

Current Inflation and International Transmission of U.S. Monetary Policy

Role of Policy Credibility and Balance Sheets

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What drove 2021-2023 inflation and how FED hikes transmit internationally

1. Important role for sectoral shocks and financial frictions
2. Micro-macro approach for identification and policy implications

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- diGiovanni, Kalemli-Ozcan, Silva, Yildirim, **ECB-Sintra**'22 "Global Supply Chain Pressures, Trade, and Inflation"
- diGiovanni, Kalemli-Ozcan, Silva, Yildirim, **AER P&P**'23a "Quantifying the Inflationary Impact of Fiscal Stimulus"
- diGiovanni, Kalemli-Ozcan, Silva, Yildirim, **NBER WP forthcoming**'23b "Pandemic-Era Inflation Drivers and Global Spillovers"

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International Spillovers of MP:

- Kalemli-Ozcan, **Jackson Hole Symposium'19** "U.S. Monetary Policy and International Risk Spillovers"
- diGiovanni, Kalemli-Ozcan, Ulu, Baskaya'21 **RESTUD** "International Spillovers and Local Credit Cycles"
- Kalemli-Ozcan and Varela, **NBER WP** "Five Facts about UIP Premium"
- Akinci, Kalemli-Ozcan, and Queralto. **NBER WP** "Uncertainty Shocks, Capital Flows, and International Risk Spillovers"
- Pierre de Leo, Gita Gopinath and Kalemli-Ozcan, **NBER WP** "Monetary Policy Cyclicalities in EM"

Current Events

Drivers of Inflation

- Countries around the world have witnessed the highest inflation of the last four decades

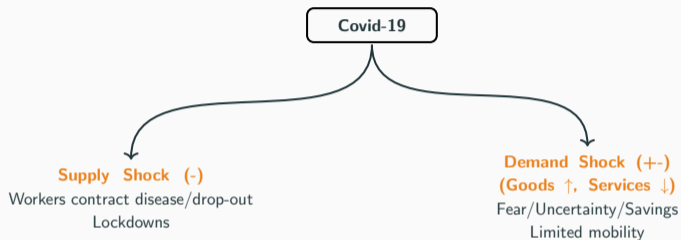
Drivers of Inflation

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- Driven by large swings in economic activity over time and across sectors over Covid-19:
 - Collapse and rebound in domestic demand, GDP, and international trade
 - Consumption substitution across sectors (goods for services and back)
 - Labor shortages across sectors/countries (pandemic/lockdowns and recovery)

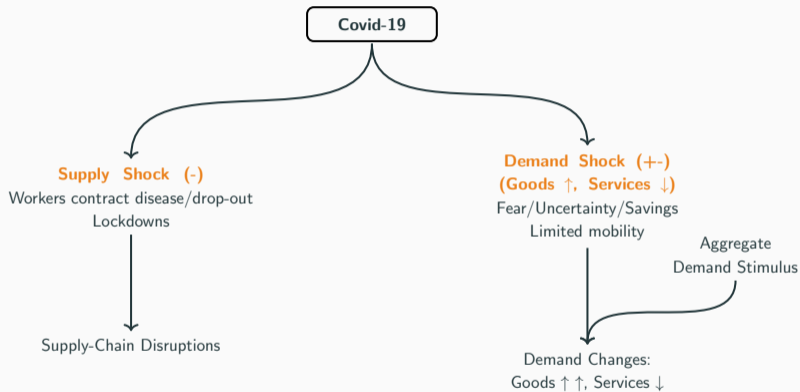
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 - **Global supply chains played a critical role in amplifying shocks within and across borders**
- ⇒ Macro/central banks “woke up” to importance of **supply shocks and production resilience**
- ⇒ **Future risks:** geopolitical, climate change, fragmentation of production

