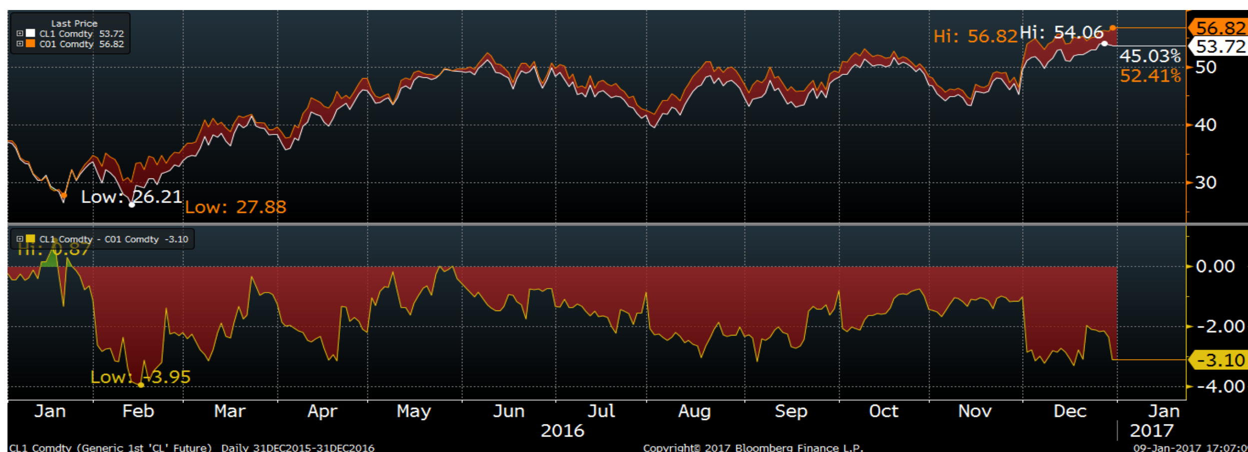
Crude Oil Highlights January, 2017

2016 was another banner year for crude oil headlines. U.S. and global stocks hit new record levels. Phenomenal price action saw the front month future hit a multi-year low of $26.05 before recovering to the low-$50 range. Drillers dropped active rigs to levels not seen since 2009, when explosive U.S. production growth began, before turning around and bringing supply back online at a rapid clip, ending the year almost right where they started – proving the elasticity of U.S. supply. Related to the rig count, U.S. production fell from last year's record peak to levels seen near the start of the oil crash…before climbing again as year-end approached. And OPEC members pumped like crazy before agreeing to a landmark production cut that will take them back to where they were before they started pumping like crazy (and not even back to 2015 levels). Finally, it is worth noting that open interest in the benchmark WTI future reached an all-time high of over 640,000 contracts in the front month alone.

The front month WTI future rose about 45% year over year (YOY). However, contango was very strong during parts of the year, and the return on a position rolled 10 days prior to expiration rose only about 7%. (This is what oil investors actually realize after rolling positions or paying storage, insurance, and other costs to hold spot. The 45% return is not achievable and merely serves as a marker to show the difference in where people were willing to buy/sell between two periods.)

Other grades saw similar returns, though some interesting differences are worth noting. The Auspice Canadian Crude Index gained about 10%, Dubai Crude futures rolled 10 days prior to expiry gained about 28% and Brent Crude rolled 10 days prior to expiry gained about 29%. (Brent spot prices were up about 52% and Dubai spot prices were up over 60%. Again, these returns are not achievable.) Contango was less severe in these markets which explains a significant portion of the outperformance to WTI.



