Calmer Markets Suggest Crude Price Consensus

Speculators burned by lower volatility.

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Data Sources for This Publication
Energy Information Administration
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To discover more about the data sources used, click here.

Flattening Curve

After two years of high volatility following the price crash in the second half of 2014, crude oil prices for U.S. benchmark West Texas Intermediate, as reflected in the CME/Nymex futures market, have settled into a narrower, less volatile range. Although outside factors such as geopolitical instability (think Venezuela or North Korea) can always throw a curveball, the indications are that today's relative stability is here to stay until the next system shock. Forward curves in the 2017 futures market have a flatter shape, and price volatility has subsided to levels not seen since before the price crash in 2014. Calmer prices have not yet been reflected in less speculative activity, but we expect this to follow since hedge funds require volatility to generate high returns. This note looks at the changing shape of forward curves and price volatility in the CME WTI futures market.

Curve Evolution

We begin with a look at the evolution of forward curves since 2014. Exhibit 1 shows CME/Nymex WTI futures settlement curves close to Aug. 11 for 2014-17.

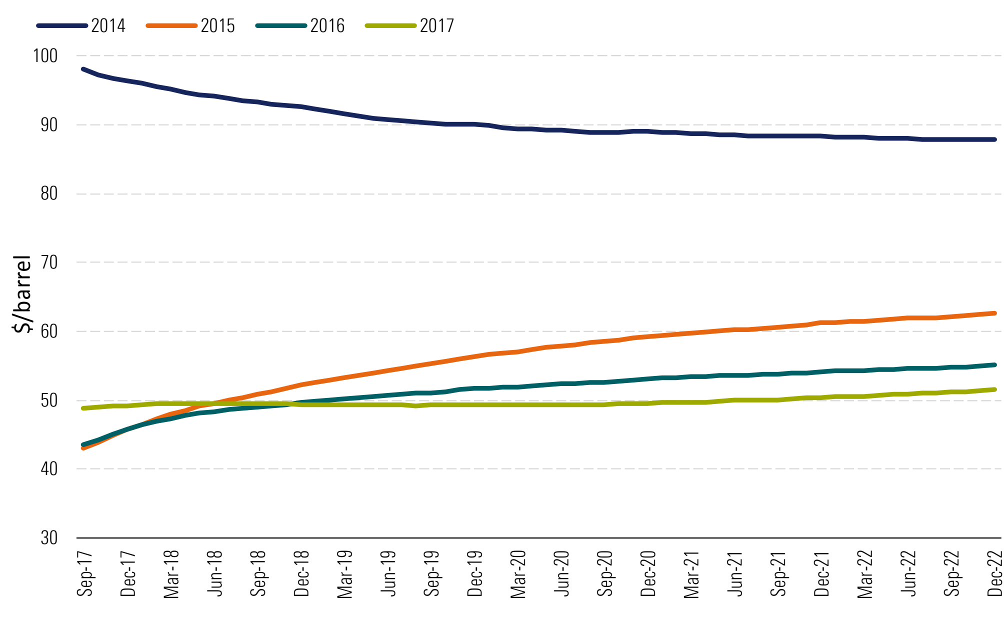
The Aug. 11, 2014, curve (blue line) reflects a market just after prices started to fall from a high of close to $107/barrel on June 13, 2014, to $53.27 by the end of that year. An excess of world crude supply over demand caused the price crash, with increased U.S. shale production over the previous three years being a crucial factor. In early August 2014, the futures curve was in backwardation—prices for immediate delivery ($98.08/barrel for the September 2014 contract) were higher than those further out—with December 2019 priced over $10/barrel lower, indicating stronger near-term demand.

The 2015 curve (orange line) looked very different, with September crude prices down to $43.08/barrel, less than half where they were a year earlier. The curve follows a contango pattern where prices for immediate delivery are higher than further out (see our May 2016 note "Heating Oil Contango Drawing to a Close" for a detailed description of contango markets). Prices at the back of the 2015 curve were $19.53/barrel higher than the front. The expectation in August 2015 was that high-cost shale producers would be bankrupted by low prices and the market would recover to higher levels once lower production reduced excess supply. In the meantime, with price being the only constraint, many producers increased output to preserve revenue, exacerbating the supply excess. The contango market structure encouraged speculators to store excess crude, and inventory levels increased rapidly.