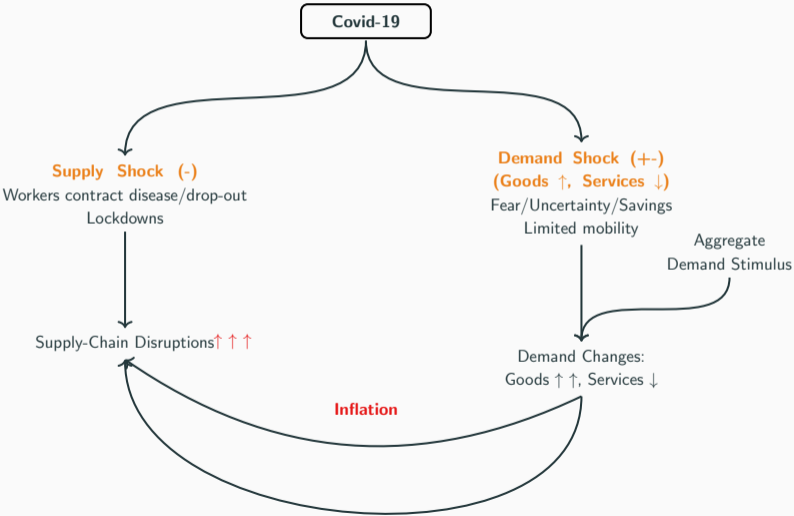
SECTORAL Supply-Demand Imbalances ↑ on a Global Scale During 2020–2021



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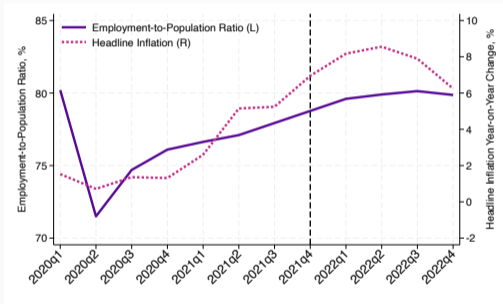
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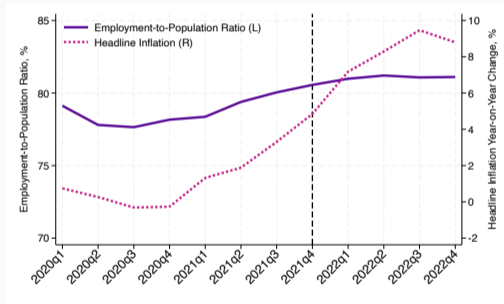
Stylized Facts

Simultaneous slack and inflation

(a) United States



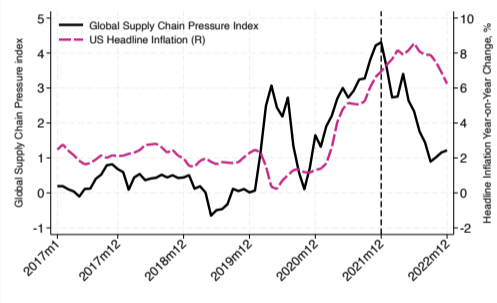
(b) Euro Area



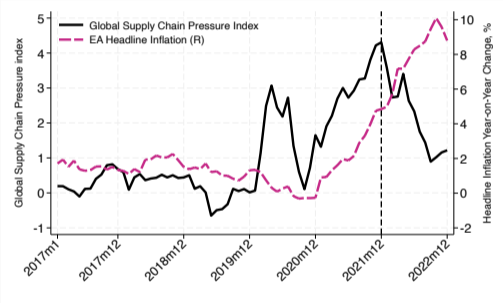
Source: FRED

Simultaneous increase in inflation and supply chain pressures

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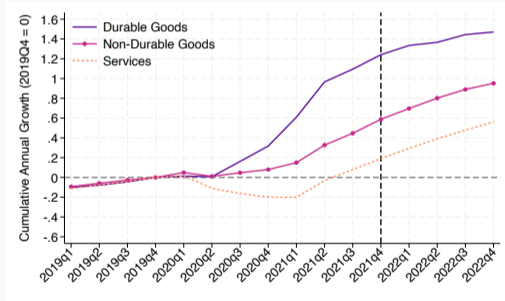
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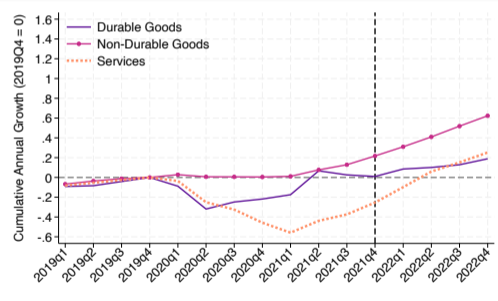
Source: FRBNY, FRED.

