

A Strategy for Stabilizing Oil Prices

Look to the futures markets.

BY PHILIP K. VERLEGER, JR.

Crude oil prices declined 40 percent between the beginning of October and Christmas Day in 2018. The decrease, from \$86 to \$50 per barrel, has been variously attributed to the United States' failure to follow through on its tough sanctions on Iran, unexpected increases in U.S. oil production, oil-exporting countries not cutting production sufficiently, and/or realizations that global economic growth was slowing.

These explanations are all relevant. However, none can explain a decline that matches in magnitude the decrease that occurred after OPEC's November 2014 meeting. At that time, the organization surprised the world by ending the self-imposed limits on its crude oil output. Nothing like that happened in the fourth quarter of 2018.

The analysis of petroleum markets has changed little since 1950. For almost three-quarters of a century, those seeking to understand and predict movements of prices have focused on "supply/demand balances." The balances comprise estimates of how much oil the forecaster believes will be consumed and produced and the difference, which represents the inventory increase or decrease.

To be blunt, the supply/demand balance approach to assessing oil markets—and many other physical commodities—is irrelevant today.

The reality is that the market has been transformed over the past three decades. Market analysts must seek new methods to explain and

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project oil market behavior. And oil producers must alter their approach to managing the market and stabilizing prices. Press conferences that produce bold pro-

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nouncements or complaints regarding price volatility will not be effective. Markets have changed.

For better or worse, prices going forward will be driven by the hedging process whenever West Texas Intermediate dips below \$60 per barrel or Brent falls below \$70. In this unstable price range, it is the computers—not oil ministers, pundits, or politicians—that determine day-to-day price movements.

Thirty-one years ago, on Black Monday—October 19, 1987—equity markets experienced a one-day decline in share prices of 22 percent. The falloff was later blamed on portfolio insurance, specifically the sales of stock futures to hedge contractual agreements written to protect portfolio values from share-price declines.

History may not always repeat itself, but sometimes it rhymes. In the oil market at the end of 2018, firms and agents had written insurance policies to oil producers, primarily U.S. independent firms, guaranteeing prices around \$50 per barrel. As crude prices fell, the writers of the insurance policies had to sell additional futures contracts, creating a cascade effect.

Thus hedging, which was undertaken to help stabilize the prices producers receive, instead caused prices to fluctuate wildly.

These types of price decreases will occur again unless a new approach to market management is adopted. Furthermore, the declines will become more exaggerated if U.S. output keeps expanding, because more oil will be hedged. These widening swings will threaten the economic viability of financial firms and the economic health of many oil companies and key

oil-exporting countries. Indeed, global economic and political stability may be at stake, particularly given the situation in some Middle Eastern nations.

The price stabilization problem can be addressed by changing how oil markets are managed. Today, OPEC members, Russia, and other countries meet and agree on production levels with a view toward balancing global supply with global demand and stabilizing prices. Almost everyone will agree that these efforts have failed.

An alternative approach would have the participants agree on a price range and then fund an organization to enter the world's oil futures markets to keep prices within the range. In effect, producing countries would remove oil from the market (oil they had already sold) if prices were falling and add oil if prices were rising. This is not a new proposal. Tin prices were stabilized through such a mechanism. While that effort ultimately failed, it did keep prices steady for years.

The potential benefits of this type of market management are well worth considering given oil's impor-

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tance to the global economy and the failure of the current system to control price volatility. Here I describe the futures market concept and process. I begin by documenting the cause of the 2018 price collapse.

The Tin Way

Price stabilization could be undertaken by one country or a group of countries. OPEC or OPEC+, which includes Russia and several other nations that have agreed to cut production, could take this on. The parties agreeing to participate would need to provide sufficient capital to enable the stabilization authority to establish credit lines with futures exchanges. The parties would also need to establish the price range they intended to defend along with a formal mechanism for reviewing it. This proposal is not new or unique. A group of tin-producing countries took similar action more than thirty years ago.

—P. Verleger

BEHIND THE 2018 OIL PRICE DECLINE

On Black Monday—thirty-one years before the current oil price decline—the Dow Jones Index fell 22 percent. In January 1988, a U.S. Treasury report prepared at the behest of Secretary Nicholas Brady offered one explanation for this “flash crash”: portfolio insurance. The first paragraph of the study, which became known as the “Brady Report,” neatly summarizes the cause of the 1987 meltdown:

The precipitous market decline of mid-October was “triggered” by specific events: an unexpectedly high merchandise trade deficit which pushed interest rates to new high levels, and proposed tax legislation which led to the collapse of the stocks of a number of takeover candidates. This initial decline ignited mechanical, price-insensitive selling by a number of institutions employing portfolio insurance strategies and a small number of mutual fund groups reacting to redemptions. The selling by these investors, and the prospect of further selling by them, encouraged a number of aggressive trading-oriented institutions to sell in anticipation of further market declines. These institutions included, in addition to hedge funds, a small number of pension and endowment funds, money management firms and investment banking houses. This selling, in turn, stimulated further reactive selling by portfolio insurers and mutual funds.

