas' refinery shutdowns caused by Hurricane Harvey that trimmed the short term demand for crude oil.

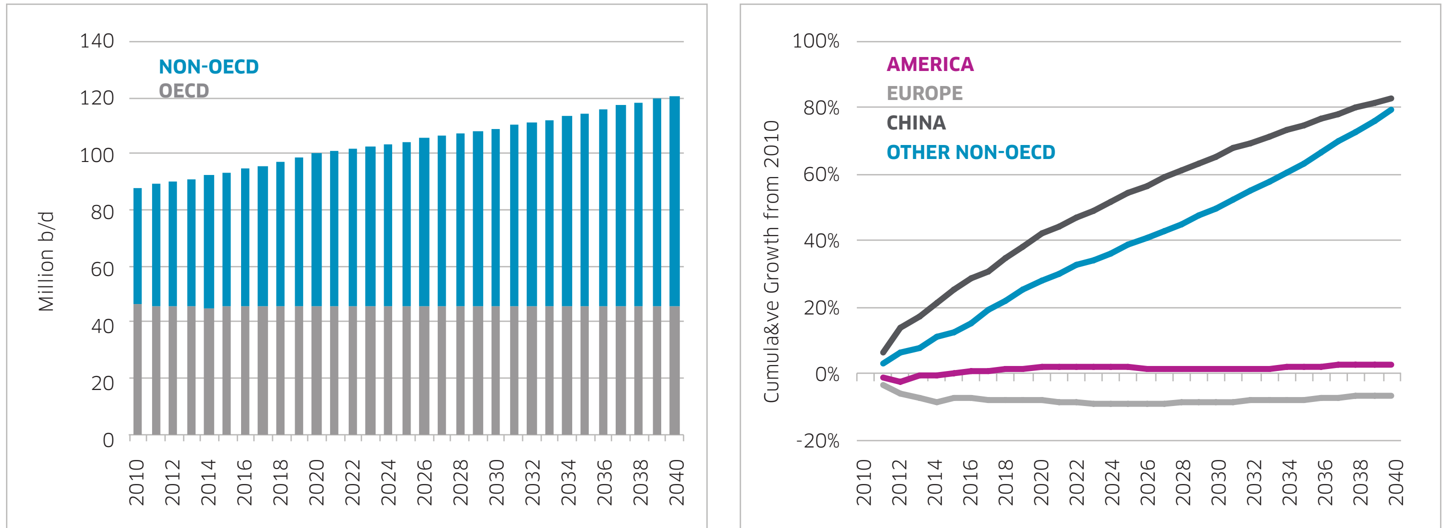
1. Britain, France, Norway, Austria, Denmark, Germany, Ireland, Netherlands, Portugal, Spain, Japan, Korea, India, and, most recently, China have all set official goals for electric car sales. The United States doesn't have a federal policy, but at least eight states including California have laid out goals.

Reasons to be bullish

EIA forecasted an accommodative trend in world consumption in its latest annual energy outlook report. It still sees solid growth coming from Non-OECD countries. Both China and other Non-OECD countries will double their consumption levels in three decades (Figure 7).