Substitution between goods and services consumption

(a) United States: Decomposition



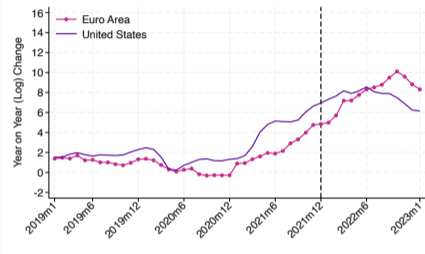
(b) Euro Area: Decomposition



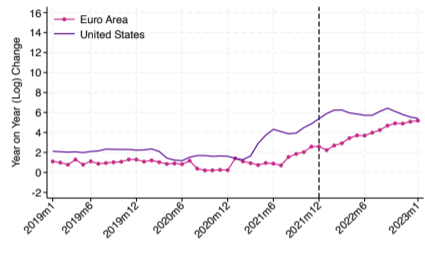
Notes: Seasonally-adjusted real private consumption. Source: OECD Quarterly National Accounts.

Inflation in goods picked up earlier than inflation in services

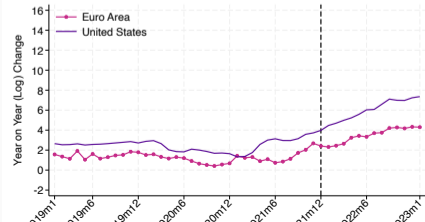
(a) Headline



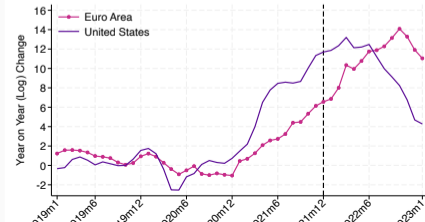
(b) Core



(c) Services



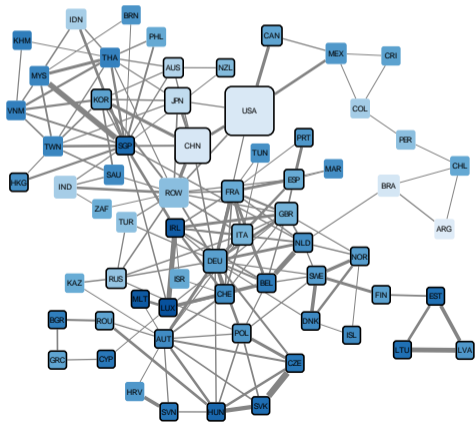
(d) Goods



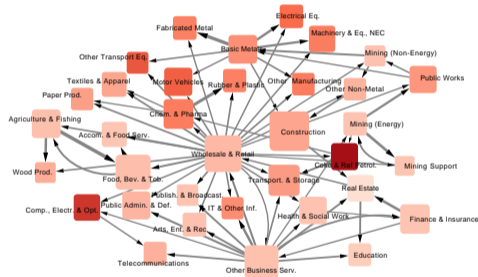
Model: Global Production and Trade Network

SECTORAL imbalances amplified via global trade and production network

(a) Countries

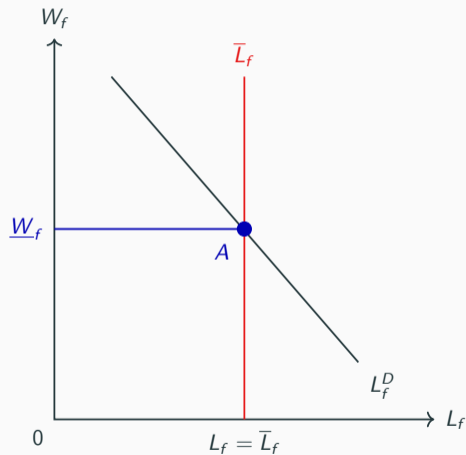


(b) Industries



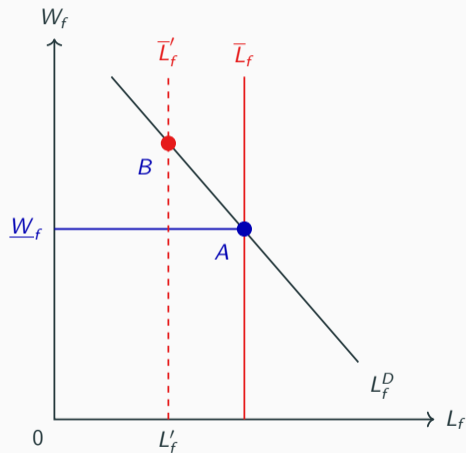
Segmented Factor Markets

- \bar{L}_f : Potential level for factor f . Decrease due to sick workers, shutdowns, etc.



