The Global Transmission of U.S. Monetary Policy

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Research Question

How is US monetary policy affecting macroeconomic conditions around the world? The literature identifies various channels of transmission:

- **Demand Channel** – demand-augmenting effect
- **Exchange Rate Channel** – expenditure-switching effect
- **Financial Channels** – 'risk taking' channel, 'credit' channel

However, the magnitude of the spillover effects and the relative importance of the various channels are still a matter of debate.

Implications both for theory and policy:

- **Dilemma vs Trilemma** / Monetary Sovereignty
  (Rey 2013, Obstfeld 2015, Kalemli-Özcan, 2019)
- **Policy spillovers** / Policy Coordination / Dominant Currencies
  (Ilzetzki et al. 2019, Gourinchas and Rey 2007, Maggiori 2017, Gopinath et al. 2020)

Challenges & Approach

Need to distinguish the policy action from the information effect of Fed policy announcements:

- We use a high-frequency identification for **conventional** monetary policy shocks
- Exploiting the reaction of financial markets to FOMC announcements
- Controlling for the information channel of monetary policy (Miranda-Agrippino & Ricco, 2021)
- We obtain an **instrument** to identify the shocks (Stock & Watson, 2012; Mertens & Ravn, 2013)

Large heterogeneity across countries (e.g. cyclical position, financial conditions, structural features…):

- We build a monthly dataset covering a rich set of **global aggregates**, 15 **Advanced Economies**, and 15 **Emerging Economies** (over 150,000 data-points)
- We use efficient big data techniques **(bilateral large Bayesian VARs)**

Need for high-frequency data on leverage, risk appetite, and capital flows

- We use a monthly dataset of financial conditions indexes (**CBC Global Liquidity dataset**)
- And IMF Balance of Payment data

Methodology

We estimate the magnitude of the spillovers in a wealth of monthly models:

- A **US-global VAR** incorporating 31 variables: 15 global and 16 US indicators
- **30 bilateral US-foreign country VARs**, aggregated to obtain median-group responses

Accounting exercise to assess the relative importance of the channels of transmission:

1. Zero out the transmission coefficients of the structural VAR for some variables capturing a channel
2. Compare the responses from the unrestricted and restricted models

We study how the transmission depends on observables:

1. Divide countries based on the characteristic of interest (e.g. income or exchange rate regimes)
2. Estimate **median-group responses** for each category and compare responses

Results

What are the effects of a tightening in US monetary policy on the **global economy**?

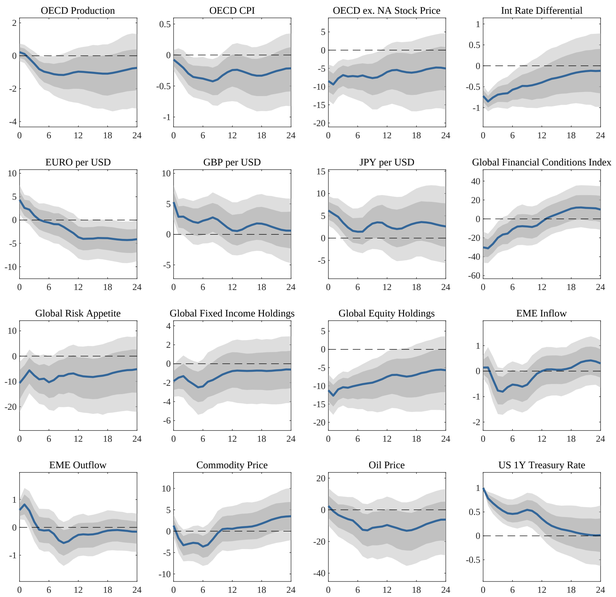


Fig. 1: Global effects of US monetary policy

A US monetary *tightening* causes a significant contraction of the global economy:

- OECD **industrial production** and **CPI** contract, similarly to US counterparts
- US dollar appreciates against major currencies: Euro, Pound, and Yen
- **Commodity prices** contract, suggesting an important role for transmission
- **Global risk appetite** falls, suggesting portfolio rebalancing towards safe assets
- Global contraction in **cross-border flows**

Does the shock propagate differently to **Emerging** relative to **Advanced Economies**?

