Global Confidence, Uncertainty, and Business Cycles

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AEA Poster Session

7 January 2022

Disclaimer and information

- Any views expressed are solely those of the authors and cannot be taken to represent those of the World Bank or the Bank of Korea.
- Forthcoming at the **International Journal of Central Banking**
- Final WP version is available **here**.

Outline

Motivation

- Confidence and uncertainty are important drivers for business and financial cycle.

  e.g. Animal spirit view (Pigou, 1927; Akerlof and Shiller, 2010), News view (Cochrane, 1994; Beaudry and Portier, 2004).

- However, most studies are based on country-specific evidence.
  - The role and the nature of global confidence cycles are little studied.

  c.f. Levchenko and Pandalai-Nayar (2020), Dees and Zimic (2019)

- Few studies compare the role of confidence and uncertainty shocks.
  - The two concepts are not necessarily identical.

  e.g. Nowzohour and Stracca (2020)

Research questions

1. Is there a global confidence cycle?
2. What is the role of global confidence shock in global macroeconomic and financial cycles?
3. How do we compare the impact of confidence to that of economic uncertainty?

Quick Preview

- The global confidence cycles (in particular that of consumer confidence) have played a key role in global business cycle fluctuations, explaining over a third of total variations.
- While global business confidence shocks are demand-driven, global consumer confidence seems to reflect both demand and supply shocks ("animal spirit" and "news" views).
- Confidence acts as an important channel in the transmission of uncertainty shocks.

Outline

Methodology

Empirical models

- We investigate how the global confidence cycle drives global factors of industrial production, employment, inflation, and interest rates.

1. **Dynamic factor model** (Kose et al., 2008; Kose et al., 2012)
   : The **global variables** are estimated at a monthly basis.

$$D_{i,t} = \beta^*_{D,i} f^*_{D,t} + e_{D,i,t} \tag{1}$$

- $D_i (\in \{y,\ l,\ \pi,\ r,\ u,\ b,\ c\})$: variables of interest for country i,
  f^*_D: the global common factors for D

Note: Data
Industrial output (y-o-y, y), Unemployment rates (l), CPI inflation (π), Long-term interest rate (10-year, r), Uncertainty measure (u), Business confidence indicators (b), Consumer confidence indicators (c)

Methodology

2. **Factor augmented VAR** (FAVAR)

   : The dynamic causality of **global block** is investigated.

$$B_0 Y_t = \alpha + \sum_{p=1}^{\tau} B_j Y_{t-p} + \varepsilon_t \tag{2}$$

   - Y_t: the seven global variables
     ε_t: structural shocks

3. Baseline identification scheme – **Cholesky restrictions**

   - The **global confidence indicators** are ordered **last**.
     (Assumption: Economic and financial developments $\underset{\text{X}}{\overset{\text{O}}{\rightleftharpoons}}$ confidence)

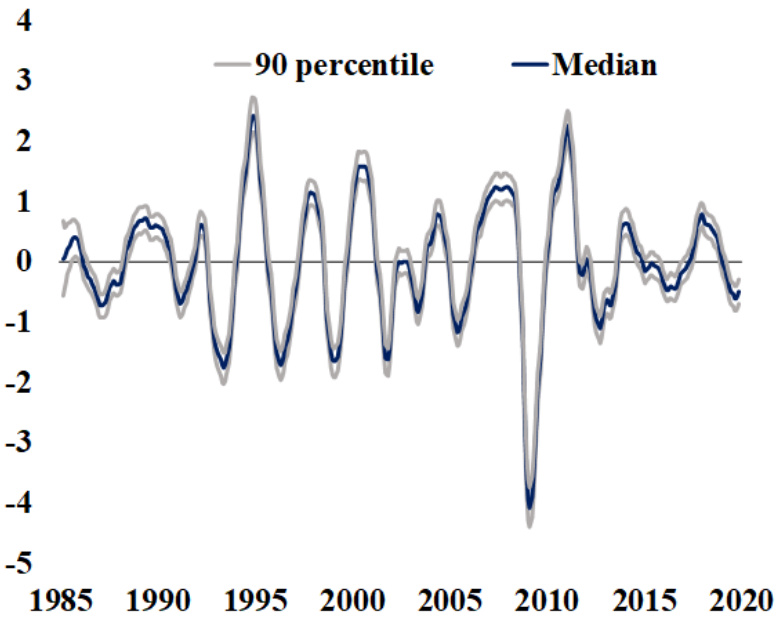
   c.f. Other direction of causality? Potential endogeneity?

