2015Q3
October 20, 2015

The Economics of Oil

The price of oil is elastic over the long-term but inelastic over the short-term. Over the long-term, the price of oil is determined by the cost of extracting the last barrel of oil the world requires. Given enough time, oil production adjusts up or down in response to market prices; similarly, given enough time, demand adjusts up or down in response to market prices as consumers choose between a new SUV or a new hybrid car.

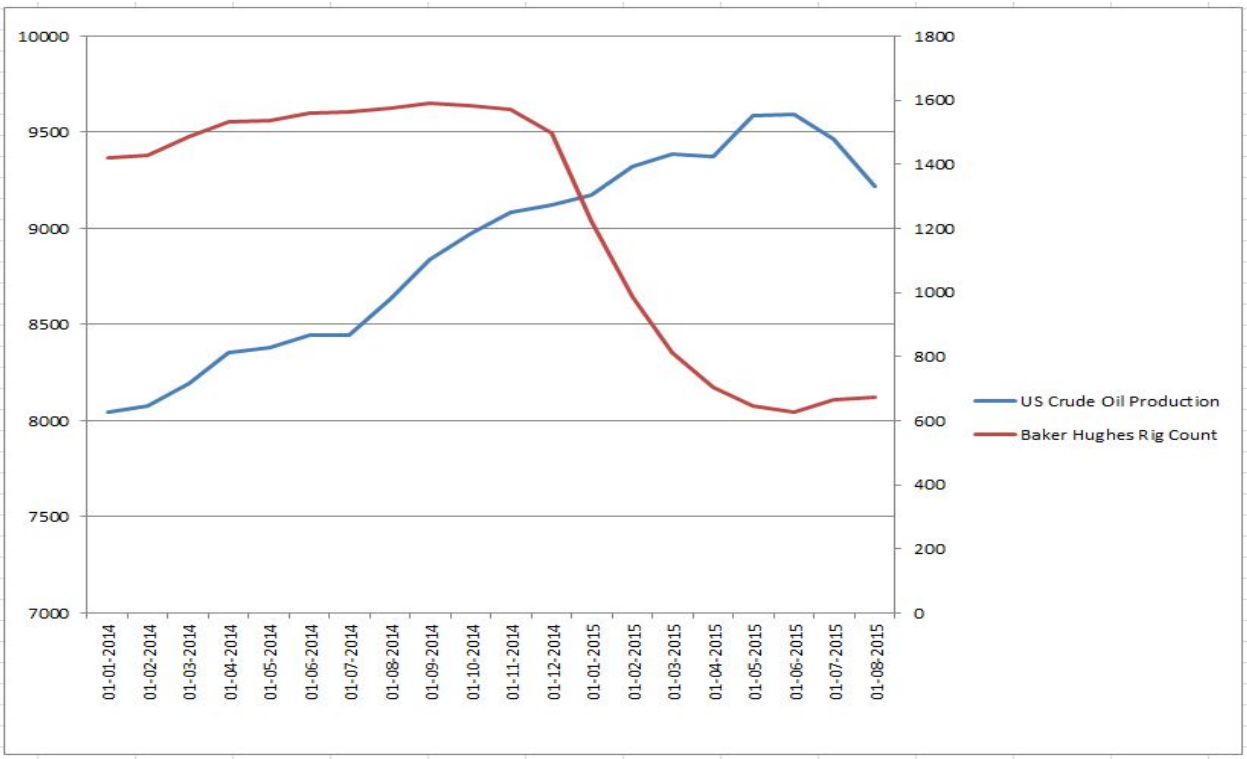
Over the short-term, however, market prices react dramatically to small perceived changes in supply and demand. Over short periods, oil production remains relatively constant while demand also remains constant as consumers continue driving the same cars. If more oil is produced than is demanded, the oil ends up in storage, driving down the price; by contrast, if less oil is produced than is demanded, then prices skyrocket.

As a physicist, I like to do back-of-the-envelope calculations to understand the world around me. These calculations are very crude but often yield important insights. Let's look at the current oversupply of oil.

The world produces 96.6M barrels/day of oil. For the sake of simplicity, let's use 100M barrels/day. If the world stopped drilling new wells, oil production would fall 5-8%/year as existing oil fields become less productive. At the same time, oil demand grows by 1-2%/year. Combining these two factors, the world needs to produce 6-10% more oil each and every year. This 6-10M barrels/day of new production is roughly equivalent to the production of the U.S., Russia, or Saudi Arabia -- and it must come online each and every year.

Billions are invested each and every year to achieve the new 6-10M barrels/day of production. As the price of oil has fallen, investment has fallen as well. Currently, oil producers are only investing 65-75% of what they would have invested during a normal year. As a result, instead of producing 6-10M barrels/day of new production, we should only expect 3.9-7.5M barrels/day of new production -- basically a 2.1-2.5M barrels/day shortfall.

In October 2014, the oil market was estimated to be oversupplied by 1-2M barrels/day. With the decreased level of investment by oil producers, this market should take roughly 6-12 months to come back into balance. Add on another 6 months for the time it took to wind down existing drilling. This would indicate the oil market should come back into balance in the October 2015 to April 2016 range. Using up excess global inventories will extend the estimate a few more months.



These calculations are clearly very crude, but they do indicate that global production and demand should balance out over the coming months. Because short-term prices are highly influenced by emotions, oil prices may take more or less time to adjust.

Just as a baby can't be created in one month by getting nine women pregnant, only time will stabilize the oil market. However, once demand exceeds supply, oil prices may react sharply.

David R. "Chip" Kent IV, PhD
Portfolio Manager / General Partner
Cecropia Capital

Twitter: @chip_kent