The fourth-quarter 2018 oil price crash can be described in the same way. Crude oil prices were bid up in September 2018 as worries over the potential impact of the United States’ sanctions on Iran spread. Bloomberg reporter Serene Cheong noted that countries such as South Korea were discovering that the sanctions would affect their supplies whether or not they cooperated with the program. India, for instance, found that the threat of U.S. financial reprisals to Indian businesses would force it to stop importing Iranian crude even though it objected to the sanctions.

These expectations of being cut off from Iranian crude proved unfounded. The United States instead

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granted waivers to several countries that had previously done business with Iran. As Bloomberg columnist Julian Lee wrote, the hard stance initially signaled by the United States softened as the deadline approached. In response,

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Brent fell to \$75 per barrel by the end of October and then dropped \$5 in the first week of November.

That oil price decline activated a form of portfolio insurance provided by major banks and other financial firms. These companies had written swap and put contracts to oil producers that guarantee the buyers a certain price for their output. The firms writing the insurance hedged their obligations by selling futures. The number of futures contracts sold depends on the current oil price, the specific contractual relationship, the time remaining on the contract, and the price volatility of the commodity underlying the contract, that is, oil. (Option or insurance contracts may permit the insured to be paid at any time or at the end of the contract period based on the average price of the commodity compared to the price stipulated in the contract.)

A Goldman Sachs report indicated that the firms writing the insurance policies might sell fifty futures contracts for every hundred \$40 contracts written if the current price were \$60 per barrel. The number of contracts would rise to seventy if the price dropped to \$50 and ninety if the price fell to \$40.

The Goldman calculation provides a way to quantify the fourth-quarter price collapse using data from reports filed by U.S. independent oil producers with the U.S. Securities and Exchange Commission. These reports reveal that U.S. firms had purchased insurance—hedged—more than 150 million barrels of production for the last quarter of 2018 and a further 300 million barrels for delivery in 2019. The majority of the 500 million barrels of disclosed hedges for U.S. firms was concentrated between \$45 and \$60 per barrel. In addition, the Mexican government has spent more than \$1 billion on puts to hedge the price of its oil exports, according to Bloomberg. If all exports were protected, Mexico would have hedged another 700 million barrels.

In making my calculations, I used the WTI Cushing oil price as a base for the hedge contracts rather than

Brent. (During the price-decline crisis period, WTI traded at a discount to Brent of between \$8 and \$10 per barrel.) The price level (strike price) of the price insurance—between \$45 and \$60 per barrel for WTI and \$55 and \$70 for Brent—dictated that the firms backing the insurance policies had to begin selling futures ag-

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gressively when crude prices started to fall. These sales probably began at the end of September.

WTI crude traded for \$75 per barrel on September 28. Ten days later, the price had dropped to \$71. Over that period, the options price models programmed into the computers of firms that had written the oil price insurance to U.S. producers would have sold between thirty thousand and forty thousand contracts. The sales would have been made into a falling market, where there were few buyers, exacerbating the decline.

Over the next fifty days to November 30, 2018, WTI prices dropped from \$71 to \$51 per barrel. The unforgiving options price models would have dictated that between 150 million and 250 million barrels of futures equivalents be sold to assure the financial solvency of the firms writing the contracts. During the same period, there were few buyers. Open interest in the three key crude oil futures contracts, accounting for five billion barrels of oil for future delivery, declined 350 million barrels or almost four days of global consumption. As in 1987, the computers were selling into a collapsing market.

The oil market reached a bottom at the end of December. WTI traded briefly for \$42 per barrel, while Brent fell to \$50. The lows came on December 24. The price decline ended after the computers finished hedging the 400 million or more barrels of commitments written by price insurers.

Prices began to rise in early 2019. The insurance commitments written for 2018 oil were no longer an issue. Payments had been made. Optimistic investors and speculators began buying. As prices rose, the computers at the firms that had written 2019 price insurance policies began to buy as well. Roughly speaking, the

computers bought three million barrels for every dollar increase in prices. The buying accelerated the price rise. By the end of March, Brent prices could easily be back to \$80 and WTI above \$70.