Figure 7: World Crude Oil Consumption by region

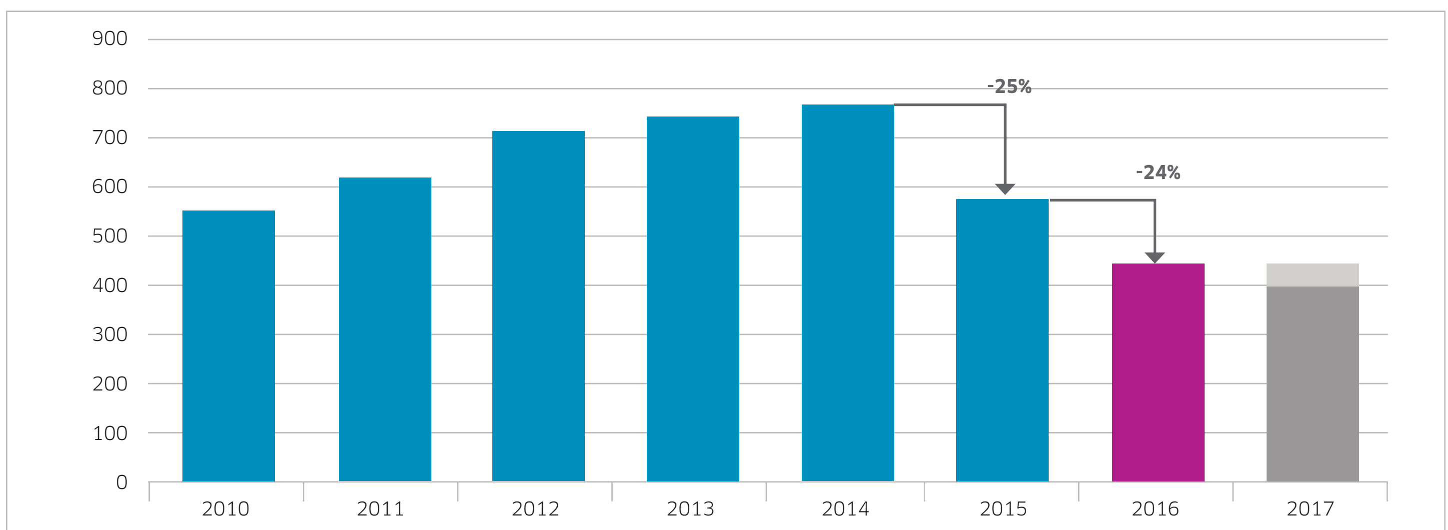
Non-OECD demand has bypassed that of OECD countries since 2014 and keeps growing. China counts for more than a quarter of the total non-OECD consumption. The following chart on RHS shows that both China and the rest of the other Non-OECD countries share the same level of robust growth for oil consumption, while demands from the developed countries are predicted to be flat.



Source: U.S. Energy Information Administration (EIA)

Meanwhile, the global capital expenditure for drilling projects has been significantly cut down since 2014. That should lead to less oil supply and drive up the prices in the future (Figure 8).

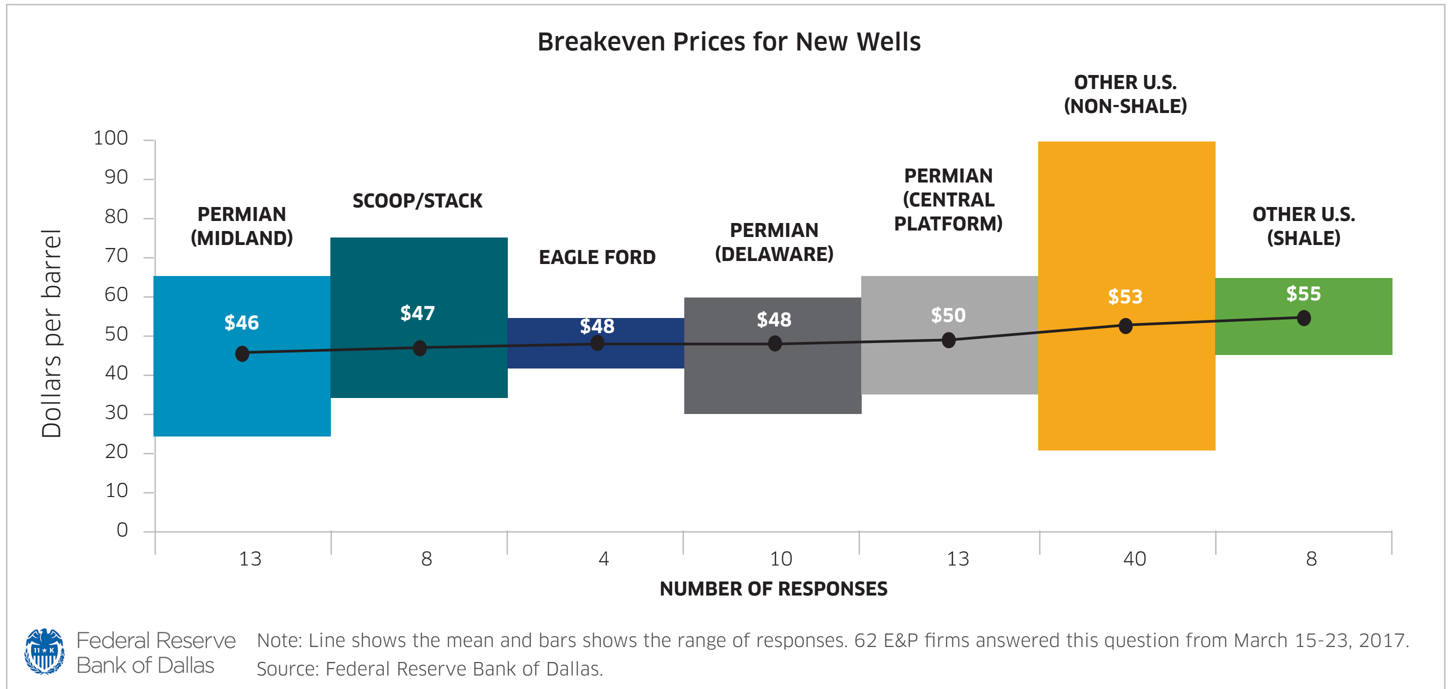
Figure 8: Global Upstream Capital Spending 2010-2017 (in billions of USD)