Outline

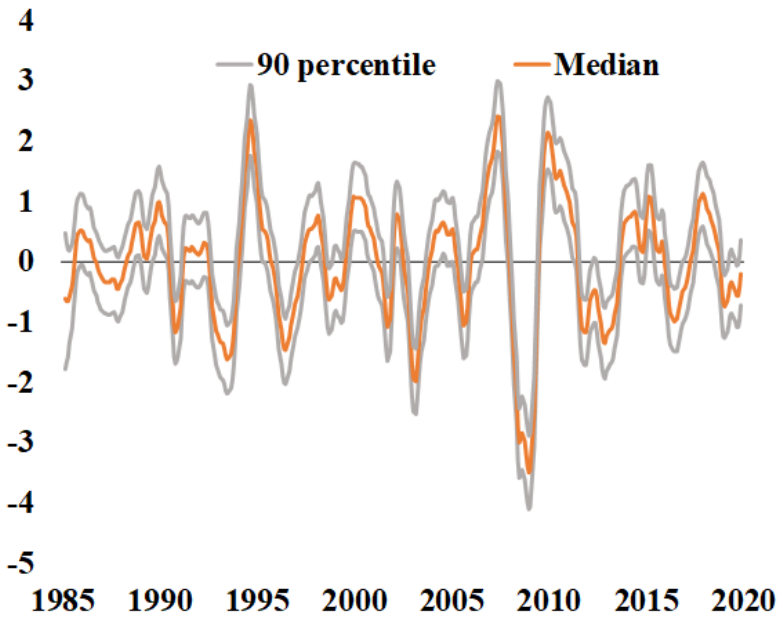
Result 1: Global confidence cycle

- Global factors of business and consumer confidence identify well global recessions.
  - Global consumer confidence leads global business confidence.

Global business confidence



Global consumer confidence

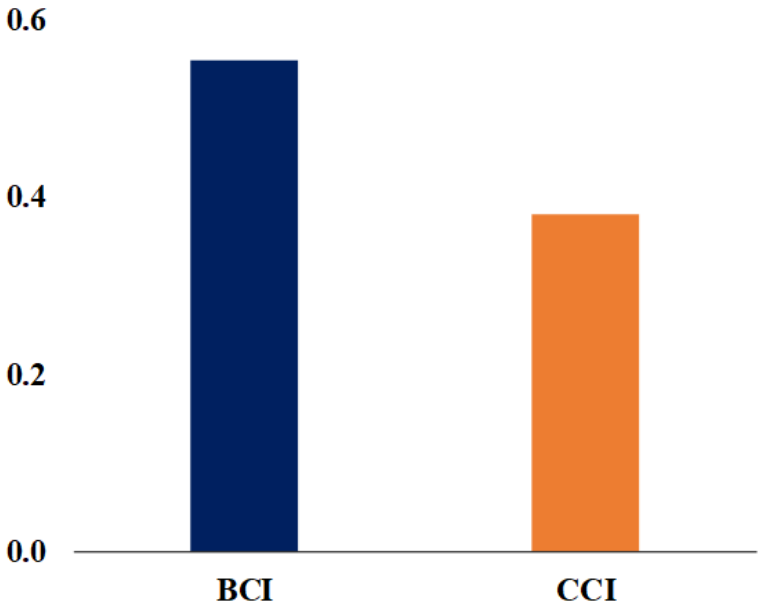


Notes: Global factors are extracted from business or consumer confidence in 25 countries. Solid blue and orange lines are median draws based on 3,000 posterior Bayesian draws. Grey lines indicate 5*th*–95*th* percentiles confidence bands.