Perhaps the best way to describe oil markets at the beginning of 2019 is as a rocket fired from Cape Canaveral that has gone out of control. It is swinging wildly—first pointing toward the heavens, then toward the sea, all the time gaining speed and becoming more dangerous. In the case of such a rocket, there is no hope. It will crash. In the case of oil, there is at least one activity that can restore stability: buying and selling in futures markets.

USING FUTURES MARKETS TO STABILIZE OIL PRICES

The world needs stable oil prices. Among other benefits, such prices would reduce the risk of political instability in oil-exporting countries and, in the longer term, facilitate preparations for the necessary transition away from fossil fuels. They would also smooth the current planning for and investment in high-cost, long-lived oil projects, which many in the industry warn are still necessary. For example, consultants at Wood Mackenzie have said that investment in high-cost projects must be almost doubled to avoid very high prices five years from now. The head of the International Energy Agency has echoed this view. A price stabilization scheme like the one proposed here would help make such investments feasible.

Over the last forty-five years, oil ministers from OPEC, and now other producers who have joined their efforts to manage the market, have operated on the belief that they can move the market by issuing statements on production and export decisions after their sporadic meetings. For example, in November 2018, Saudi oil minister Khalid al Falih said, “We need to do whatever it takes to balance the oil market” in a talk given a month before an OPEC meeting, as reported by the *Wall Street Journal*. The minister likely expected markets to respond positively the day after this pronouncement. In

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this case, though, oil prices dropped another 7 percent within a week.

The story would have been very different had Minister al-Falih or other Saudi officials stepped into the market and purchased oil. Saudi Arabia could have bought back a cargo scheduled to load if the original buyer agreed. Alternatively, Saudi Arabia could have acquired oil on the Dubai spot market. For that matter, Saudi Arabia could have purchased a cargo of Brent or WTI. All that was needed was an action that took oil off the market.

An easier, quicker tactic would be to buy oil in the futures markets. Indeed, a government purchase of a relatively small number of futures would have stopped the price decline cold. The action would be equivalent to buying physical oil but could occur instantaneously. The price decrease would have been arrested rapidly if these purchases were followed by an agreement to cut supply.

Today, those interested in stabilizing prices—such as ministers from oil-exporting nations—need to recognize their words have little or no impact unless they are accompanied by immediate actions such as canceling shipments or selling physical oil from stockpiles. Oil markets, particularly futures markets, have grown to a point where traders can add or subtract the equivalent of one day's global consumption, 100 million barrels, to

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or from supply in a minute. Furthermore, these volumes are backed by cash held at the world's major financial institutions.

Oil producers using the futures market to stabilize prices would be a first for oil but not a first for other commodity producers. Tin producers, as noted, managed to keep tin prices within a certain range for at least five years by buying and selling futures.

Without a doubt, Saudi Arabia would need to lead a similar effort among oil producers. Other nations such

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as the UAE could join in. To make the program work, the countries participating, as well as other producers, would have to agree on the following five measures:

First, the countries that agree to the stabilization mechanism must fund some type of corporation to conduct the intervention. It could be an independent body or a bank.

Second, the OPEC members and other countries that have joined in cutting output (I will call them "OPEC+") since 2016 must keep agreeing on production cuts that would keep the market in balance.

Third, the parties must agree on a stabilization level below a price that would promote excessive drilling and production growth outside the OPEC+ group.

Fourth, the OPEC+ members must establish a mechanism for adjusting output more frequently than their current biannual meetings. Monthly production adjustments, for example, would facilitate stabilization.

Finally, producing countries should seek the cooperation of governments of other producing nations and in some states in the United States. For example, producers should lobby relevant policymakers in Colorado, New Mexico, North Dakota, Oklahoma, and Texas, asserting that states could benefit if they slowed or stopped the issuance of drilling permits when market conditions weaken. This action would quickly reduce growth in U.S. production. Agreement by the states in this respect would increase severance tax revenues if prices rose even if production lagged.

Such a strategy does, of course, involve significant risks, as history shows. The International Tin Council intervened in markets to stabilize tin prices for several years. The effort ended when the manager exhausted its financial resources. The Council's failure was attributed to an attempt to sustain excessively high prices. The participants in any oil stabilization program would need to ensure that the manager has sufficient funds. Furthermore, the target price would need to be adjusted periodically to be consistent with market supply-and-demand conditions.

Many will see this proposal as radical. If carefully implemented, though, it could reduce oil price volatility, an outcome most would view as good. ◆