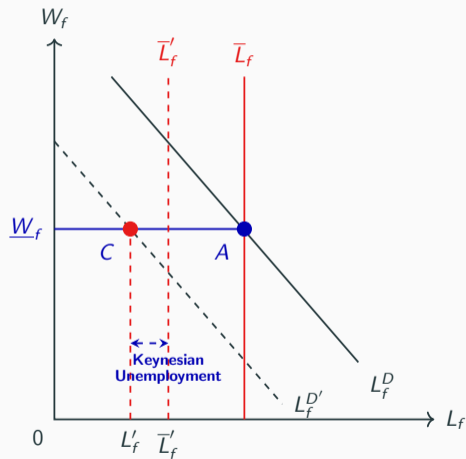
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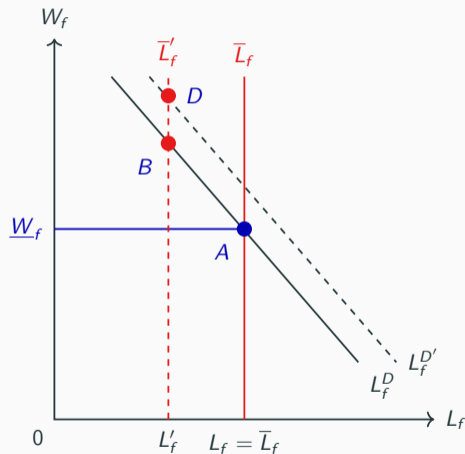
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- L_f : Equilibrium employment level for factor f
 - Demand effects+downward wage rigidity \Rightarrow workers employed might be lower than *potential*
- Difference between \bar{L}_f and L_f : Keynesian unemployment



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- During recovery – point D: where these unemployment gaps are closed (heterogeneous across sectors, may not be back to 2019 but still inflationary)



First-order approximation of domestic CPI inflation: open economy

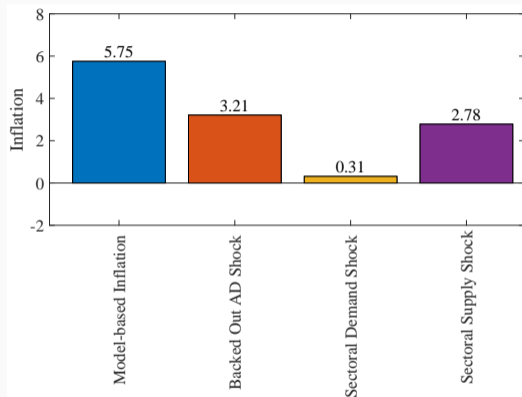
CPI in country n can be written as:

$$d \log CPI^n = \underbrace{d \log \zeta^n}_{\text{AD shock}} - (\Lambda^n)^T d \log \mathbf{L} - (\lambda^n)^T d \log \mathbf{A}$$

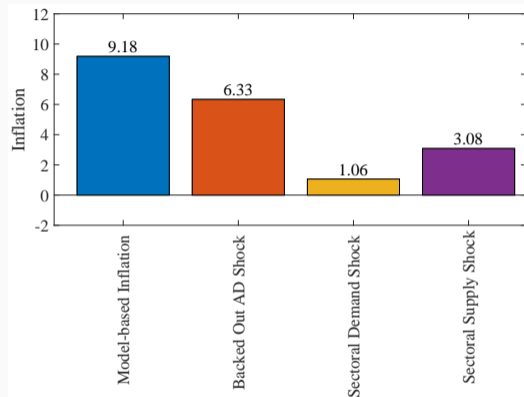
- Labor shortages, at home and abroad, are inflationary domestically
- Positive productivity changes everywhere, $d \log \mathbf{A}$, are deflationary
- AD Shock includes both domestic AD shocks and exchange rate change