Source: Bloomberg As of 12/31/16

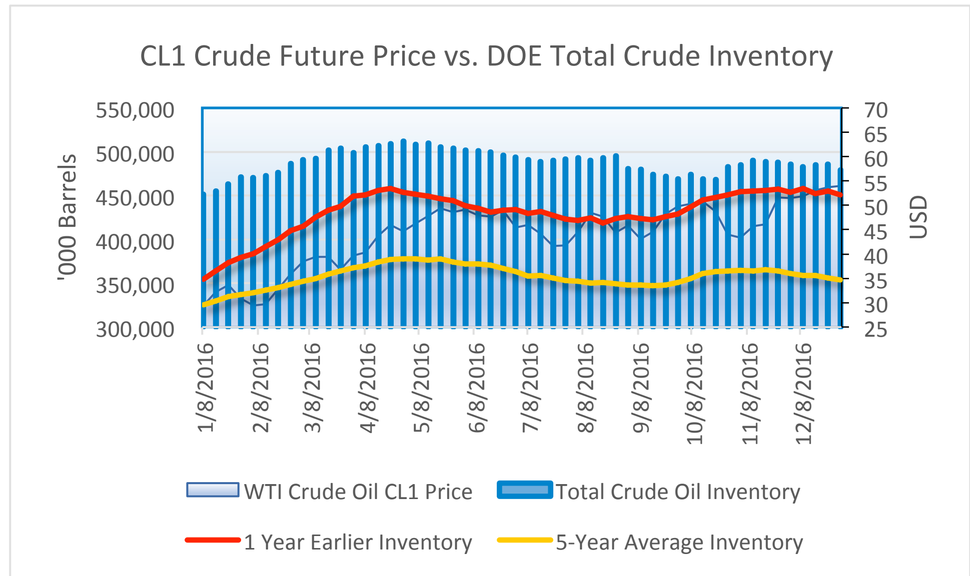
More specifically, M1-M2 contango on WTI futures averaged 94-cents vs 55-cents for Brent crude. The higher contango for the U.S. benchmark results from more elastic supply, a massive glut of U.S. storage, and the fact that North Sea activity has been reduced in recent years. It's harder to extract Brent and there's greater possibility for shortages compared to WTI. For this reason, Brent also trades at a

premium to WTI, which averaged $1.71 in 2016. The premium peaked at nearly $4 and finished the year at $3.10.

While there have been meaningful fundamental improvements, by no means is the global crude market "normal." Prices rose as much on trajectory towards normalcy as they did actual data. Global events, especially the hope that The Organization of the Petroleum Exporting Countries (OPEC) would reach a deal to cut production and the actual deal itself, also supported price action.

In terms of fundamental improvements, after peaking at 512,095 million barrels at the end of April – the highest level since 1929 - U.S. storage declined to 479,012 by year-end. Unfortunately, much of this decline is seasonal in nature, and the MASSIVE U.S. STORAGE GLUT is still 35% above the 5-year average. The surplus to the 5-year peaked in spring at about 40%.