By August 2016 (teal line), prices at the front of the curvewere $0.40/barrel higher than the year before at $43.49, but with OPEC doing nothing to support prices and producers increasing production to protect revenue, the curve remained in contango and expectations for a recovery were lower, although a return to $50/barrel was expected in 2019. The back of the curve in December 2021 had fallen $7.55/barrel from the previous year to $55.06/barrel.

This year (chartreuse line), the curve has flattened out. The range of prices between the September 2017 and December 2022 contracts is just $2.72/barrel. While OPEC's production cuts since January 2017 supported prices at the front of the curve, the back of the curve is lower than a year ago. The overall curve is still just about in contango, but it is basically flat and in backwardation between July 2018 and August 2019. The price expectation from this curve is "lower for longer" with little prospect of recovery to higher levels. OPEC action, supported by bullish hedge fund buying, has pushed up prices at the front of the curve. However, shale producers are learning to live with lower prices and have increased their output in 2017 (see our January 2017 note "Shale Productivity Driving Response to OPEC Cuts"). A combination of producer hedging to cement prices above $50/barrel and a belief that increased production will be triggered by prices moving above $55/barrel has weakened the back of the curve.

Exhibit 1 WTI Forward Curves



Source: CME Group, Morningstar

Moving to Balance

With the flattening out of the forward curve and a weakening contango structure, the implication is that crude supply and demand are moving toward balance. Certainly, crude inventories have fallen in the past few months, according to Energy Information Administration data, down 10% through the first week of August from an all-time-high 525 million barrels in March. Refineries were running at over 96% of capacity at the start of August (according to EIA), and we expect them to continue running at high rates through the end of the month, drawing down inventories further. Continued stock draws could push the forward curve into backwardation before the end of August. However, the acid test that crude supply is balancing with demand will come during the fall, when refineries cut back throughput for maintenance. If inventories remain at or below seasonal averages during that period, this will indicate longer-term balancing is ongoing.

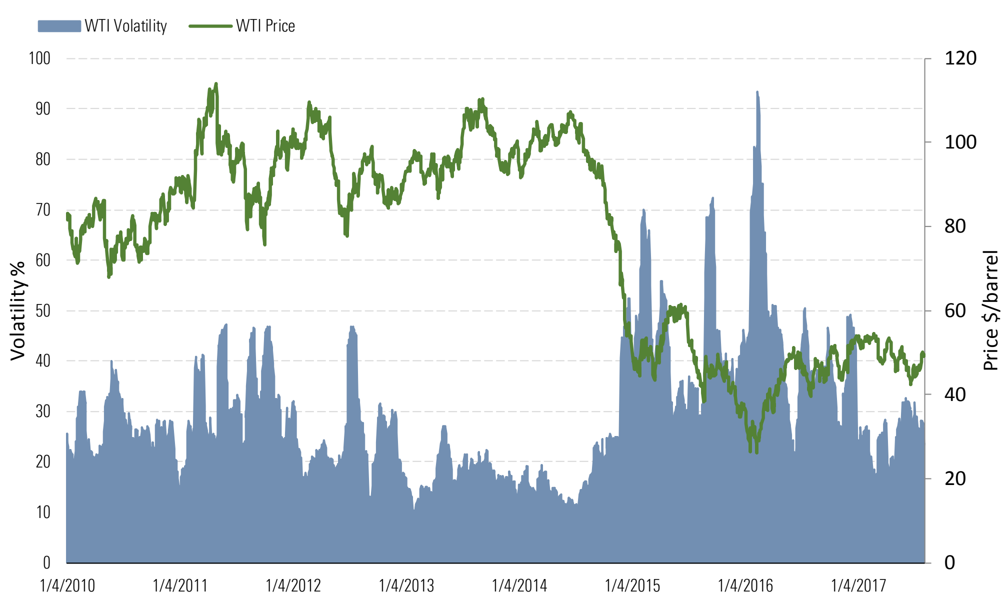
Speculative Hypothesis

In a September 2016 note (see "Short Speculators Chase Crude Price Volatility in Range Bound Market"), we described how speculative short positions in CME WTI futures (as monitored by the Commodities Futures Trading Commission's weekly Commitments of Traders report) tend to track historical volatility. Our hypothesis in that analysis was that speculative traders increase their accumulation and liquidation of short positions when oil prices are more volatile, meaning that speculative activity should slow in today's calmer environment.