Quantification

Inflation Drivers before Russia War



(a) Euro Area: 45 Sectors



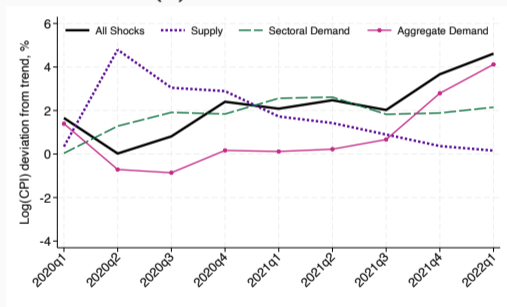
(b) U.S. 66 Sectors

⇒ Supply-side account for $\approx 1/2$ for Euro Area and $\approx 1/3$ for US (rest is demand; fiscal stimulus is 65 percent of AD)

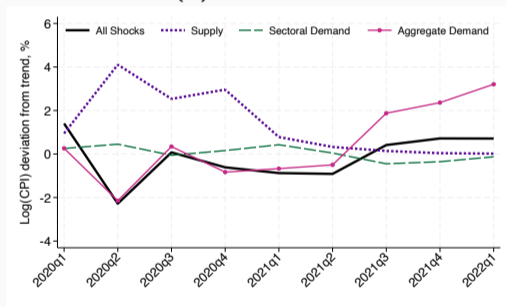
⇒ MP can be effective by \downarrow AD but \uparrow pressure in prices with sectoral supply shocks

Inflation Drivers over Time 2020-2022

(a) United States



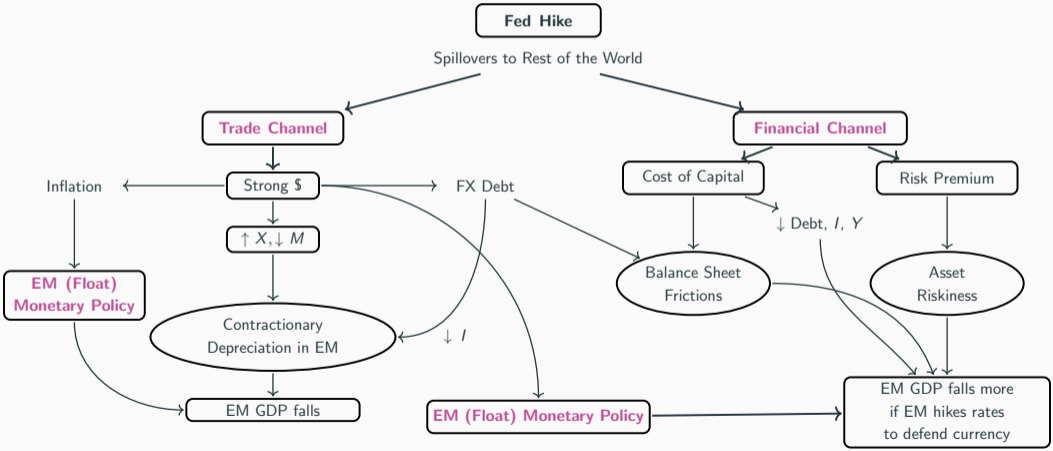
(b) Euro Area



Extended period

International Transmission of U.S. Monetary Policy

How US FED Hikes Transmit to the ROW?



Importance of Borrower Heterogeneity

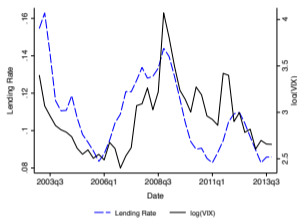
Not every country is the same in terms of:

- Composition of capital flows
- Risk sentiments of investors
- FX debt and other fundamentals
- Credibility of monetary policies and institutional environment

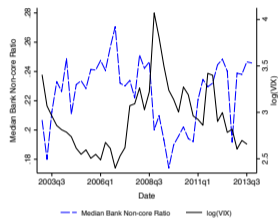
Monetary policy credibility of countries and strength of their balance sheets have important roles in determining risk sentiments and hence have power to affect the transmission.

