Crushing Cushing: Wider Impact of Negative Crude

Futures squeeze threatens broader market.

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Data Sources for This Publication
CME Group

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Shocking First

May futures for the CME Nymex West Texas Intermediate contract for delivery at Cushing, Oklahoma, plunged by nearly $56/barrel on April 20, the day before contract expiry. The resulting settlement price at negative $37.63/barrel marked a shocking first for the crude contract at the center of North American crude pricing. Although some have written this off as simply a market squeeze caused by contract expiration, there are longer-term implications. This note looks at what caused the squeeze and how the market repercussions may reverberate far wider than Cushing.

Convergence

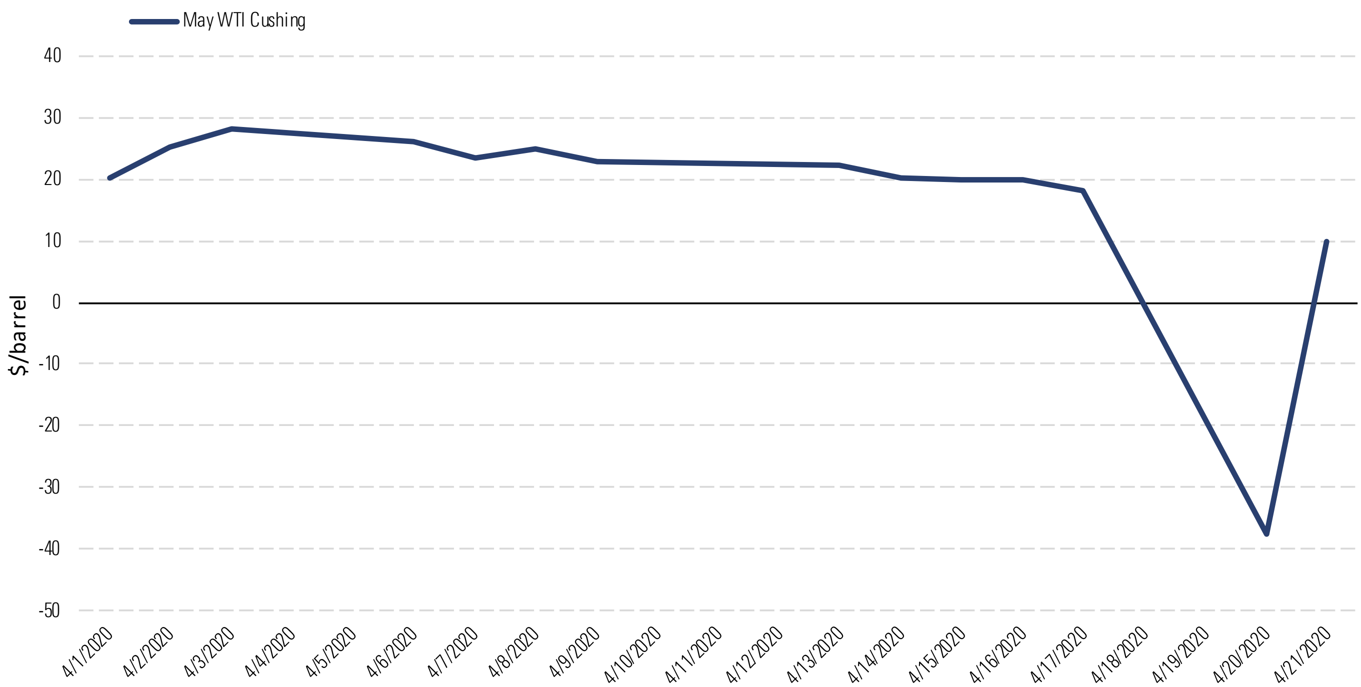
With prices for nearby crude futures trading well below further-out delivery since early March — a market condition known as contango — trading in CME Nymex crude futures has lately assumed unusual risk for inexperienced players. That's because the efficient operation of the U.S. WTI Cushing futures markets relies on convergence between physical oil and futures when paper contracts expire. This is accomplished by those still holding open positions when exchange trading ceases for next month's deliveries being required to enter into a delivery process at Cushing. Only a limited percentage of contracts go to delivery — most are closed out long before expiration — but those few deliveries create a critical link between paper futures and physical oil. When that link fails to operate smoothly, extreme price volatility can ensue.

Classic Squeeze

Last week, a widening gulf between futures and physical prices at the Cushing hub meant that instead of the two drifting together, as might normally be expected, on expiry of the May futures contract, the gap between them assumed clifflike proportions. Participants long May crude on April 20 found few takers to buy out their positions before the contract expired April 21 and were unwilling or unable to acquire storage to hold the physical barrels that their contracts otherwise required them to accept for delivery.

As a result, short speculators holding storage capacity stood by, watching and waiting as the trapped longs lowered asking prices to an unprecedented negative $37/barrel in a desperate attempt to draw bids that would get them out of the hole (Exhibit 1). This classic market squeeze sent shock waves through world oil markets and leaves domestic producers pondering whether the CME Nymex Cushing futures contract still offers a reliable pricing mechanism.