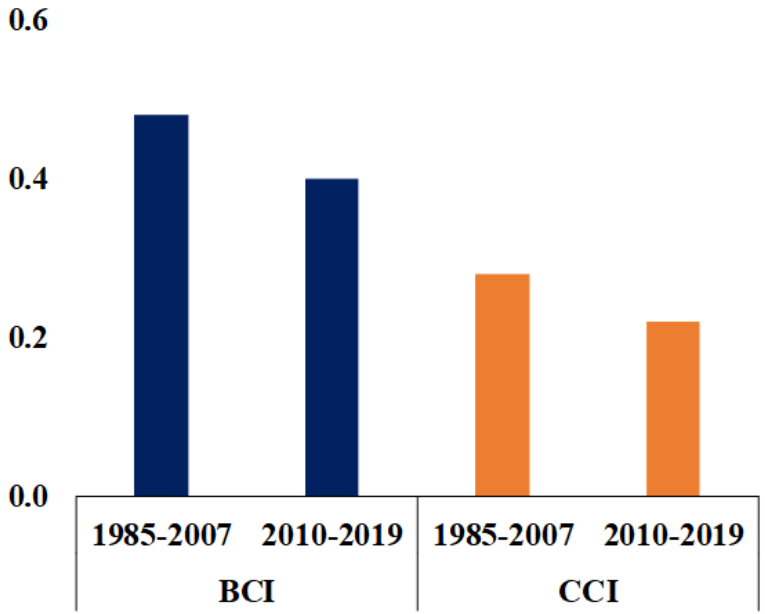
Result 1: Global confidence cycle

- The global factors explained 57% and 38% of total variations in business and consumer confidence (**global confidence cycle**).
  - The cross-country comovement of business confidence is stronger than consumer confidence.

Variance contribution of global factors
(full sample average across countries)



Variance contribution of global factors
(pre-/post-GFC average across countries)