Macro Facts

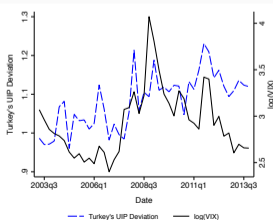
(a) GFC and Lending Rates ($\rho = 0.52$)



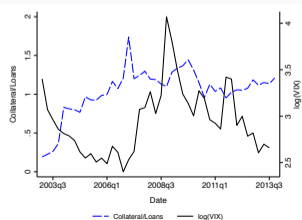
(b) GFC and Non-Core Liabilities ($\rho = -0.51$)



(c) GFC and UIP ($\rho = 0.61$)



(d) GFC and Collateral ($\rho = 0.01$)



How does U.S. Shocks connect to EM Credit Cycles?

- 43 % of cyclical credit growth is due to GFC
- Key channel is falling risk-premium, which lowers borrowing costs for average firm
- The pro-cyclicality in the UIP risk premium with VIX implies that local currency borrowing becomes cheaper and increases during the boom phase of GFC

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- **Implication for macropru policies and theoretical work:**
 - Limiting private agents' foreign currency borrowing during credit boom events/lean against appreciation may not be sufficient
 - Lower borrowing costs also fuel local currency borrowing if banks can fund themselves cheaply in international markets

EMs Endogenous Policy Response

Monetary Policy in Emerging Economies

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 - *Example:* U.S. monetary tightening → tighter global financial conditions
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- Global financial cycle challenges **transmission of domestic monetary policy**

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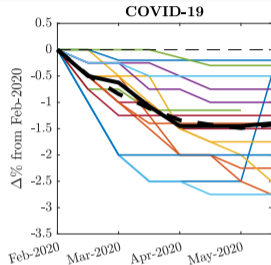
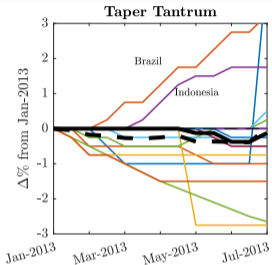
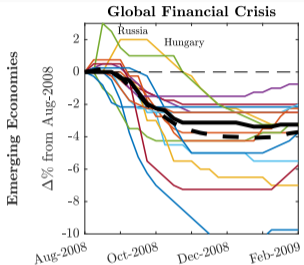
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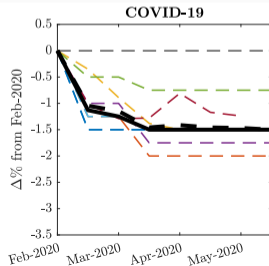
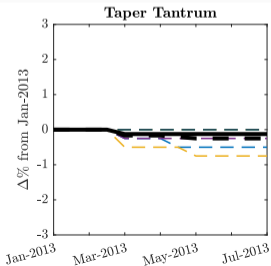
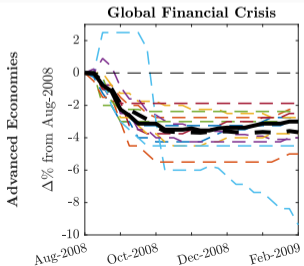
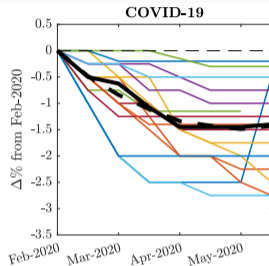
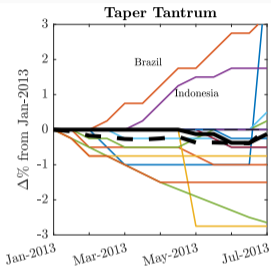
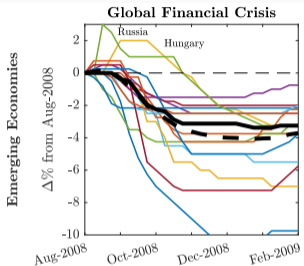
3. **Short-term disconnect comoves with global financial conditions**

- Short-term disconnect strongly related to Dollar Premium & CIP Premium
- Consistent with simple model where financial intermediaries' funding conditions determine **market** rates: policy pass-through to **market** rates incomplete if funding is global

