Volatile Oil

***e*Research Corporation** is pleased to provide an article, authored by Jim Jubak, noted market commentator.

In this article, Mr. Jubak discusses the reason why the price of oil is likely to remain volatile.

Jim's article begins on the next page and is entitled:

"The Prisoners' Dilemma"

You can follow Jim Jubak at his website: www.jubakpicks.com.

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Bob Weir, CFA
Director of Research
www.eresearch.ca

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The Prisoners' Dilemma

by Jim Jubak

Why Is Oil So Volatile?

About a month ago, August 2 to be exact, it looked like oil was headed to $35 a barrel or even lower. Suddenly analysts were recycling calls for $30 or even $20 a barrel. But then oil, which had fallen from $51.23 on June 8 to $39.51 on August 2, rallied. Crude hit $48.52 on August 19. And that led to talk of oil climbing back to $55 or even $65 a barrel. Which trend now looks in the process reversing. October futures for West Texas Intermediate closed at $44.83 a barrel yesterday August 31, down 3.28%. And then dropped another 2.64% today, September 1, to $43.52 a barrel.

Why are oil prices so volatile right now? And where (and when) can we expect them to settle in the medium term?

To come up with an answer to that you have got to keep in mind the two "logics" that currently rule the oil market.

First, the market is convinced, rightly I think in the near term, that it's all about supply. The global economy is churning along at such an anemic growth rate that it's not generating enough extra demand to clear the market of its current high levels of inventory. The only way to reduce those inventories--and U.S. crude inventories rose to their highest seasonal level in 20 years in July and China is still, apparently, building its strategic reserves--is for global production (aka supply) fall enough to let current demand eat into that backlog. To get that kind of supply reduction the market needs producers in U.S. shale geologies and in OPEC to pump less oil, and it needs supply disruptions in Canada, Nigeria, Libya, Iraq and anywhere else. It was the prospect of supply disruptions that fed the rally to the June high, a 93% gain from the February lows. And it was a worry/realization that those disruptions were more hope than reality that led the market back into a bear in later June and all of July.

Second, because clearing the market depends on the concerted actions to reduce supply of players who have big incentives not to cut supply and to lie about prospective cuts, oil prices are at the mercy of what game theory knows as The Prisoner's Dilemma--and its a particularly complex and nasty version of that game. The logic of The Prisoner's Dilemma explains why oil prices are so volatile right now. And why it will take longer than any rational person would expect for the oil market to settle.

The Prisoners Dilemma, first articulated by researchers working at RAND in 1950 or so, explains why two completely "rational" individuals might not cooperate, even if cooperation would seem to be in their best joint interest. Instead these rational players decide their best course is to betray each other.

Here is the classic articulation of the problem: Two criminals are arrested and imprisoned with no means of communicating. Prosecutors, worried that they do not have enough evidence to convict both prisoners of the most serious charge, offer each of the prisoners a bargain. If one testifies against the other, he can earn his freedom--but his fellow criminal will get a 3-year prison term. If both testify against the other, then each will get a 2-year sentence. If both remain silent, both will be convicted on only the lessor charge and will serve just 1-year each.

The best joint outcome results from both remaining silent. Each would serve only a year. But the best individual outcome results from betraying the other criminal and hoping that this fellow criminal remains silent. Then the silent criminal gets a 3-year sentence but the betrayer walks. A rational criminal will chose "betrayal" as an option because it offers him a chance at the individually best outcome--no time in prison--and avoids the individual worst outcome--3 years in jail if the other criminal talks.

The result, this piece of game theory shows, is that rational individuals will chose to betray each other even knowing that they would get the best joint outcome by cooperating.

Apply this game logic to the current oil market.

As in The Prisoners Dilemma, the best joint result would come if all producers cooperated and cut production. OPEC members, for example, could decide not to pump all the oil their individual infrastructures allow. The Saudis could cut back from historic high production in exchange for restraint from Iran and Iraq. Kuwait and other Gulf producers could follow suit. That cooperation would constrain supply and gradually work to bring supply and demand into balance, and that cooperation could be extended through agreements with other big state-controlled producers--in Russia, for instance--to further reduce production and raise oil prices.

This dream of cooperation, encouraged by sweeping promises of what the next OPEC meeting will deliver, sweeps across the oil markets in some months producing the kinds of sharp, short bull markets that we have seen in 2016.

But the logic of The Prisoners Dilemma says that this dream of cooperation in pursuit of the best joint outcome is exactly that, a dream. For individual players looking to secure the best individual outcome, the best strategy is cheating and betrayal. Get the Saudis to agree to production cuts so that you (Iran to name one name) can produce all the oil you can and win back global market share. Produce all that the most reckless accounting can justify from U.S. shale wells in order to fend off anxious bankers--and increase production whenever a rumor of OPEC cooperation makes the rounds.
It is not like the players in the oil version of The Prisoners Dilemma don't have a history. It is a history of cheating on quotas and of pumping as much oil above any negotiated limits as possible in the hope that some other sucker will actually obey those production quotas. In this game, the players know that the other players will cheat so the betrayal of any agreement is just sound strategy.

