

Our View: AI Drives Crude Prices

Philip Verleger

March 15, 2022

Drivers who have watched retail gasoline prices rise by \$1 per gallon over the past 49 days might be just a little upset to learn that the gamblers who turned oil futures markets into casinos were behind the \$40 (45%) crude price increase that helped boost their fuel costs. The elected officials they sent to Washington, London, Berlin, or Paris might be even more upset to learn this.

To put this another way, a flea on the dog's tail is now wagging the global economy. Oil markets have been captured by what those in the UK call "punters."

Bloomberg columnist Javier Blas alerted us to this fact in a January 19 column. He explained that gamblers (traders in his terms) had been gradually accumulating call options on crude with strike prices above \$100 per barrel:

For the last 18 months or so, bullish oil traders had been accumulating huge numbers of contracts that give them the right to buy crude at a particular price and time — call options, in the industry's jargon. They've bought thousands of those contracts pegged to \$100, \$105, \$110, \$125 and even \$150 a barrel. For many, they were akin to lottery tickets: a cheap way to bet on surging prices in the future.¹

Blas added that the lottery tickets were cheap. In 2020, the December call with a strike price of \$100 could be bought for \$0.24 per barrel. It was then worth \$4.20 when Blas wrote. When the May Brent futures price reached \$127.98 on March 8, the option was worth \$28.77. Quite a nice profit.

However, what goes up will also go down. On Monday, March 14, the option was worth only \$4.41 per barrel.

Blas also warned in January that these calls create a financial risk for the institutions writing them. According to accepted procedures, these institutions buy futures as prices rise. This, as Blas noted, risks "creating a catch-22 situation: Oil prices rise, banks buy more futures, which trigger further price rises, which commands more buying."

Blas described a well-known phenomenon. His column, though, was prescient. Over the next 50 days, crude oil prices rose by almost \$40 per barrel. Gasoline prices went up \$1 per gallon.

To put it succinctly, artificial intelligence (AI) drove oil prices up. Computers at the financial institutions are programmed to buy crude futures when prices rise and sell when prices fall. The technical term for the process is "delta and/or gamma margining." Of late, one can assert that these "Greeks" have been driving prices.

¹ Javier Blas, "Wall Street Is About to Take Oil Out to a Wild Party," Bloomberg, January 19, 2022 [<https://tinyurl.com/2p8wpcu4>].

I have been tracking the fluctuations in open interest in options since the Blas article appeared. Over 60 days, I observed the rise and fall in contracts outstanding. At one point in early February, the December call options contracts with strike prices above \$90 per barrel outnumbered the contracts open in the December futures.

When crude prices started to move upward in February, the computers began buying June futures. As Blas predicted, the “catch-22” was triggered. Prices kept rising.

Recently, however, the process reversed. Hedge fund managers and those who regularly buy futures for various funds began to take profits by cutting their futures positions. The news of possible supply increases or a possible recession may have motivated some. Technical trends may have influenced others. Whatever the reasons, prices started to fall.

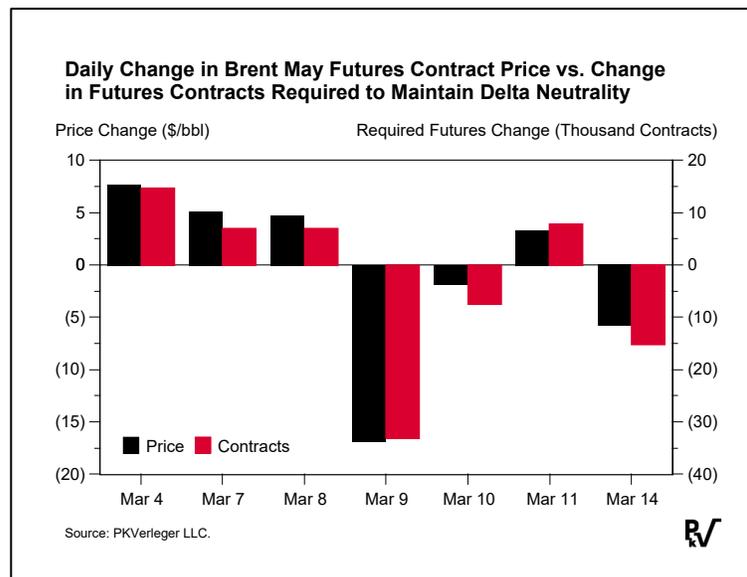
The AI-driven computers responded to the sales by selling as well. Futures were dumped in large amounts. Much of the \$40 increase in crude prices vanished quickly. Consumers will gradually see lower gasoline prices.

The impact of AI can be observed in the “Greek” computer-driven buying and selling of oil futures, or GCDBSF. The GCDBSF volume is determined by how many contracts of a specific future a firm must buy or sell to maintain delta neutrality. This number is based on the change in price, the change in implied price volatility, and the number of days to the future’s expiration.

For example, when the May Brent futures contract rose by \$7.85 per barrel on March 4, 2022, the GCDBSF algorithms dictated that firms that had written May calls on Brent futures buy 14,900 futures contracts. In contrast, when the May Brent futures contract dropped by almost \$17 per barrel on March 9, 2022, the GCDBSF formulas decreed that these firms must sell 33,000 futures contracts.

The two days illustrate the “catch-22” situation described by Blas. On March 4, banks bought more futures, triggering a further price rise that forced them to buy more futures. On March 9, prices started to decline. Banks sold more futures, which caused prices to fall further, forcing banks to sell even more futures.

We have been comparing the change in the day-to-day GCDBSF to the change in prices for three oil futures contracts. The graph here shows the results for the May Brent contract. Note that I have observed identical relationships for the June and December Brent futures contracts.



The data speak for themselves

This process took Brent to almost \$140 per barrel and retail gasoline prices in the US to a peak of 4.20 per gallon. Recently, the news that Iran might export more oil, the discussion of lifting US sanctions on Venezuela, and the new Covid-19-linked shutdowns in China started a modest price decline. Then, the computers took over.

The AI-driven computers, machines that focus on numbers and not opinions or news, could take prices well below \$80 by the end of March. If they do, the gamblers who piled thousands of chips on red \$125 or black \$150 may end up losers.

Welcome to the oil casino.

[Author's note: In the coming weeks, PKVerleger LLC will post the graph included here, which shows the swings in Brent futures prices and the corresponding addition or decrease in futures contracts needed to maintain delta neutrality, daily on pkverlegerllc.com.]