Monetary policy rates around episodes of global distress



Monetary policy rates around episodes of global distress



Estimated central banks' reaction function

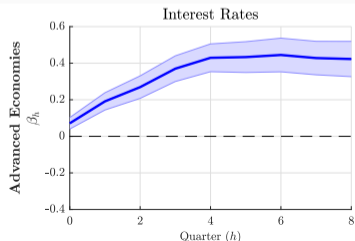
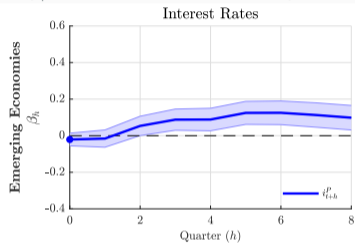
$$i_t^P = \alpha + \beta_1 i_{t-1}^P + \beta_2 \pi_t + \beta_3 \tilde{y}_t + \epsilon_t$$

	Emerging Economies		Advanced Economies	
i_{t-1}^P	0.860*** (0.0058)	0.826*** (0.0079)	0.944*** (0.0075)	0.930*** (0.0082)
π_t	0.394*** (0.027)	0.419*** (0.034)	0.304*** (0.029)	0.265*** (0.028)
Δgdp_t	0.00892** (0.0037)		0.00133 (0.0017)	
<i>Output gap</i> $_t$		0.0591*** (0.020)		0.0844*** (0.011)
R-Squared	0.93	0.87	0.96	0.95

- A Taylor rule characterizes **policy** rates fairly well
- Estimates similar across emerging & adv. economies
- Estimates imply $\rho \approx 0.8$, $\phi_\pi \approx 2$, $\phi_y \approx 0.5$

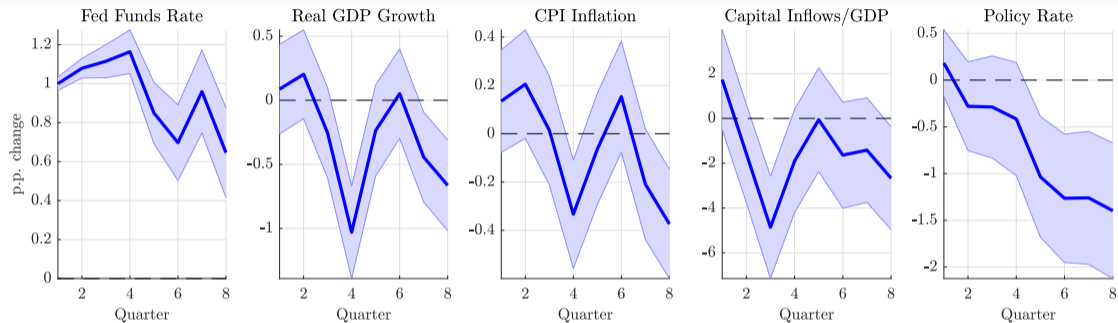
- Estimates suggest that monetary policy stance is **countercyclical**

$$i_{t+h}^P = \alpha_h + \beta_h^P \Delta gdp_t + \gamma_h i_{t-1}^P + \epsilon_{t+h}^P$$



During good times, monetary policy is tighter

U.S. monetary policy tightening & policy rates in emerging econ.



Impulse: 1 p.p. exogenous increase in Fed Funds Rate (Gertler & Karadi 15)

- **policy** rates decline after US MP tightening
- amongst contracting GDP, CPI Inflation, capital inflows

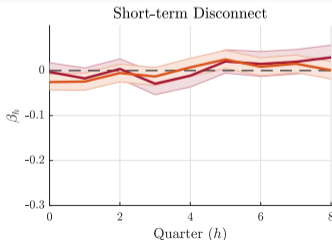
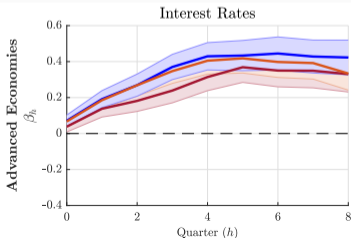
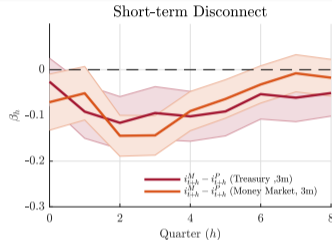
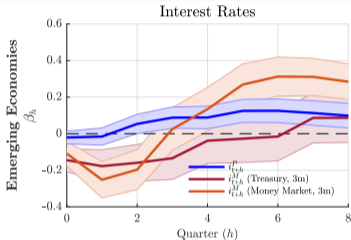
(see also Dedola et al. 17 & Iacoviello & Navarro 19, Degasperis et al. 23)