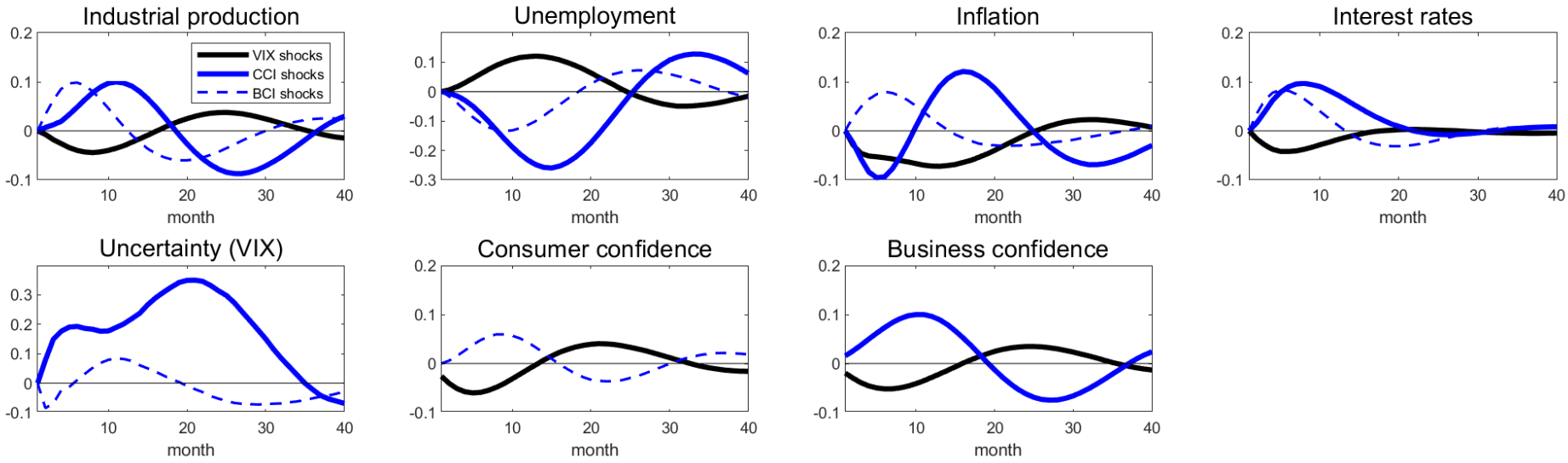


Notes: Global factors are extracted from business or consumer confidence in 25 countries. Variance contributions of global factors are based on simple averages across countries.

Result 2: Confidence - A driving force of business cycle

- **Uncertainty shock**: **countercyclical** (production ↓, unemployment rates ↑; *wait-and-see* effect)
  - Confidence acts as a uncertainty transmission channel (VIX ↑ $\overset{\text{O}}{\underset{\text{X}}{\rightleftharpoons}}$ CCI, BCI ↓)

IRFs to uncertainty and confidence shocks (1-std increase shock)



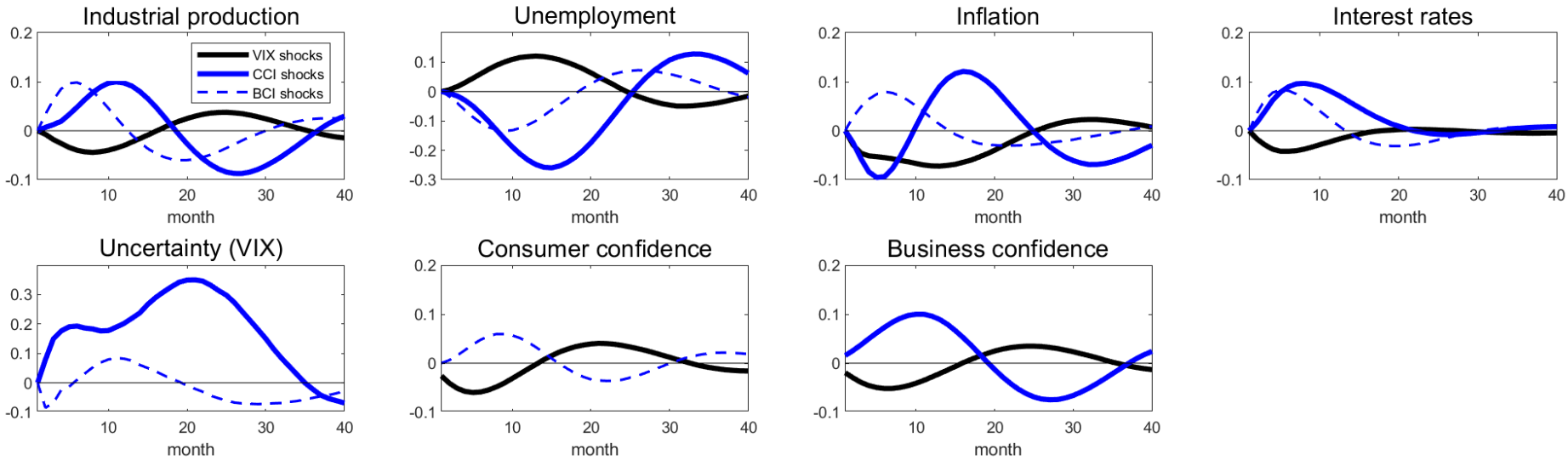
Notes: IRFs are median (50th percentile) among 1,000 successful Bayesian draws.
vertical axis – pecentage points, horizontal axis – months after the shocks

◂ Shocks

Result 2: Confidence - A driving force of business cycle

- **Confidence shock**: **procyclical** (production ↑, unemployment ↓)
  - **Business confidence** (BCI): short-lived response → **demand**-side shocks
  - **Consumer confidence** (CCI): short-lived & disinflationary response → **demand** & **supply** shocks