Source: International Energy Agency World Energy Investment 2016

For domestic sale producers, given that the current oil price has already gone under the average breakeven costs for new shale well production, many experts predict that future shale supply will also shrink if the current level of oil price sustains. In fact, the rapid increase of U.S. shale production is heavily reliant on producers' abilities to borrow and fund their drilling productions. With already thin profit margins, a projected rate hike by the Fed would make it difficult for these shale producers to fund any future drillings or even revolve the current credits. We should see an increase in oil prices if the credit bonanza in the energy sector eventually stops (Figure 9).

Figure 9: Breakeven Costs for Shale Oil Production

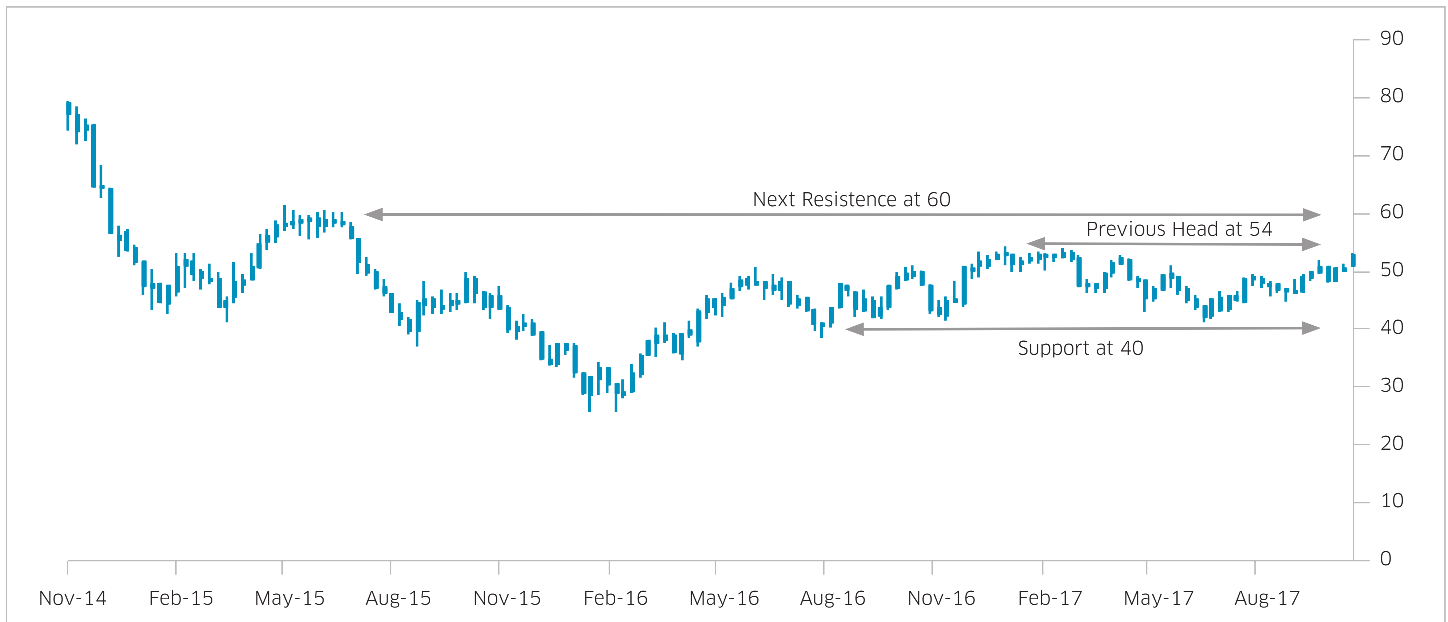


Note: Line shows the mean and bars shows the range of responses. 62 E&P firms answered this question from March 15-23, 2017.
Source: Federal Reserve Bank of Dallas.

Technical Analysis

The oil price was traded in a bearish chanel in the first half of the year. The trend has reversed, however, after reaching the bottom of 43 at June. It is now in a strong upward trend and breaking up the previous head at 54. The reversal of the sentiment is helped with several rather bullish news such as better than estimated Harvey recovery estimates, sign of the early success of the OPEC production cut and the Iraq kurdish conflict. Whether the oil price can successfully stand above with the high is still unclear; traders are closely watching any further changes in fundamentals such as better than expected emerging market economy recovery or, on the other side, whether shale productors will catch up the production that could potentially corrode any effect in the production cut so far.

Figure 10: Crude Oil Price Chart



Source: Bloomberg

Product review

