Evaluating recent oil price volatility

Current supply and demand play only a partial role in recent oil price fluctuations. The root of current market conditions lies more in the shift in expectations of future demand and the stability of future supply.

Market prices

Oil prices hovered near $100 per barrel from March 2011 to mid-2014. The prices started to drop in June 2014, then plummeted, falling more than 60 percent by mid-2015. Price volatility continued the rest of 2015, settling at $32 per barrel in January 2016. Federal Reserve Bank of Kansas City economists Troy Davig, Nida Çakir Melek, Jun Nie, A. Lee Smith and Didem Tüzemen analyzed the extreme fluctuations of oil prices since mid-2014 and described a number of possible reasons for the volatility.

$100+
per barrel Mid-2014

$32
per barrel January 2016

Current demand

Demand activities are useful in describing oil price movements, but the factors driving such changes are often difficult to identify. For example, if global economic weakness was the primary factor weighing on oil prices, other commodity prices, such as industrial metal prices, should display similar patterns. Commodity prices have fallen with oil prices since mid-2014, but their decline was less dramatic.
Changing global oil supply

Changing global oil supply conditions are another possible reason for oil price volatility. U.S. oil production increased at a steady pace from 2011 to 2014, contributing to global production gains. The Energy Information Administration repeatedly revised its projections for U.S. production up in 2014, and oil production increased by around 70 percent in the U.S. from 2010 to 2015. The rest of the world also experienced supply-side developments, such as unplanned OPEC production outages due to unrest in the Middle East and northern Africa. But, U.S. production increases offset most of the outages, and countries like Libya and Iraq later increased their productions.

Precautionary Demand

Changing expectations of future supply and demand conditions might affect "precautionary demand," which can play an important role in oil price movements. Precautionary demand can be driven by sectors of the energy industry such as businesses involved in refining. These sectors have to balance expectations of future oil process with the availability and cost of storage. For example, news that future production will likely continue at a high level can cause precautionary demand for crude oil to fall. One such piece of news came in November 2014 when OPEC announced that it would maintain production at current levels. Similar reductions in precautionary demand were triggered in June 2015 when international negotiators announced that a nuclear agreement had been reached with Iran, which would lift sanctions limiting Iranian oil exports.

Key findings

Quantifying the effects of demand and supply shifts in global oil markets on prices is not always straightforward and requires a model that can properly separate key determinants of oil price movements. The team of economists evaluated key determinants of oil price movements and established that oil price fluctuations since mid-2014 have not been driven primarily by current demand or supply conditions. Instead, shifts in expectations about future demand and the stability of future supply, which are wrapped up in "precautionary demand" shocks, have played the predominant role.

FURTHER RESOURCES: Evaluating a Year of Oil Price Volatility

By Troy Davig, Nida Çakır Melek, Jun Nie, A. Lee Smith and Didem Tüzemen