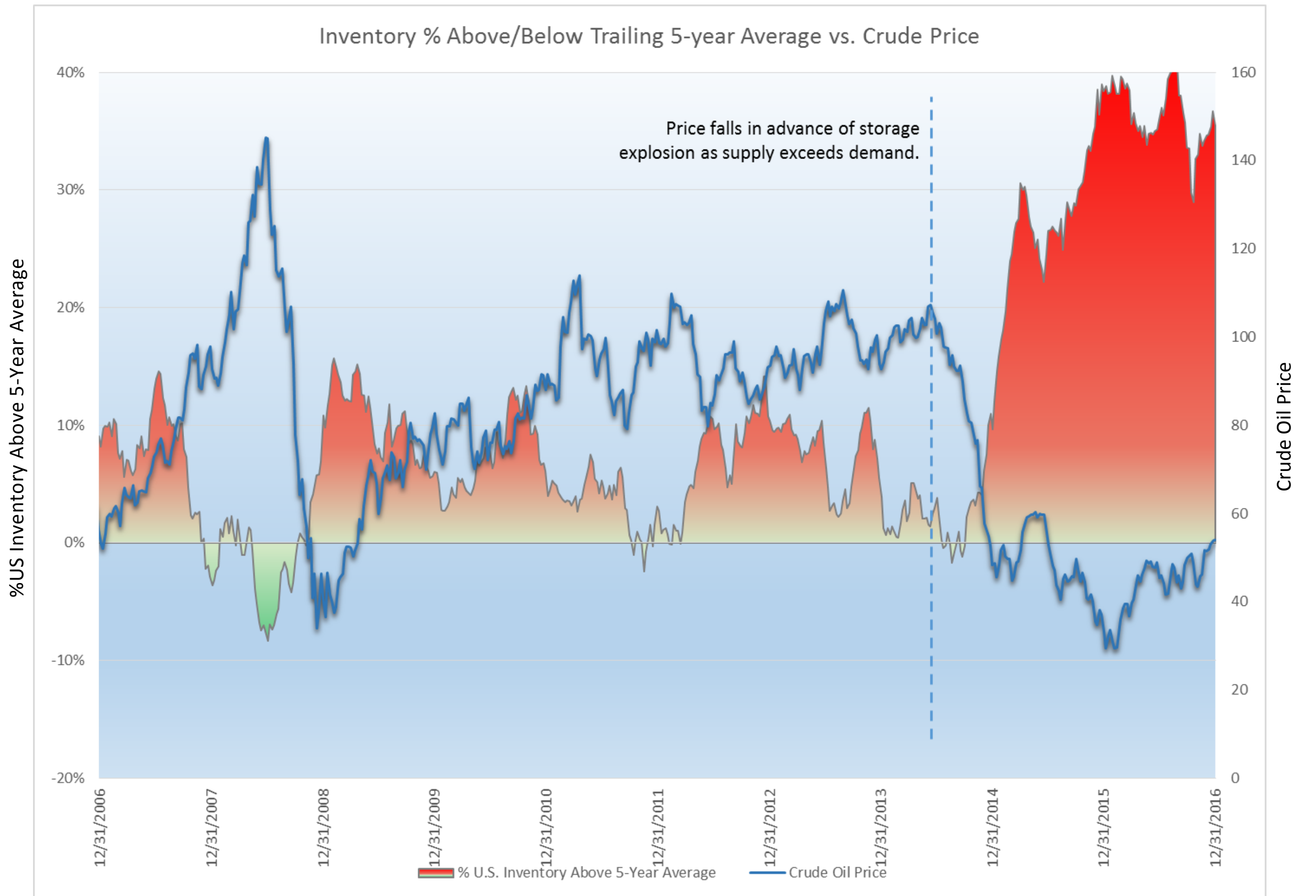
A 6% decline in stocks from an all-time high with a seasonal component isn't much to get excited about. Especially with rig counts and U.S. production rising again. Fortunately, global supplies also showed a decline from a historic peak of over 3.1 billion barrels, and global trends tend to be more stable than the more elastic U.S. market. A move down, if OPEC members and others stick to their commitments, may be sustainable, or at least mean that 2016's record is safe for the foreseeable future. Time will tell.



Source: DOE/Bloomberg 01/8/2016 - 12/08/16

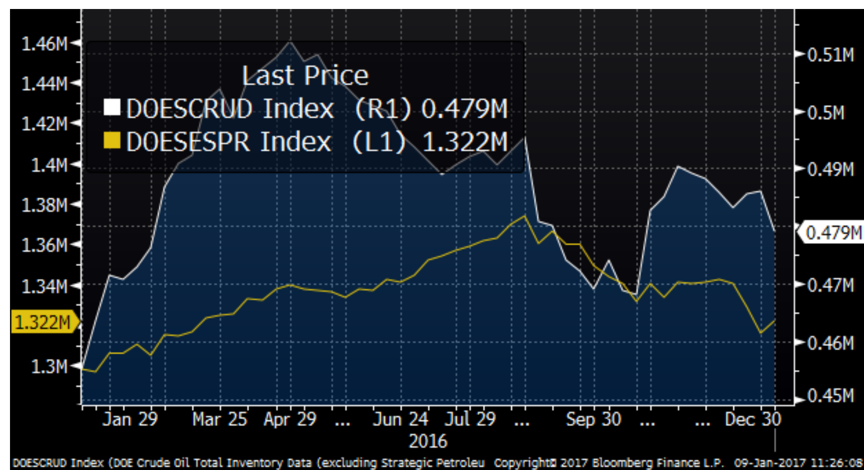
As I stated last quarter, volatility is likely to remain significant in 2017, due to the huge inventory glut, and despite positive trends, until we see real meaningful surplus declines then the price is unlikely to stabilize. That said, it seems likely that prices are unlikely to drop back to 2016 lows and certainly unlikely to get anywhere near pre-2014 highs.

The lack of meaningful change becomes more apparent when we compare a typical chart of inventory on an absolute basis (above) to a chart showing inventory relative to its five-year average (below).