Historical Volatility

The evidence shows that price volatility is lower in 2017. Exhibit 2 shows WTI historical volatility—an annualized statistical measure of the standard deviation of daily percentage price changes over 21-day periods (blue shaded area, left axis) and daily prompt futures settlement prices (green line, right axis) since January 2010. Between 2010 (when crude prices settled down after the Great Recession) and 2014, daily prompt-month WTI futures' historical volatility averaged 24%. During 2015 and 2016, prices experienced higher volatility averaging 44% as the market tried to adjust to the price shock, with periods of recovery above $60/barrel and retreat as low as $26/barrel. Volatility has fallen to 25% between Jan. 2 and Aug. 7, 2017, as prices settled into a narrower range.

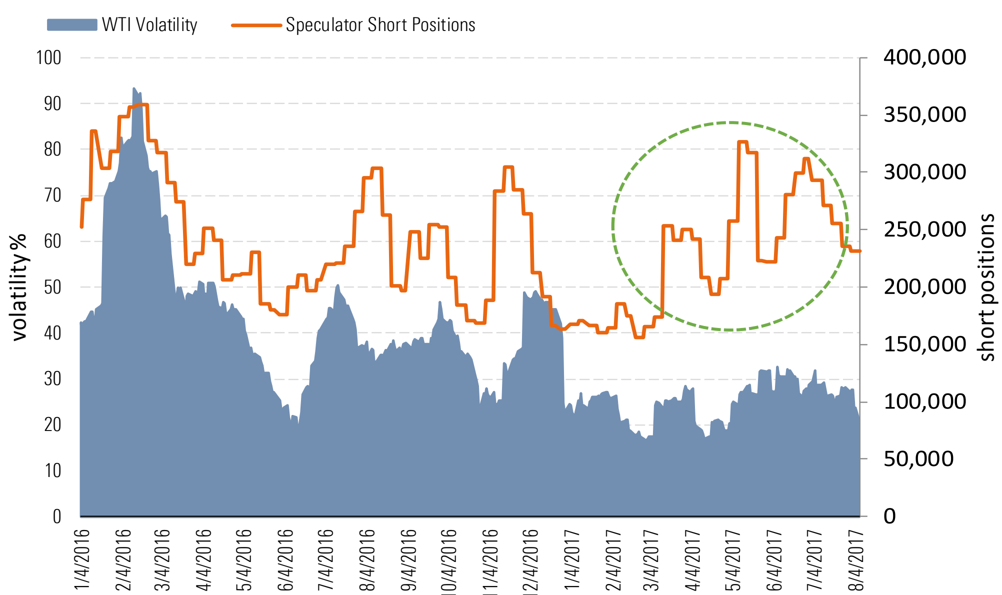
Exhibit 2 WTI Historic Volatility and Prices



Source: CME Group, Morningstar

Yet despite lower volatility, crude futures have seen continued speculation during 2017, fueled by hedge funds looking to game OPEC measures to support higher prices. Exhibit 3 zooms in on historical volatility since January 2016 (blue shading, left axis) and adds the volume of managed money speculative short positions held in WTI futures (according to CFTC, orange line, left axis). The data shows there was plenty of speculative short activity during 2016 with volatility to match. During 2017, however, despite lower price volatility, speculative short positions continued to increase. In fact, there have been three clear cycles of managed money short position builds and retreats (green dashed circle) as speculators bet OPEC production cuts would not shore up prices and inventory levels would not retreat. At the same time, bullish speculators continued to bet on a strong price recovery above $60/barrel that has not materialized either. In each of these cases, speculators have been burned, as witnessed by the inferior performance of commodity trading houses such as Goldman Sachs this year as well as bullish hedge funds such as the recently shuttered Astenbeck Capital Management.

Exhibit 3 WTI Historical Volatility and Speculative Short Positions



Source: CME Group, CFTC, Morningstar

New Consensus

Competing viewpoints are coalescing on where oil prices should come to rest after a tumultuous period since 2014. The market consensus (as expressed in forward curves) is for WTI prices to remain in a narrow range around $50/barrel. Price volatility has declined this year, and the forward curve is now almost flat. Although speculators have continued to place bets on sharp price movements, they appear to have been burned by the effort so far this year, and we expect their patience to wear thin if volatility remains low. The new price consensus needs to navigate lower U.S. refinery crude demand in the fall before it can be written in stone, but inventories remaining close to seasonal norms during that period will signal that a supply/demand balance has arrived.

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