

OPEC IN THE NEWS

Michael Plante, Federal Reserve Bank of Dallas, 1-214-922-5179, E-mail: michael.plante@dal.frb.org

Overview

OPEC has been and remains an important factor in the oil market. Not surprisingly, a number of papers have been written about the group and its effects on various oil market variables. This paper investigates the connections between OPEC and oil-price volatility. This subject has been explored in several previous papers, such as Horan, Peterson and Mahar (2004), Wang, Wu and Yang (2008), and others. Most focus on high frequency data and have found some evidence that OPEC affects oil-price volatility.

This work approaches the question from a different perspective. I introduce a novel index based on monthly counts of newspaper articles that mention OPEC. This index is similar in spirit to the newspaper index introduced in Baker, Bloom and Davis (2016). As opposed to using the index to directly measure uncertainty, I use the newspaper index to measure how interest in OPEC varies over time. My hypothesis is that given the nature of the group, oil-price volatility is likely to be higher than usual during periods where media attention on OPEC is unexpectedly high. To do the analysis, the index is embedded in reduced-form vector autoregression models, and generalized impulse response functions are used to visualize the statistical connection between shocks to the news article index and oil-price volatility.

The paper is organized as follows: After the introduction, the second section introduces the data used in the analysis and includes a discussion of the index's construction. Section three reviews the empirical methods used in the analysis. Section four discusses the results, including impulse response functions, robustness checks, an analysis of what OPEC events line up with the residuals of the model and a discussion of causality.

Methods

I construct a novel newspaper count index about OPEC using the Dow Jones Factiva database. Articles must match the keyword OPEC. The index itself is similar in design to the economic policy uncertainty index introduced in Baker, Bloom and Davis (2016). The empirical models are a series of reduced-form, vector autoregression models. I use generalized impulse response functions, introduced in Pesaran and Shin's 1998 *Economics Letters* article, to view the statistical connection between shocks to the index and oil-price volatility. An examination of the time series of the residuals indicates which months produce unusually large shocks. A narrative-type approach helps discuss causality and the factors that seem to play a role to make certain OPEC events more interesting than others.

Results

First, I show that the newspaper index varies over time and that many spikes in the index line up with particular OPEC-related events. The newspaper index is highly correlated with an alternative newspaper index that controls for changes that have occurred in the overall volume of newspaper articles over time. The index is also highly correlated with Google search volume data—an alternative measure of attention often used in the finance literature—that measures internet searches on the topic 'OPEC'.

Second, I find a very strong statistical connection between shocks to the newspaper index and oil-price volatility. This result holds for both realized and implied volatility, and is robust to various modifications to the model, such as using price and volatility data for Brent crude in place of West Texas Intermediate crude, using the alternative newspaper index or Google search volume data, or using large VAR models that include other important oil-market variables.

Third, the time series of the newspaper shocks show that the largest positive shocks almost always line up with an OPEC-related event. These are typically OPEC meetings but also include events such as the Iraq invasion of Kuwait and terror attacks in Saudi Arabia. Many of the meetings were preceded by notable oil-price changes that increased speculation about OPEC's response to those events. Other meetings were associated with surprise announcements of changes to future production levels or featured contentious discussion about future production levels.

Finally, the residual analysis shows some newspaper shocks are clearly due to exogenous OPEC events, such as the Iraq invasion of Kuwait, but some are driven by broader economic events that made an OPEC event more interesting and appear to have increased oil-price volatility. Examples of the latter include the Asian financial

crisis in 1998, the onset of the Great Recession in late 2008 and the recent price collapse, driven in part by a boom in U.S. oil production. These played a role in the March 1998, October 2008 and November 2014 OPEC meetings, respectively.

Conclusions

This paper explores the connections between OPEC and oil-price volatility. I find that there is a strong statistical connection between shocks to a news article index, which often picks up some kinds of OPEC events, and oil-price volatility. In some cases, an exogenous OPEC-related event appears to be behind an unexpected increase in the news article index and oil-price volatility. In other cases, though, the increases appear to be an endogenous response of both variables to an event within the broader oil market or economy, such as the financial crisis of late 2008. This finding has some interesting implications for thinking about the connections between oil-price uncertainty and economic activity, as it suggests that some movements in oil-price volatility are driven by the economy and not the other way around.

References

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