

Energy

OPEC and U.S. Production Shape Oil Market Dynamics

First Quarter 2017

In an effort to reduce record high global crude oil inventories, the Organization of the Petroleum Exporting Countries (OPEC) along with 11 non-OPEC countries implemented a six-month production cut on Jan. 1. For the past two months, Saudi Arabia and some other Persian Gulf states have reduced production by more than their pledged targets. However, global crude oil inventories have not shown any signs of significant drawdowns, and rising U.S. production threatens the effectiveness of OPEC cuts. While the cuts may be extended into the second half of this year, it is not clear whether an extension would be sufficient to boost market prices much higher than what we have already seen.

Saudi Arabia Shoulders Majority of the Production Cuts

OPEC reported that its agreement was successfully implemented in January and February, with overall production falling below its targeted level. However, the large decline in production was mainly driven by the Gulf states—Kuwait, Qatar, Saudi Arabia and the United Arab Emirates. Particularly, Saudi Arabia is estimated to have reduced its production by more than its pledged target. Excluding Saudi Arabia, OPEC achieved 70 percent of its targeted cuts (*Chart 1*).

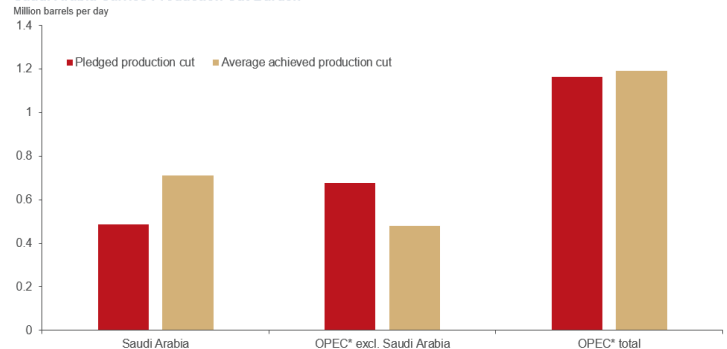
Moreover, OPEC members not bound to production cuts, namely Iran, Libya and Nigeria, offset the decline from the rest of OPEC by about a quarter million barrels per day (mb/d), consequently benefiting from higher prices. Due to lack of data, it is difficult to gauge whether non-OPEC countries are complying with their planned cuts. The International Energy Agency (IEA) estimates that non-OPEC countries have implemented only 37 percent of their promised cuts so far.

No Signs of Inventory Draws Yet

Available inventory estimates so far do not point to drawdowns, notwithstanding the large decline in crude oil production reported by OPEC. Recent weekly estimates of U.S. commercial crude oil inventories are at their highest levels since 1986 (*Chart 2*). Most of the increase in inventories so far this year is due to higher imports, particularly from OPEC.

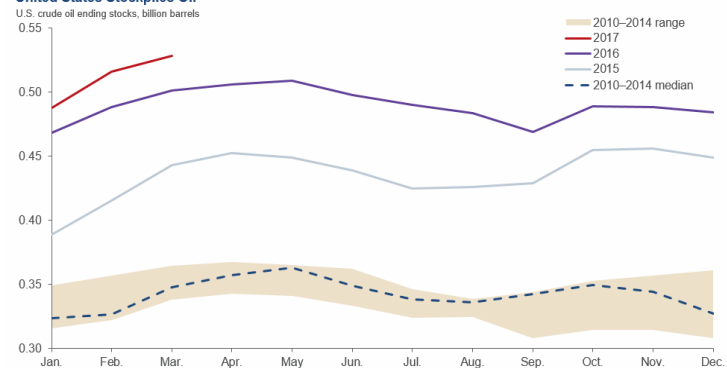
With no signs of the long-awaited inventory draws in weekly estimates, markets sent West Texas Intermediate (WTI) crude oil prices back under \$50 per barrel in early March for the first time since November 2016. Recent changes in total crude oil inventories in Organiza-

Chart 1
Saudi Arabia Carries Production Cut Burden



NOTES: OPEC* is defined as OPEC's 11 members excluding Libya and Nigeria, which were exempt from the production cut agreement. Average achieved production cuts are the differences between average of January and February production (based on secondary sources) and the reference production level from the OPEC production cut agreement.
SOURCES: Organization of the Petroleum Exporting Countries (OPEC) *Monthly Oil Market Report*, March 2017; authors' calculations.

Chart 2
United States Stockpiles Oil



NOTES: U.S. crude oil ending stocks exclude the Strategic Petroleum Reserve; 2017 values are calculated by averaging weekly estimates.
SOURCES: U.S. Energy Information Administration; authors' calculation.

tion for Economic Cooperation and Development (OECD) countries align with those in the U.S. According to the IEA, total OECD crude oil stocks went up by 32.4 million barrels in January.¹ These inventory numbers suggest that the significant production cuts reportedly achieved by OPEC have not been able to shrink excess crude inventories.

Factors Weighing on Extending the Cuts

Some analysts suggest that it is essential for OPEC to extend its production cuts into the second half of 2017 to trigger a material inventory drawdown, given the current glut in crude oil inventories. The rationale for extending cuts goes beyond the crude oil market. First, economic conditions have deteriorated in Saudi Arabia and the rest of the OPEC Gulf states following the oil price crash. At least 50 percent of these countries' government revenues rely on fossil fuel sales, according to the International Monetary Fund. Prolonged low crude oil prices have resulted in elevated government debt, posing the risk of deeper fiscal imbalance in these countries (*Chart 3*).

