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MACROCOSM

Domestic Crude: Getting More Refined

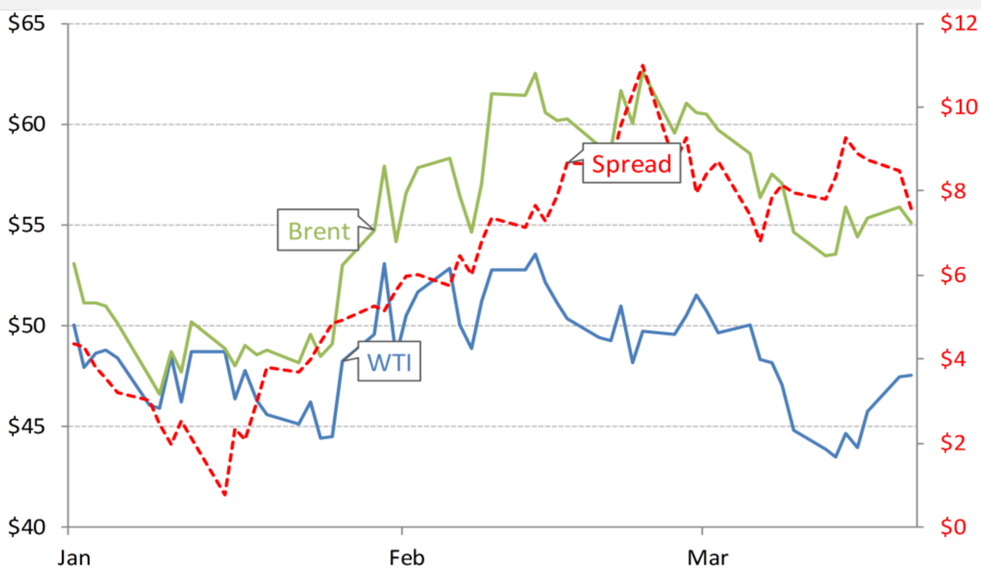
Thursday, March 26, 2015
Michael Warren

There's no bottleneck -- refiners are rapidly adapting to abundant domestic light crude.

Geopolitics is dealing another upside wild-card in the oil game -- Saudi Arabia, in concert with other Gulf Arab states, has initiated air strikes against Iran-backed Houthi fighters in Yemen. Setting aside the human tragedy of yet another episode in the region's seemingly eternal strife, it plays perfectly into our mid-January call for a bottom in global crude oil prices (see "Oilmageddon: The Sequel" January 15, 2015). But for the purposes of this report, we'll treat the Yemeni crisis as noise, and focus instead on the structural economic forces in play since our bottom call.

Since the January bottom, global prices represented by the Brent benchmark rebounded as much as 31% and remain in a solid uptrend. But domestic prices gave up their rally and made slightly new lows this month -- with the spread between Brent and the domestic WTI benchmark widening out from near-parity in mid-January to more than $10 in late February (please see the chart below). _The relative domestic weakness is mostly due to two outright misconceptions in the marketplace. We continue to expect global prices for 2015 in a range between $50 and $65, with the_

Crude oil USD/bbl



Source: Bloomberg, TrendMacro calculations

Update to strategic view

OIL: Even without oil's rally in the present Yemeni crisis, global crude prices have risen sharply since we called the bottom in January, and stayed in our predicted range between $50 and $65. But domestic prices have opened up a steep discount, driven by the myth of a US glut pushing up against what is purported to be exhausted storage capacity and slack refiner demand for light crude. There is in fact no shortage of storage capacity that could lead to a renewed price cascade. The large uncompleted well count reflects not storage scarcity, but operators waiting for higher prices, productivity gains and tax breaks. Refiner demand for light oil is not a bottleneck, despite extensive import substitution. Refiners are responding to the new abundance of reliable domestic light crude by increasing their capacity to process it. As always in a geopolitically sensitive global market many factors are in play, but as these myths are dispelled, the gap between WTI and Brent should narrow.

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present WTI discount narrowing as these misconceptions are dispelled by reality.

- First, there is a pervasive confusion between "ending stocks" and "storage," leading to the entirely false impression that domestic oil is in such a glut that further storage capacity is scarce.
- Second, there is the widespread myth that the US refining complex has run out of light tight oil processing capacity.

Last month we dealt extensively with the confusion about storage (see "Grant Me $20 Oil, But Not Yet" February 17, 2015). Since then the Department of Energy's Energy Information Administration has issued two reports (here and here) confirming our view and attempting to set the record straight.