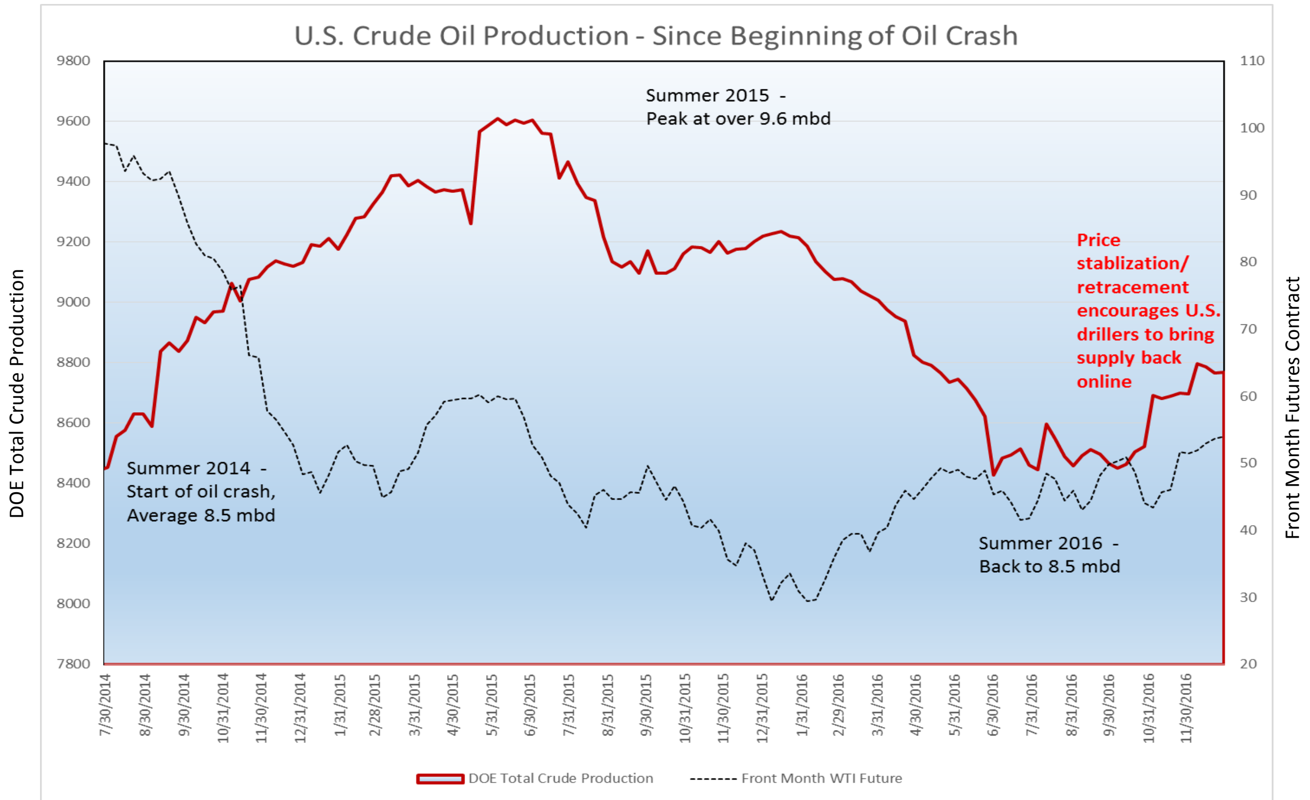


Source: DOE/Bloomberg 12/31/2006 - 12/31/16

When considering all liquid petroleum products rather than crude alone, a more determinate pattern can be observed. As above, some of this decline is seasonal. However, a turning point may have been reached if drillers don't overreact to higher prices in 2017.