Second, Saudi Arabia is set for a public offering of the currently government-owned Saudi Arabian Oil Co. (Saudi Aramco) in 2018. Maintaining prices as high as possible by reducing inventories will lower downside risks to oil prices in the near term, providing support for a higher valuation of the firm. However, this strategy is not without pitfalls as higher oil prices also incentivize other producers to increase production.

U.S. Producers Set to Recover

Despite some initial skepticism around implementation of OPEC cuts, crude prices rose about 20 percent immediately following the deal and have remained in a relatively tight range for most of this year. WTI prices fluctuated between \$52 and \$54 per barrel until falling below \$50 in early March.

This stabilization in prices had led to positive developments in the U.S. oil industry, which challenges OPEC's efforts to push prices higher. U.S. crude oil production in March is expected to be around 9 mb/d, marking a 5 percent increase since last September, when production bottomed out (*Chart 4*). It is also the highest level since April 2016. Notably, production in the Permian Basin region is estimated to have increased around 4 percent since last December.

Leading indicators point to a further, larger U.S. production increase. The U.S. rig count has risen 17 percent since December, while Texas has experienced a 19 percent increase. Specifically, the Permian rig count is at its highest level since April 2015, while that in the Eagle Ford has modestly increased since October 2016.

More importantly, the recent drop in prices has not yet put a brake on rising U.S. production. In fact, many producers through hedging have already locked in higher prices for barrels that will be produced in coming months. Shale producers have become more efficient weathering the prolonged energy downturn (*Chart 5*), and industry contacts report lower breakeven prices. With these developments, U.S. shale production should be more resilient to oil price fluctuations.

OPEC will meet on May 25 to determine whether to extend its cut into the second half of this year. Even if extended, U.S. production is expected to grow throughout 2017 and will be a central challenge to OPEC's efforts to reduce global inventories. Hence, it remains uncertain whether an extension would push prices significantly above recent highs.

—Soojin Jo and Justin J. Lee

Note

1. There is much less information on non-OECD crude oil inventories. OPEC exports data, which may contain some information about total global inventory changes, are only available with a significant time lag.

Chart 3
OPEC Gulf Countries Experience Fiscal Risks

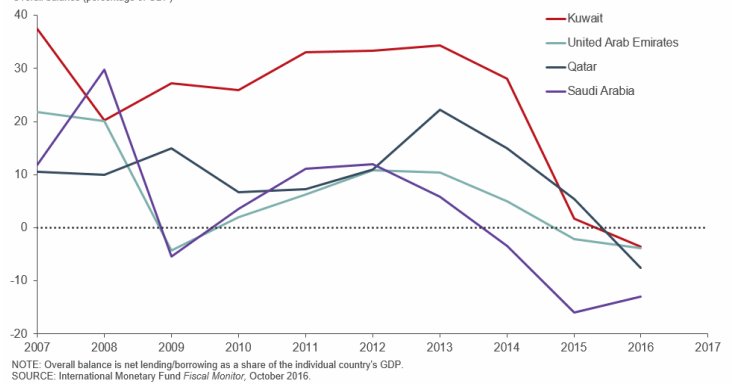


Chart 4
U.S. Production Shows Positive Signs

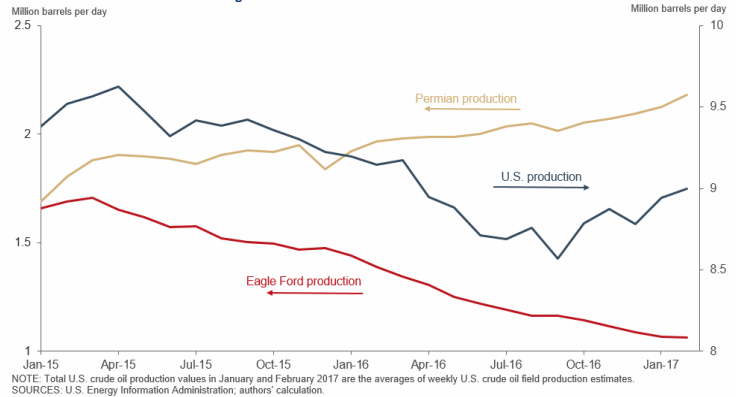
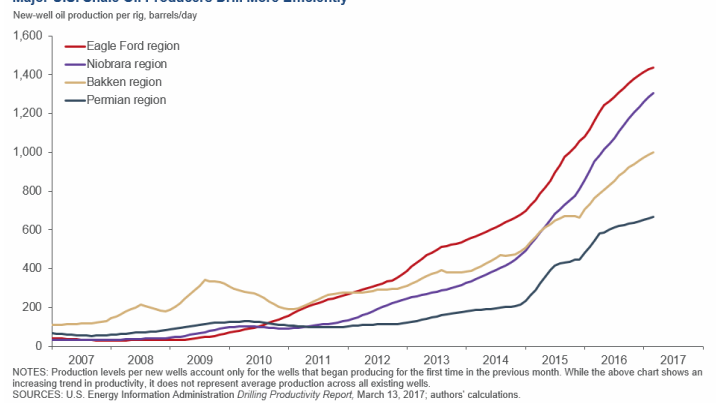


Chart 5
Major U.S. Shale Oil Producers Drill More Efficiently



About the Authors

Jo is a senior economist and Lee is a research assistant in the Research Department at the Federal Reserve Bank of Dallas.