Discussion of

Oil Shocks: A Textual Analysis Approach

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Summary

- This paper proposes a fully automated procedure for extracting information from news articles in oil industry publications.
- The idea is to search for words in these articles linked to "oil supply", "oil demand", "increase", and "decrease", which allows the construction of oil supply increase/decrease and oil demand increase/decrease indicators based on counts of these expressions.
- These four indicators are embedded in a structural VAR model intended to identify mutually uncorrelated shocks to these indicators.
- The model is used to interpret oil price fluctuations.

Terminology

There is no such thing as an indicator of oil demand or oil supply. Demand and supply are unobservable.

Example: Is global industrial production an indicator of demand?

No. A surprise change in industrial output could be caused by any combination of oil demand or oil supply shocks. The underlying structural demand and supply shocks are not identified.

For instance, a negative oil supply shock would lower global industrial production, but that is not an indication that the oil demand curve has shifted.

What Are These Indicators Measuring?

The indicators measure how often certain word combinations appear in selected publications. For example, the two demand indicators are based on words such as "buy", "refinery", "depletion", "consumption", or "importers".

1. Does this make sense? Not necessarily:

- "Depletion" of an oil well would seem supply-related.
- "Buying" oil equipment is supply-related.
- The word "production" is classified as a supply indicator, whereas "industrial production" is supposed to measure demand in the paper.

2. More fundamentally, how much "oil supply" or "oil demand" shift is not the same as the frequency with which these words appear in articles.

On the Role of Expectations

A central claim in the paper is that existing indicators of oil supply and oil demand (a.k.a. global oil production and global real activity) only provide information on past and current conditions.

Counterexample:

- Kilian's global real activity index is a forward-looking indicator for global real output (e.g., Ravazzolo and Vespignani 2019, Funashima 2020).
- To the extent that this index is predictable based on its own past, it also provides information about future activity in the oil market.
- A shortfall of expected supply relative to expected demand that is <u>not</u> captured by the real activity measure raises the expected oil price.

Higher expected prices are associated with oil inventory building and hence higher spot prices, so including the <u>change in global oil inventories</u> in the model takes care of expected demand and expected supply (Kilian and Murphy 2014). Is Combining Current and Expected Conditions a Good Idea? The paper argues that its indicators capture <u>both</u> current and future expected conditions. It would seem essential to isolate the forward-looking components in the demand and supply indicators and to quantify them.

- Do these indicators provide additional information about expected consumption and expected production not contained in agency forecasts (EIA, IEA, OPEC) and industry forecasts (J.P. Morgan, Chase, ...)?
- Shocks to the forward-looking component tend to have different dynamic effects than shocks to the current component of the indicator, so lumping them together produces distorted and potentially unstable impulse responses.
- How important is it to isolate expected demand and supply in the first place, if we have access to oil inventory data?

What Informational Advantage Does the Press Have? Another central idea is that economic variables are <u>directly</u> observed by the press before they are observed <u>with error</u> by markets. This is not persuasive.

- The press does not have an informational advantage over industry experts. Rather they process information provided by industry experts. Neither experts nor the press have real-time information. In addition, the press often gets the story wrong (e.g., peak oil, hurricanes, OPEC, Russia).
- Identifying demand and supply shifts is not just a problem of observing variables. The paper seems to trust the press to solve the problem of identifying demand and supply shifts. If this were so easy, we would not need econometric models to do this.
- What is the economic explanation that the proposed supply and demand indicators respond contemporaneously to the price of oil? Why are higher oil prices associated with more news about supply increases and less news about supply decreases? Why is the nominal oil price in the structural model?

Additional Remarks

- Kaenzig (2021) did <u>not</u> isolate an OPEC supply news shock. Degasperi (2021) shows that Känzig's shock measure captures revisions in expectations about oil demand based on the OPEC news release. A more natural interpretation of this shock thus would be as a shock to oil price expectations.
- While Känzig's shock measure captures only a subset of the storage demand shocks identified in recent structural oil market models, it corroborates the dynamic responses to storage demand shocks in Kilian and Murphy (2014), for example.
- The relationship between precautionary demand shocks and other expectations driven storage demand shocks is well understood in the literature rather than a new contribution.

Summary

I enjoyed reading the paper:

- Creative use of a new data set.
- Substantially different from earlier textual analysis in the oil market literature.
- The paper would benefit from being more integrated with the existing oil market literature.