Monetary Policy Transmission in Emerging Markets: Proverbial Concerns, Novel Evidence

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Motivation

- Major advancements in the analysis of MP transmission in AEs
  - ▸ Credible identification approaches: narrative approach (C. Romer and D. Romer, 1994), HFI (Kuttner, 2001; Cochrane and Piazzesi, 2002)

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  - Narrative and HFI hard to replicate in EMs
  - Diverse MP communication strategies, less developed futures markets, govt yields also influenced by liquidity conditions and risk premia

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- Proverbial concerns about the effectiveness of MP in EMs
  - ▶ Limited financial development, currency mismatches, lower institutional credibility (Frankel, 2010)
  - ▶ Sensitivity to global financial shocks, even under flexible exchange rates (Hélène Rey, 2015; Dedola, Rivolta, and Stracca, 2017; Iacoviello and Navarro, 2019; Kalemli-Özcan, 2019; Miranda-Agrippino and Héléne Rey, 2020)
  - ▶ EMs' bond yields rise after US MP tightening despite EMs' loosening (Degasperi, Hong, and Ricco, 2020; De Leo, Gopinath, and Kalemli-Özcan, 2022)
  - ⇒ Yet, EMs handled the post-COVID inflation surge better than expected

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- Does these concerns imply impaired transmission? Not necessarily

Contribution

1. We construct new MP shocks for 18 EMs over 1999–2022
   - ▶ We use analysts' forecasts of policy rate decisions from Bloomberg
   - ▶ Identification assumption → analysts (like investors) construct forecasts by incorporating the endogenous reaction of MP to economic conditions
   - ▶ Key feature → analysts can update forecasts up to MP meeting
   - ⇒ Forecast errors, $FE_{a,c,t} = i_{c,t} - f_{a,c,t}$, reflect MP surprises ($\sim$ HFI), and we orthogonalize them wrt macro and financial variables

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2. We use these shocks to assess MP transmission in EMs to
   - Financial markets
   - Macroeconomic aggregates
   - Firm-level outcomes

Related literature

- We build on a large literature using HFI in AEs to study transmission to
  - Financial markets
    (Kuttner, 2001; Cochrane and Piazzesi, 2002; Bernanke and Kuttner, 2005; Gürkaynak, Sack, and Swanson, 2005; Hanson and Stein, 2015; Gilchrist, López-Salido, and Zakrajšek, 2015; Nakamura and Steinsson, 2018; Andrade and Ferroni, 2021; Swanson, 2021)
  - Macroeconomic conditions
    (Gertler and Karadi, 2015; Jarociński and Karadi, 2020; Miranda Agrippino and Ricco, 2021; Bauer and Swanson, 2023)
  - Firms
    (Ottonello and Winberry, 2020; Jeenas, 2019; Cloyne et al., 2023; Caglio, Darst, and Kalemli-Özcan, 2021)

- And contribute to a slim literature on EMs using
  - Taylor-rule residuals for a panel
    (Brandão-Marques et al., 2021; Deb et al., 2023)
  - Bloomberg forecast for Chile
    (Aruoba et al., 2021)
 - Changes in forward exchange rate premium for 5 EMs
    (Witheridge, 2024)

Presentation outline

1 Construction of monetary policy shocks

2 MP transmission to financial markets

3 MP transmission to macroeconomic conditions
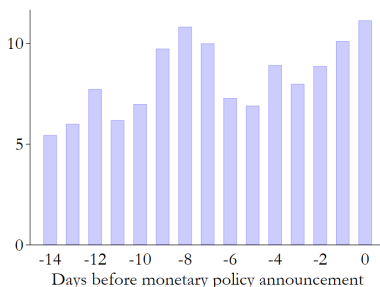
4 MP transmission to firm-level outcomes

Analysts′ forecasts of policy rate decisions

- Bloomberg analysts′ forecasts for 18 EMs starting in 1999
  - ▶ 58,321 policy rate forecasts for 2,522 MP meetings