Exhibit 1 May 2020 CME Crude Futures



Source: CME Group, Morningstar.

Although prices recovered somewhat on the final trading day for the May contract (April 21) to settle in positive territory at $10.01/barrel, the unprecedented nosedive last Monday has a number of unsettling repercussions. As we explain below, these arise from complex market linkages between the futures market and underlying physical transactions for domestic crude. These links mean that what some may regard as a once-in-a-lifetime hiccup last Monday could translate into a more fundamental breakdown in the wider domestic market.

CMA Index

The link between Cushing WTI futures and the wider U.S. domestic crude market occurs via an index known as the CME crude calendar month average, or CMA. That index is used by buyers and sellers in their term contracts for domestic crude not just at Cushing but throughout the U.S. market and parts of Canada. And not just for WTI but also for other crudes that are traded and priced at differentials to the Cushing benchmark based on quality or location factors. The basic CMA index is the calculated average of market day settles during the delivery month. For example, in May 2020, the CMA index will be the average of WTI settles for every trading day in May.

Roll Adjust

The basic CMA index is typically adjusted by the contract terms to reflect the fact that its constituent Nymex prices during May actually represent the June and July 2020 contracts that will be prompt during the month of May (June contract between May 1 and 19 and July contract between May 20 and

31). The adjustment mechanism used—known as the roll adjust—either discounts or adds a premium to the basic May CMA based on how the June and July contracts traded in the final month before May expired on April 21, the period when May was the prompt contract.

Because prices for June and July traded higher than May during that final month period this year (March 23 through April 21), the May CMA will be discounted proportionately to reflect how much higher June and July were when May was prompt. The idea is to true up the CMA to reflect how May traded relative to June and July when it was prompt. If May prices had been higher than June and July during that the period when May was prompt, the CMA adjustment would have been a premium. This time around, it's a big discount.

High Adjustment

The CMA roll adjustment is normally only a few cents/barrel plus or minus when the market is not in steep contango or backwardation. But with May in super contango for the past month, the adjustment is far higher than usual. We did the math and calculated it will amount to a $7.94/barrel discount against the basic May CMA. That means, for example, that a producer delivering WTI crude in May will be paid the basic CMA minus $7.95/barrel. That might have been palatable when prices for WTI were above $60/barrel in January of this year, but if the current surplus continues, it could easily result in prices for physical WTI deliveries in May getting close to zero or even negative territory, depending on the average Nymex WTI settlement price during May.

Market Spooked

A further concern for the market is that not only will the CMA index be discounted heavily in May by the adjustment, but also prices for prompt crude futures that determine the basic CMA could be unusually volatile. That's because the WTI price plunge into negative territory experienced last Monday has spooked market participants. Rather than be caught holding contracts they can't sell and exposed to the wolves as expiration nears, traders are likely to simply avoid taking positions in the prompt month contract. At the end of last week, several brokers advised clients they were placing limits on client exposure to prompt contracts. Because of this, the prompt contract will be less liquid than usual and prone to downward price pressure because of a lack of buyers. The implication is that until the lack of storage at Cushing is resolved, the prompt contract could become a lame duck. And since this contract, through the CMA, is the primary underlying price mechanism for most physical crude traded in North America, the damage won't be limited to just Cushing barrels.

Left Holding Invoices

As we mentioned earlier, the CMA index doesn't just apply to WTI crude; it's used throughout the U.S. and Canada as the starting point for term contracts. Crudes that have lower quality than WTI or are located further away from U.S. markets, like Western Canadian heavy grades or North Dakota Bakken Shale, are traded at a discount to the Cushing benchmark. Some of these crudes are already seeing negative prices on a daily basis because they trade so far below WTI. If the May adjusted CMA index turns out to be close to or below $0/barrel, then the knock-on impact will ripple across the entire physical market, with many producers left holding monthly invoices for negative prices instead of their normal checks for crude deliveries.

We hope that doesn't happen, but the signs aren't looking great. As long as crude supply exceeds demand at the levels currently seen in the U.S. market, weak prices will prevail, and the forward curve will stay in contango. Unless enough production shuts in to balance lower demand as a result of price pressures, the chances of negative pricing across the board will be much greater than some observers of last Monday's futures squeeze have recognized.

Wounded, Not Critical

The WTI Nymex crude market seems to have recovered somewhat from last week's violent squeeze, but memories are long after such a bloodbath, and it will take time for confidence in the Cushing price mechanism to be fully restored. All the same, we do believe the CME crude futures delivery mechanism remains the best tool to accomplish convergence. The Cushing futures market has had scares before—never quite as dramatic as last Monday—but it has operated effectively for nearly 40 years. This is not a bad record for what has always been a volatile commodity with prices buffeted by myriad geopolitical forces besides industry fundamentals. We conclude that the Cushing contract is wounded, not critically ill, but that market participants and even regulators need to pay careful attention to maintaining confidence in the mechanism.

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