The oil version of The Prisoners Dilemma has another wrinkle that makes deciding what the other players will do even more complicated. No one in this game knows exactly what the benefits of

betrayal or cooperation will be because the cost structure at many individual players shifts from moment to moment with changes in production strategies.

The most popular game in town right now is called "high grading." Oil producers--frequently in the U.S. but also elsewhere in the global industry--are selling off assets with higher production costs and focusing on their most productive assets with the lowest production costs.

This means, in effect, that deciding what price per barrel will produce what level of production at any individual player is a moving target. If Pioneer Natural Resources (PXD) or Concho Resources (CXO) can add to their holdings in the low-cost, high output per well Permian Basin, that changes those companies' incentives to produce more or less. For example, even at current prices, pumping oil from that basin's best wells is profitable so if a company can--by swapping assets or raising cash to buy more lease acreage--increase its exposure to those best geologies, the company can increase production and profits even while operating fewer wells. Companies that can significantly high grade their assets have, I would argue, an even bigger incentive not to cooperate.

Obviously a high-grading strategy cannot go on for ever--this is not Lake Wobegone and all oil assets aren't above average. And at some point a strategy that is based on no production limits and pumping as much as you can from your best assets while under-investing in the finding and development of new assets runs dry.

The question, of course, for anyone interested in making a profit by investing in oil is "When?"

In 2015, oil companies found only about 10% as much oil as they have on average for the years beginning in 1960. Only 2.7 billion barrels of new supply was discovered in 2015, the fewest barrels since 1947, according to Wood Mackenzie. The numbers say they'll find even less in 2016. That's what happens when you cut your capital spending budget to the bone. Oil companies will replace only about 5% of the barrels produced this year with new discoveries.

Projections say that this under-investment will result in a serious shortfall in oil supply versus demand by somewhere around 2025 or 2026. But, in the meantime, the all-out production and cheating strategies of what we can call The Oil Producers Dilemma will insure that the glut of supply over demand will persist longer than is logical (or economically) reasonable, and that each rally on a rumor of the kind of cooperation that would produce the best joint result for oil producers will be succeeded by a drop on disappointment as producers act to secure the best individual result for themselves.

One set of long-range winners to keep an eye on are those companies that are pursuing what I would call a long-range high grading strategy. These companies are not just looking to swap into the most cost-efficient assets now, but are also looking to buy into the best long-range assets. Statoil's (STO) recent investment in the huge discoveries in the South Atlantic is an example of a long-range high grading strategy. Because Brazil's Petrobras (PBR) is so short of cash as a result of the economic troubles in Brazil and of massive corruption that locked the company out of international capital markets when it needed most to raise cash, Statoil was able to buy into these assets at prices, the company says, that give it exploration and development costs among the lowest in the world. (Of course, the deep-water drilling necessary to extract this oil will be very expensive--but Statoil is one of

the world's most experienced extreme-weather oil producers from its work off the Norwegian coast and the problems in the South Atlantic are exactly those that will bring out Statoil's competitive advantage.)

What could upset The Oil Producers Dilemma scenario? Any above trend period of growth in global demand. A world that needs more oil would enable oil producers to cooperate in order to produce the best results both jointly and independently.

Until then, though, I would expect the rational irrationality of The Prisoners Dilemma to rule the oil sector.

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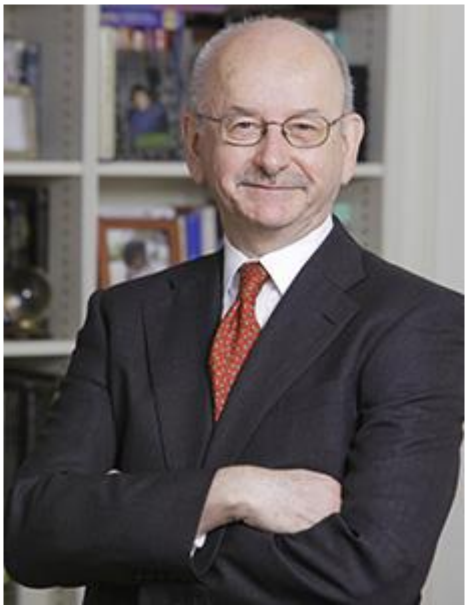

Editor and Founder of JubakPicks.com; and Senior Markets Editor, MoneyShow.com

Web sites: www.jubakpicks.com; http://jubakfund.com/; http://jubakam.com/

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