IRFs to uncertainty and confidence shocks (1-std increase shock)



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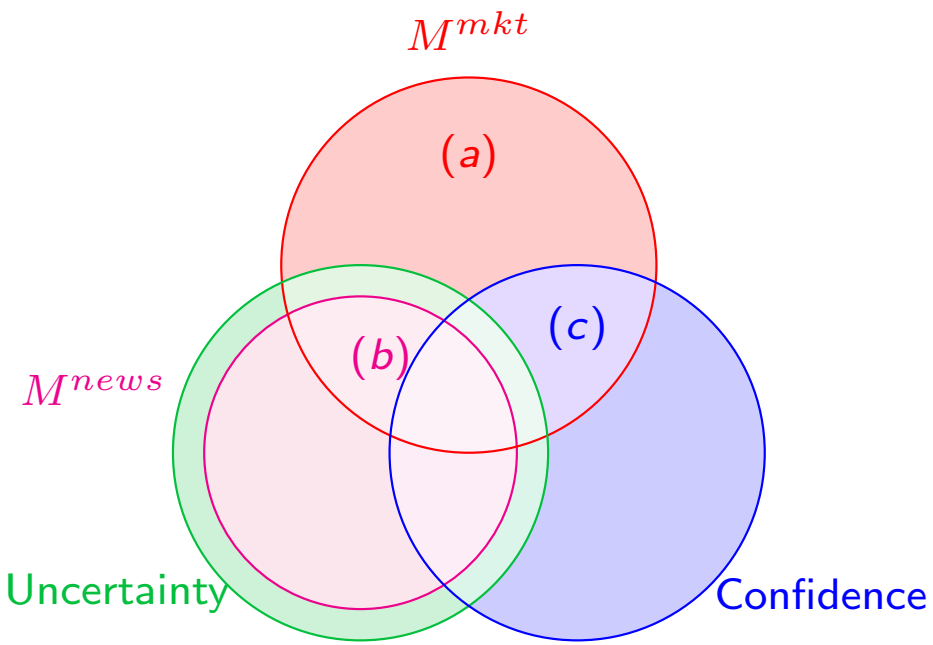
Outline

Proxy VAR

Poor man's approach



$M^{mkt} = f([\text{Uncertainty}] \times [\text{Signal}] \times [\text{Others}])$
$M^{news} = g(\text{Uncertainty})$
$\text{Confidence} = h(\text{Signal})$

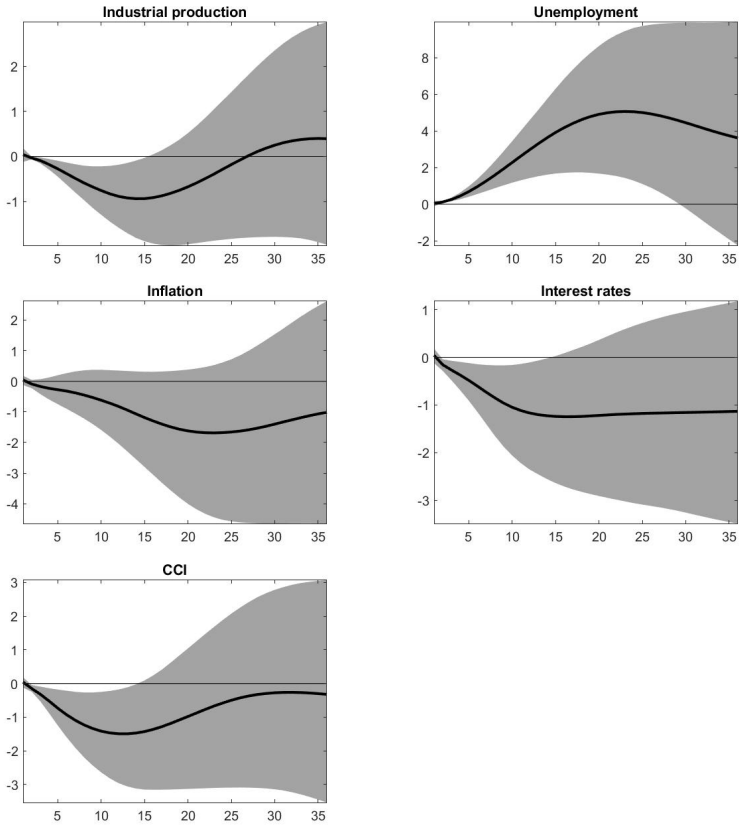
- f, g: increasing function,
  h: decreasing function