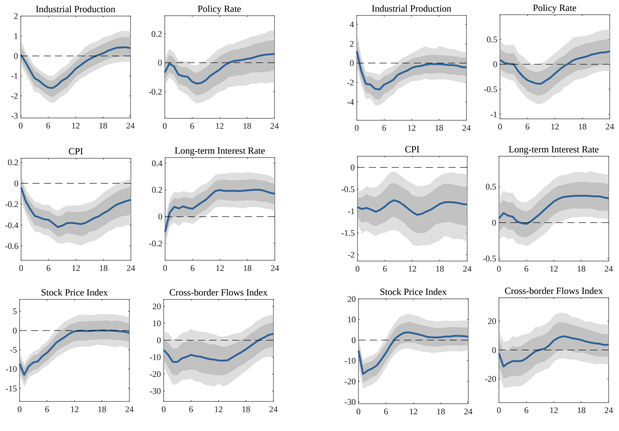


Fig. 2: *Left:* Median Advanced Economy; *Right:* Median Emerging Economy

- *Strong* spillover effects to *both* emerging and advanced economies.
- A domestic easing does not fully transmit along the yield curve because the shock increases risk premia.

Channels of Transmission

What is the relative importance of the various channels of transmission?

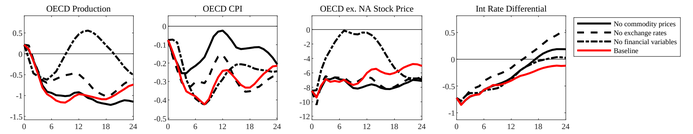


Fig. 3: Channels of transmission, Global economy

- **OECD industrial production** and **stock price** contract less and rebound more quickly when shutting the financial channel
- Response of **CPI** negligible when commodity prices cannot respond to the shock

'Fragile' Emerging Economies

Do 'fragile' EMs respond differently to US monetary tightenings and loosenings?

1. Divide instrument into *positive* (tightening) and *negative* (loosening) parts
2. Identify the shock using them as separate external instruments
3. All responses are normalised to induce a 100bp increase in the US 1-year rate

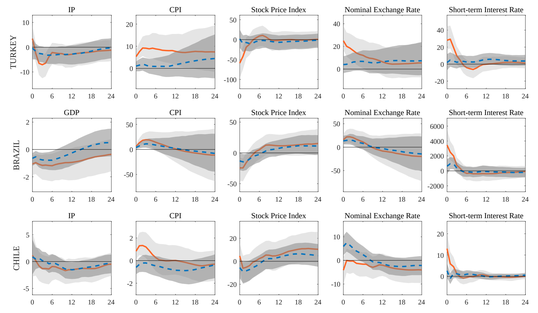
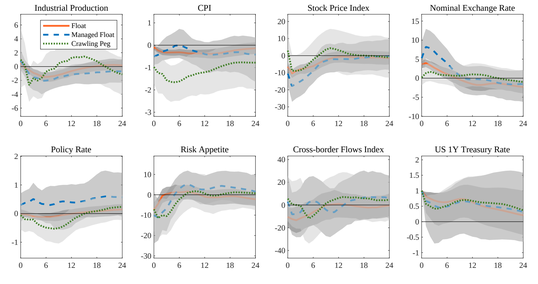


Fig. 4: Asymmetric effects in fragile EMs. *Orange:* tightening; *Blue:* loosening (flipped)

- Sharp asymmetry in the response of **short-term interest rates**
- Indicates 'perverse' role of monetary policy under **strong financial spillovers**

Exchange Rate Regimes

How do exchange rate regimes affect the propagation of the shock?



Three groups: floaters, managed floaters, and crawling peggers:

- US spillovers affect *all* regimes: IP, CPI, stock prices, and risk appetite contract
- But the recessionary effects are **smaller for floaters**