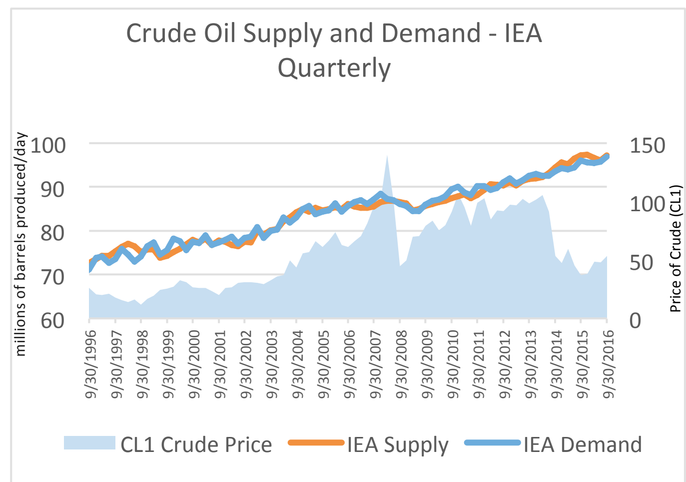
Source: DOE/Bloomberg 1/29/16 - 12/30/16



Source: DOE/Bloomberg From 7/30/14 - 12/31/16

Speaking of which, two years ago, when the oil crash began, the United States produced an average 8.5 million barrels of oil per day (mbd) (Jun-Aug 2016), a massive and unprecedented increase over the preceding years. Supply continued to increase until the summer of 2015, where it peaked at 9.6 mbd. By summer 2016, we are back to about 8.5 mbd. U.S. production, at that point, appeared to have come full circle since the crash began. However, prices enticed producers to increase supply and 2016 ended with U.S. supply at nearly 8.8 mbd.

On the global front, the IEA (International Energy Agency) shows supply and demand roughly in alignment. The agency forecasts supply and demand at 96.4/97.1 mbd through Q2 2017, an encouraging sign. The U.S. Department of Energy (DOE) has slightly different numbers for all of 2017, 97.53/97.2, with supply slightly exceeding demand. Either way, we feel the market is better balanced than in the past few years and the realization of these forecasts should support the market.



Source: IEA/Bloomberg 9/30/96 - 9/30/16

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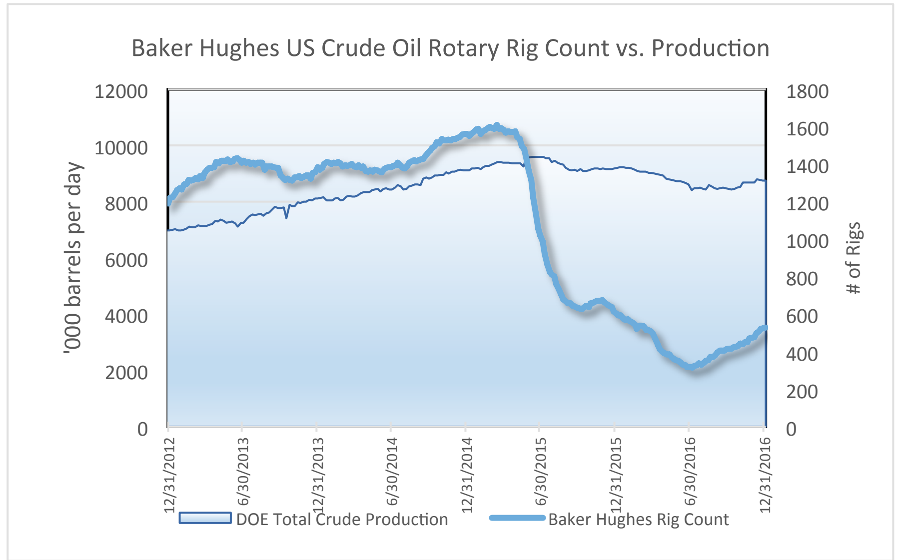
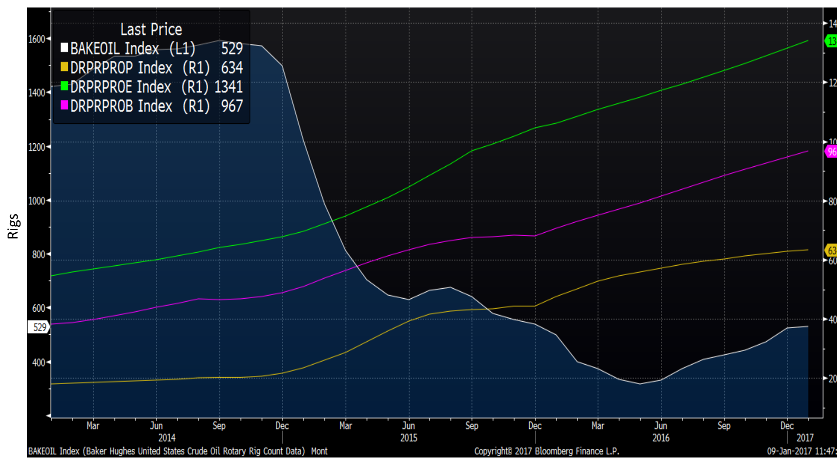
As mentioned above, U.S. producers have clearly demonstrated willingness to invest and bring rigs back online in the current price environment. After cutting nearly $150 billion on capital expenditures (capex) in the U.S. and dropping rigs from 1,609 to 316 over less than two years, the inflection point came when the price crossed the $50 mark. 529 rigs were in service by year-end, just below the last reported level in 2015. Although U.S. supply may be elastic, the round-turn trip in rigs in 2016 probably established a floor for rig counts, unless a black swan event takes prices drastically lower again.