Confidence vs. Uncertainty

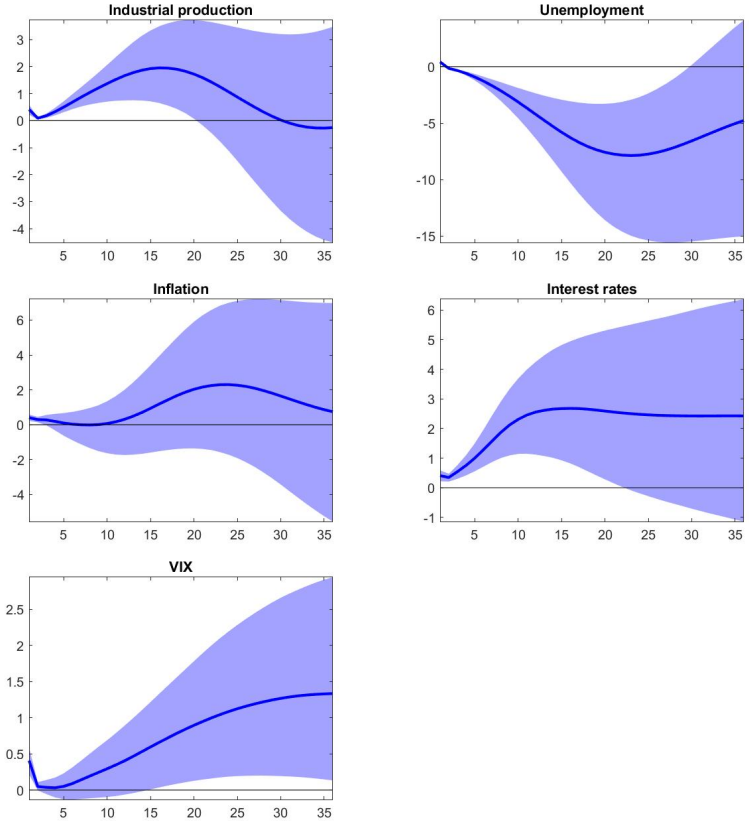
1. Filter out non-informative components (a) from the daily shifts of market-based sentiment measures (M^{mkt}, e.g. VIX, gold price).
2. The series is disentangled into uncertainty (b)- and confidence (c)-specific components, using news-based measures (M^{news}, e.g. EPU).
3. The daily series are compiled into monthly ones.

Proxy VAR

IRFs following uncertainty shocks



IRFs following confidence shocks



Notes: IRFs are based on the 6-variable VAR model (uncertainty, consumer confidence, and other global variables) that exploits the sets of external instrument $[VIX_U, Gold_U]$ for uncertainty shocks and $[Gold_C]$ for consumer confidence shocks. Solid lines and shaded areas indicate median (50*th*) and 5*th*–95*th* percentiles of bootstrap draws.