- Critical that forecasts incorporate relevant info up to MP decision
  - ▶ Virtually all forecasts are recorded within 2 weeks prior to the meeting
  - ▶ If analysts submitted their forecast at random times → forecast errors should decline as later submission would leverage more info
  - ▶ Instead, forecasts errors *do not* decline as the meeting approaches

Forecast submissions (percent)

Days before monetary policy announcement

□ Share — Cumulative share (right axis)
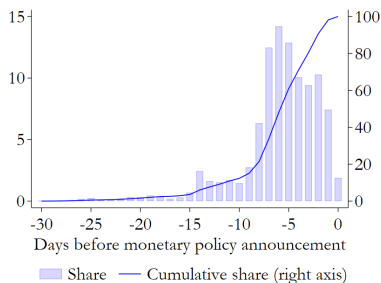
Absolute forecast errors (basis points)

Days before monetary policy announcement

Validation of monetary policy surprises

- For each MP meeting, we construct an associated MP surprise

$$mps_{t,c} = \frac{\sum_a FE_{t,c,a}}{N_{t,c}}$$

where $FE_{t,c,a}$ are analysts' forecast errors

- Forecast-based MP surprises tightly correlate with HF shocks in the US
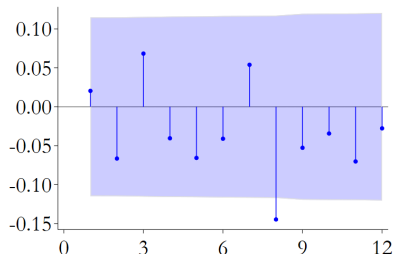 (Nakamura and Steinsson, 2018)

Forecast-based surprises —— Market-based surprises
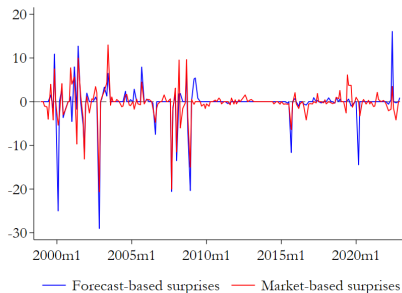
Validation of monetary policy surprises

- Movements in government yields and other key variables are larger in correspondence of MP meetings
- No autocorrelation in monetary policy suprises

Kernel density, 1y govt bond yield
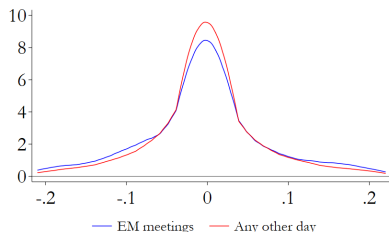
Correlogram of mps, Brazil

From monetary policy *surprises* to *shocks*

- Following Bauer and Swanson (2023), we orthogonalize mps using info prior to the meeting to remove any residual predictability

- We orthogonalize the mps with respect to
  - ▸ Prices: inflation, expected inflation, commodity inflation, wage growth
  - ▸ Real variables: IP, expected IP, unemployment rate
  - ▸ Financial variables: exchange rate, expected exchange rate, stock prices

- We detect modest predictability, average R^2 is 0.08
  - ▸ Forecasters tend to under-estimate MP countercyclicality

- We refer to the orthogonalized MP surprises $mps^{\perp}$ as MP shocks

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1. Construction of monetary policy shocks