Nasdaq offers a variety of Crude Oil future pricing derived index products, ranging from the conventional front roll WTI and Brent indexes to the more advanced leveraged and inverse indexes. There are also some ETF products available that are benchmarked to Nasdaq's oil indexes. This allows investors to invest in one or both sides of oil prices depending on their market views and expectations.

Table 1: Nasdaq Crude Oil Index Family

INDEX SYMBOL	NAME
NQCICBER	NASDAQ Commodity Brent Crude Index ER
NQCICLER	NASDAQ Commodity Crude Oil Index ER
NQCIL2CLER	NASDAQ Commodity 2x Leverage Crude Oil Index ER
NQCIL3CBER	NASDAQ Commodity 3x Leverage Brent Crude Index ER
NQCIL3CLER	NASDAQ Commodity 3x Leverage Crude Oil Index ER
NQCIS2CLER	NASDAQ Commodity 2x Inverse Crude Oil Index ER
NQCIS3CBER	NASDAQ Commodity 3x Inverse Brent Crude Index ER
NQCIS3CLER	NASDAQ Commodity 3x Inverse Crude Oil Index ER

Table 2: Crude Oil ETPs benchmarked to Nasdaq

ETP TICKER	ETP NAME
BRND	Boost Brent Oil ETP
3BRL	Boost Brent Oil 3x Leverage Daily ETP
3BRS	Boost Brent Oil 3x Short Daily ETP
3OIL	Boost WTI Oil 3x Leverage Daily ETP
3OIS	Boost WTI Oil 3x Short Daily ETP
WTID	Boost WTI Oil ETP
OILZ	Boost WTI Oil 1x Short Daily ETP
2OIL	Boost WTI Oil 2x Leverage Daily ETP
2OIS	Boost WTI Oil 2x Short Daily ETP

Conclusion

The crude oil market has been permanently changed by the breakthrough of shale drilling technology. Oil prices may stay lower for longer but currently trade within a narrow channel between $40 and $50. Traders from both sides have sufficient reasons to support their own long or short speculations. However, it is still unclear which side can dominate the trend in the near future. Nasdaq provides a comprehensive list of crude oil index products that can help professional traders monetize their ideas. There are also a handful of ETF products already benchmarked to Nasdaq's crude oil indexes so retail investors can express their views with just a click of the finger.

More Information

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