F-statistics: 15.2 (for uncertainty shocks), 22.0 (for consumer confidence shocks).

vertical axis – pecentage points, horizontal axis – months after the shocks

Other checks

1. **Alternative ordering**: placing the confidence indicators at the first.
2. **Alternative uncertainty measures**:
   - Financial uncertainty (Jurado et al., 2015)
   - Macroeconomic uncertainty (Jurado et al., 2015)
   - Global EPU (Baker et al., 2016)
   - Global monetary policy uncertainty (Husted et al., 2020)
   - Global geopolitical uncertainty (Caldara and Iacoviello, 2018)
   - World pandemic uncertainty (Ahir et al., 2018)

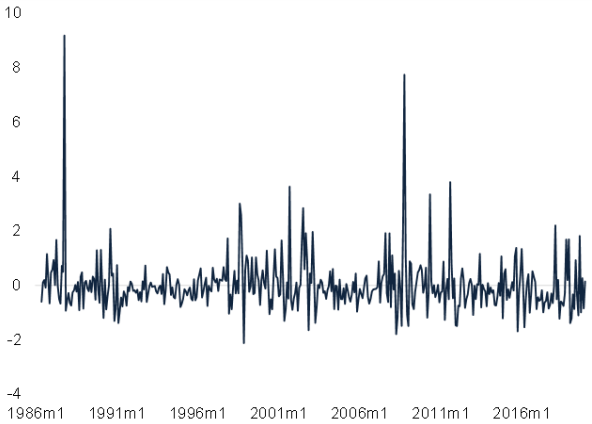
$\Rightarrow$ The results are **almost identical** to the baseline.

Outline

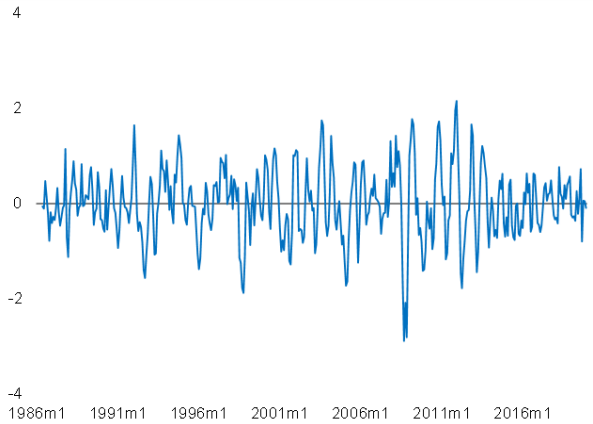
Conclusions

- We find that
  1. Global confidence shocks ⇒ global macroeconomic and financial fluctuations
  2. Global consumer confidence shocks: global demand and supply shocks
     Global business confidence shocks: global demand shocks
  3. Global confidence ⇒ the transmission of uncertainty shocks into global business cycles
- Policy implications
  1. Policy coordination across countries is necessary to mitigate the adverse impacts from heightened uncertainty and subdued confidence.
  2. Global confidence indicators should be closely monitored and their possible consequences must be thoroughly understood in policy making.

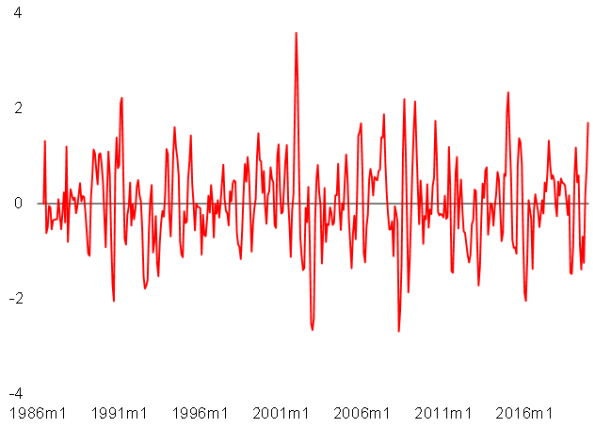
Structural uncertainty and confidence shocks



(a) Uncertainty



(b) Business confidence



(c) Consumer confidence

Notes: Structural shocks are estimated with the global FAVAR model (that consists of global industrial production, unemployment rate, inflation, interest rates, uncertainty, consumer confidence, and business confidence). All results are based on median among 1,000 successful Bayesian draws.

main