- Ending stocks -- not storage capacity utilization -- are at all-time highs. There is no shortage of storage capacity.
- At the same time, the industry has increased the backlog of well completions. We feel the financial media is misrepresenting the completion backlog story, by linking it to the perceived tight storage capacity situation.
- It is true that across the North American oil and gas landscape, operators are drilling both the vertical wells and horizontal laterals, but not hydraulically fracturing them -- that is, completing them -- by pushing down-hole the water, sands, and chemicals that will allow the unconventional reservoirs to release hydrocarbons up to the vertical wellbore. But this is driven by economics, not storage capacity.
- The operators are not completing wells because the majority of their production will occur in the first year online -- and expectations are that WTI prices will rise in the near future, as indicated by the "contango" in the future markets, and that breakevens will improve via efficiency gains -- as the paradigm-setting domestic operator EOG Resources made clear in its recent earnings conference call (see "I Have Seen the Future, and It Fracks" February 24, 2015).
- Furthermore, operators in North Dakota are counting on supply-side tax cuts to materialize in the future. For 2015, North Dakota triggers a 6.5% oil extraction tax (on gross revenue at the wellhead) when WTI prices average more than $52.59/barrel, which they have done consistently since exiting the Great Recession. When WTI prices average below the trigger price, the extraction tax falls to 2% for all new wells completed in that month. This production incentive lasts for 18 months, or the first 75,000 barrels of production, or $4.5 million of gross revenue from the well, or until WTI prices exceeds $72.50/barrel for a single month. *If WTI prices average below $52.59/barrel for five consecutive months, all new and existing wells will receive a tax holiday (zero percent oil extraction rate) for 18 consecutive months until WTI prices exceed the trigger price ($52.59/barrel) for five consecutive months.*
- *With February's WTI average price at $50.69, the industry has had two consecutive months of prices below the trigger point. The*

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Recommended Reading

New Evidence on the Impact of Financial Crises in Advanced Countries
Christina D. Romer and David H. Romer
University of California, Berkeley
March, 2015

Are Longer-Term Inflation Expectations Stable?
Brent Bundick and Craig S. Hakkio
Kansas City Fed Macro Bulletin
March 9, 2015

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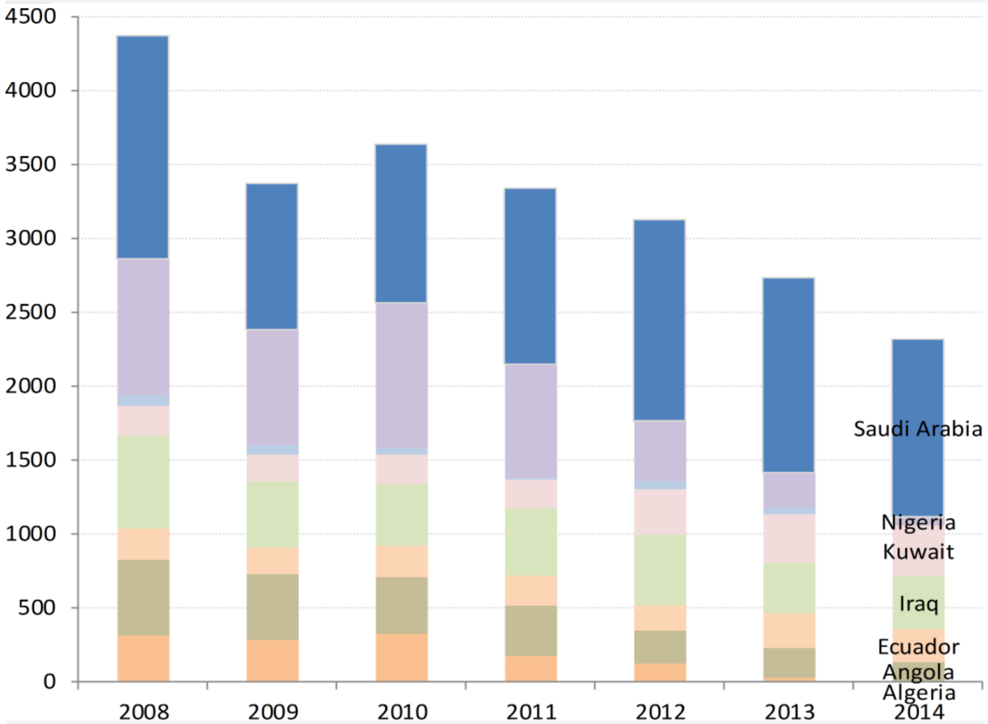
<u>completion backlog will likely continue to grow until May -- the point at which five consecutive months will have been achieved -- when the state would announce an oil extraction tax holiday for 18 months.</u>

- A sudden and sustained rebound in WTI prices would defeat this expectation. But at the moment, leaving resources in the ground allows operators both to avoid paying above-ground storage costs, and at the same time enjoy a free option on a tax holiday.