Source: DOE/Baker Hughes/Bloomberg 12/31/2012 - 12/31/2016



As mentioned last quarter, the lower rig count total over the last few years has been significantly offset by rising productivity. While production lags rig counts, strong productivity gains in U.S. shale regions translated to tepid supply declines relative to the fall in active rigs. Put another way, more rigs could lead to even more supply than the same count a year ago.

Source: Baker Hughes, Bloomberg 12/31/13 - 12/31/16

Looking Ahead

OPEC's decision to cut 1.2 mbd has already had a significant price effect, and compliance has already started. Production dropped 3% in December. At the moment, all eyes are on whether OPEC members will comply, and whether returning supply from Libya and Nigeria may offset any cuts OPEC has announced. The bigger wildcard is the U.S. It seems fairly apparent that any action that supports prices

brings U.S. supply back online at a faster clip. This is self-limiting, though some analysts believe it will take drillers longer to return supply to the market than demand will require in 2017.

Forecast demand must materialize, which seems likely given the current global economic outlook. Increased spending on infrastructure and improving corporate earnings are a positive for crude. However, since WTI is priced in dollars, decent economic fundamentals (supportive of crude) will lead the Federal Reserve (FED) to continue raising rates (positive for the dollar and negative for crude). On balance, the crude market is better off than it was at the start of 2016 and 2015 and arguably before that. The biggest headwind remains the U.S. and global surplus, which seems likely to finally start getting closer and closer to normal in 2017.

John Love, CFA
President and CEO, USCF

Definitions:

Contango: A situation where the future spot price is below the current price, and people are willing to pay more for a commodity at some point in the future than the actual expected price of the commodity.

M1-M2 Contango: The spread (or price difference) between the front month futures contract and the next month contract to expiration.

West Texas Intermediate (**WTI**): Also known as **Texas light sweet**, is a grade of crude oil used as a benchmark in oil pricing. This grade is described as light because of its relatively low density, and sweet because of its low sulfur content. It is the underlying commodity of New York Mercantile Exchange's oil futures contracts.

CL1: Crude Oil Futures, Continuous Contract #1 (Front Month)

Baker Hughes Rig Count: Baker Hughes has issued the rotary rig counts as a service to the petroleum industry since 1944. The North American rig count is released weekly at noon central time on the last day of the work week. The international rig count is released on the fifth working day of each month. The Baker Hughes Rig Counts are an important business barometer for the drilling industry and its suppliers.

Canadian Crude Index (CCI): Created by Auspice Capital and represents a simple, transparent and liquid benchmark for oil that is produced in Canada.

DOESCRUD Index: Non-government oil stocks in U.S.

BAKEOIL Index: Baker Hughes U.S. crude oil rotary rig count

DOESESPR Index: Non-government oil and other petroleum products (e.g. gasoline, heating oil, propane, jet fuel)

DRPRPROP Index: Drilling Productivity Reports for the Permian Basin.

DRPRPROE Index: Drilling Productivity Reports for the Eagle Ford Field.

DRPRPROB index: Drilling Productivity Reports for the Bakken Field.

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