2. **MP transmission to financial markets**

3. MP transmission to macroeconomic conditions

4. MP transmission to firm-level outcomes

Econometric approach: financial market impact

- We assess the impact of MP shocks on financial markets using event-study regressions (Cook and Hahn, 1989; Kuttner, 2001)
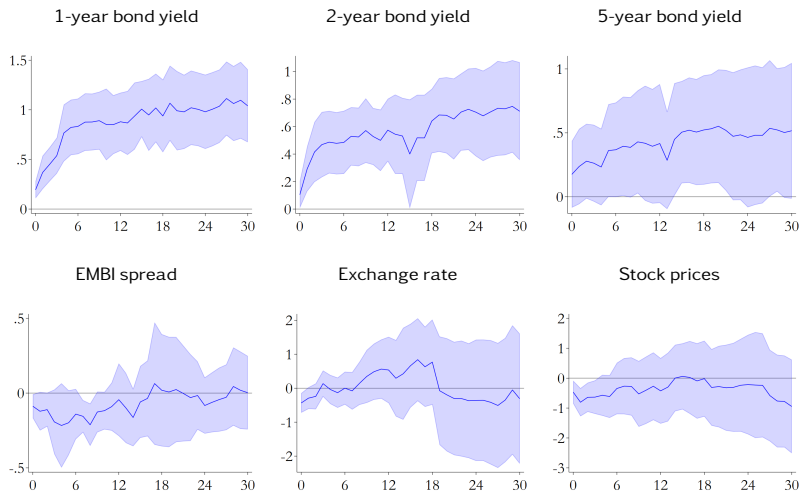
$$y_{c,t+h} - y_{c,t-1} = \alpha_c^h + \beta^h mps_{c,t}^{\perp} + \varepsilon_{c,t}^h$$

where
  - ▸ $y_{c,t}$ is a financial variable in country c at time t
  - ▸ $mps_{c,t}^{\perp}$ are MP shocks

- Analysis is based on daily data

Financial market responses to a 1pp MP shock

- MP shocks have large and persistent effects on bond yields
- They also tend to reduce spreads, appreciate the ER, and lower stock prices but effects are short-lived

1-year bond yield

2-year bond yield

5-year bond yield

EMBI spread

Exchange rate

Stock prices

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Econometric approach: macroeconomic impact

- We assess the impact of MP shocks on macroeconomic conditions using local projections on monthly data

$$Y_{c,t+h} - Y_{c,t-1} = \alpha_c^h + \beta^h I_{c,t} + A^h(L)\Delta Y_{c,t-1} + B^h(L)P_{c,t-1} + \tau_t^h + \epsilon_{c,t}^h$$

where

  - $Y_{c,t}$ includes 1-year bond yields, IP, unemployment, PPI, CPI, and exchange rate
  - $I_{c,t} = mps_{c,t}^{\perp}$ in baseline estimates
  - $P_{c,t-1}$ includes pandemic-related variables (infections, lockdowns, and policy support measures)
  - Time fixed effects τ_t^h critical to control for global shocks

- Results are robust to using our MP shocks as external instruments for movements in 1-year bonds (Gertler and Karadi, 2015; Stock and Watson, 2018; Bauer and Swanson, 2023)

Macroeconomic responses to a MP shock

- A MP tightening that increases 1-year yields by 1pp leads to a 2pp contraction in IP and and a more persistent increase in unemployment
- CPI and PPI drop by 4 and 6pp, respectively; and the exchange rate appreciates
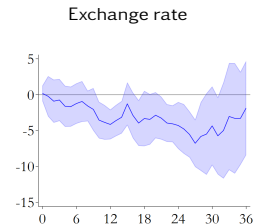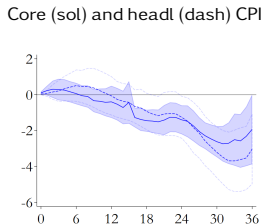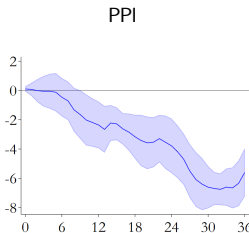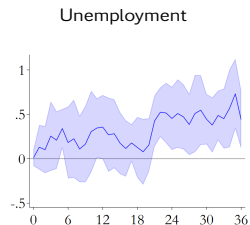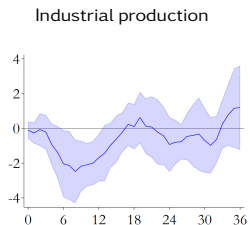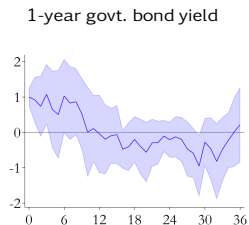
Presentation outline