Let's move on to the second myth -- that the US refinery complex is more geared to running heavy crude slates rather than light oil, and has run out of capacity to refine domestic light tight oil production. This misunderstanding has been reported in the media from Bismarck, North Dakota, to Houston, Texas.

- The myth was born along with a massive reduction in light oil imports from 2007 to 2014, crowded out by an increase in US light tight oil of about 3 million barrels/day. Of the imports crowded out, OPEC accounted for 2.3 million barrels per day (please see the chart below). Saudi Arabia was barely affected -- the OPEC members most impacted were African producers of light oil.

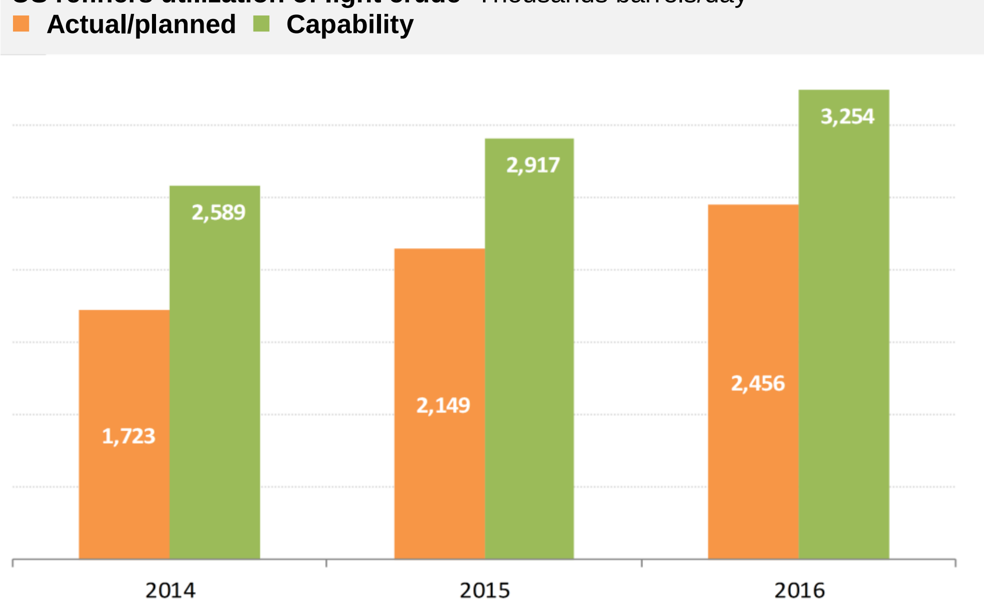
OPEC petroleum exports to US Thousands barrels/day



Source: EIA, TrendMacro calculations

- *<u>The market's error is that this extensive import substitution necessarily implies refiners' satiation with light crude. This ignores the refiners' reaction function in the face of an unbounded future of reliable domestic sourcing.</u>*

US refiners utilization of light crude Thousands barrels/day



Source: AFPM, TrendMacro calculations

- A report published this week by the American Fuel & Petrochemical Manufacturers (AFPM) concludes that "US refining is not a bottleneck to producing and using more very light US crude oil over the next few years."
- Based on an extensive survey, AFPM reports that in 2014 domestic refiners had unused capability that could handle up to an additional 866,000 barrels/day of light tight oil (defined by API gravities of >40°) in 2014. The survey indicates that capability will remain far ahead of planned utilization at least through 2016.
- Planned use of light oil in the domestic refinery complex is estimated to increase by roughly 440,000 barrels/day in 2015, and by 307,000 barrels/day in 2016 (please see the chart above).
- We think the AFPM report may be too conservative, having drawn responses from refiners representing only 61% of refining capacity.
- Our production forecasts (see, most recently, "Saudisfaction Guaranteed" March 13, 2015) suggests that even with the conservative AFPM estimates for refining light tight oil, US supply for the next two years will not surpass incremental refining demand domestically.

Bottom line

Even without oil's rally in the present Yemeni crisis, global crude prices have risen sharply since we called the bottom in January, and stayed in our predicted range between $50 and $65. But domestic prices have opened up a steep discount, driven by the myth of a US glut pushing up against what is purported to be exhausted storage capacity and slack refiner demand for light crude. There is in fact no shortage of storage capacity that could lead to a renewed price cascade. The large uncompleted well count reflects not storage scarcity, but operators waiting for higher prices, productivity gains and tax breaks. Refiner demand for light oil is not a bottleneck, despite extensive import substitution. Refiners are responding to the new abundance of reliable domestic light crude by increasing their capacity to process it. As always in a geopolitically sensitive global market many factors are in play, but as these myths are dispelled, the gap between WTI and Brent should narrow.