Econometric approach: firm-level impact

- We assess the impact of MP shocks on 9,423 publicly listed firms, allowing for heterogeneity based on firms' financial characteristics

$$y_{f,t+h} - y_{f,t-1} = \alpha_f^h + \left(\beta^h + \gamma^h F_f\right)I_{c,t} + \phi^h F_f + A^h(L)\Delta y_{f,t-1} + B^h(L)X_{c,t-1} + \tau_{s,t}^h + \epsilon_{f,t}^h$$

  where
  - $y_{f,t}$ is firms' sales, fixed capital, or employment
  - F_f is firms' leverage, liquidity or dividend dummy
  - $I_{c,t} = mps_{c,t}^{\perp}$
  - $X_{c,t-1}$ includes country-level controls
  - $\tau_{s,t}^h$ are sector-time fixed effects

- Results are robust to using time-varying F_f or rescaled by country levels

- Analysis is based on quarterly data

Average firm-level responses to a MP shock

- Consider first the average impact of MP across firms

- In line with theoretical priors, MP tightening triggers
  - Swift contraction in investment
  - More delayed reduction in sales and employment

Fixed capital   Sales   Employment
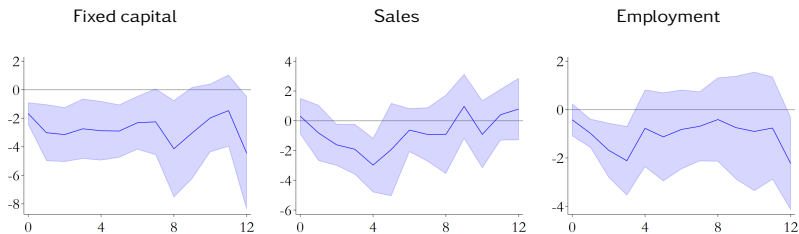
Heterogeneous response to a MP shock

- MP policy has stronger effects on financially constrained firms, as reflected in higher leverage and lack of dividend payments
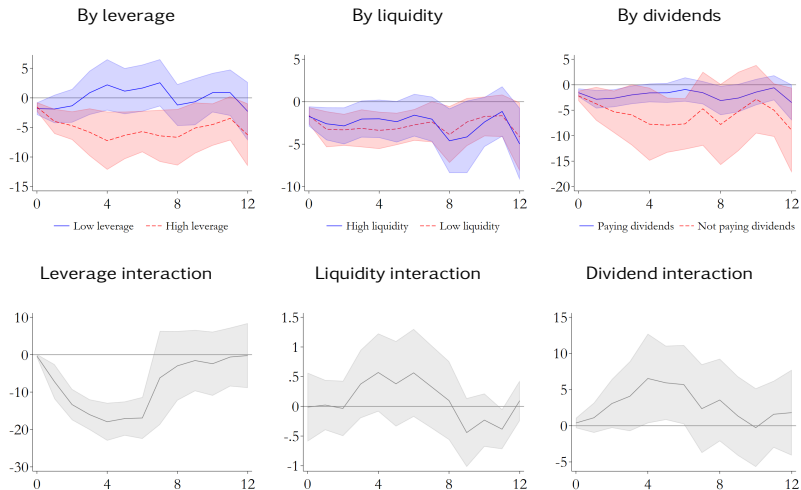
Conclusion

- **Novel MP shocks for EMs** based on analysts' forecasts of MP decisions
  - ▶ Analysts incorporate information up to the MP meeting
  - ▶ Analysts tend to underestimate MP countercyclicality

- MP transmission **operates similarly to AEs**
  - ▶ Strong and persistent effect on bond yields
  - ▶ Negative impact on IP and inflation
  - ⇒ Lags and quantitative effects in line with evidence from the US
  - ▶ Stronger impact on financially constrained firms

- **Encouraging evidence** about the effectiveness of MP transmission in EMs
  - ▶ A large literature shows that global financial shocks can affect financial conditions in EMs, casting doubts of the effectiveness of MP
  - ▶ We find that MP retains traction on domestic conditions to lean against global financial shocks