Short-term rates in emerging economies

Policy Rates and Short-term Market Rates

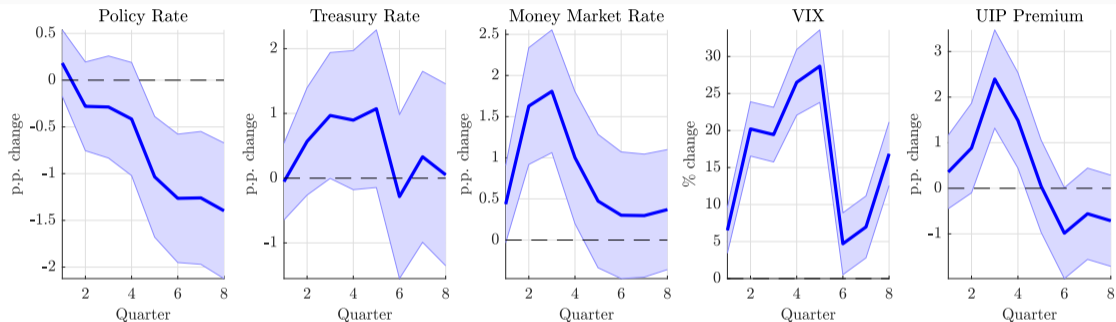
- **Policy** rates measure the stance of monetary policy
 - “Target interest rate set by central banks in their efforts to influence **short-term interest rates** as part of their monetary policy strategy”
- **Short-term market** rates measure the stance of monetary policy imperfectly
 - Treasury rates: rates at which governments issue bonds
 - Money market rates: rates charged on loans among banks
- Next: behavior of **3-month Treasury** & **Money market** rates in AEs & EMEs

$$i_{t+h}^j = \alpha_h^j + \beta_h^j \Delta \text{gdp}_t + \gamma_h^j i_{t-1}^j + \epsilon_{t+h}^j$$



- **market** and **policy** rates display opposite cyclicity in EMEs
- virtually identical cyclicity in AEs
- relevant distinction for Interpretation of **cyclical stance of monetary policy**

U.S. monetary policy tightening , policy rates & market rates



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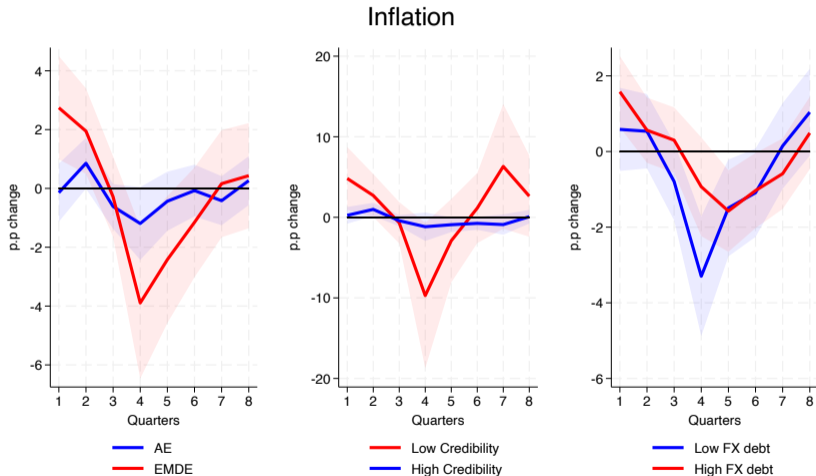
- **market** and **policy** rates display opposite response to US MP in EMEs
 - **policy** rates decline after US MP tightening
 - **market** rates increase after US MP tightening

Short-rate disconnect, domestic factors and global premia

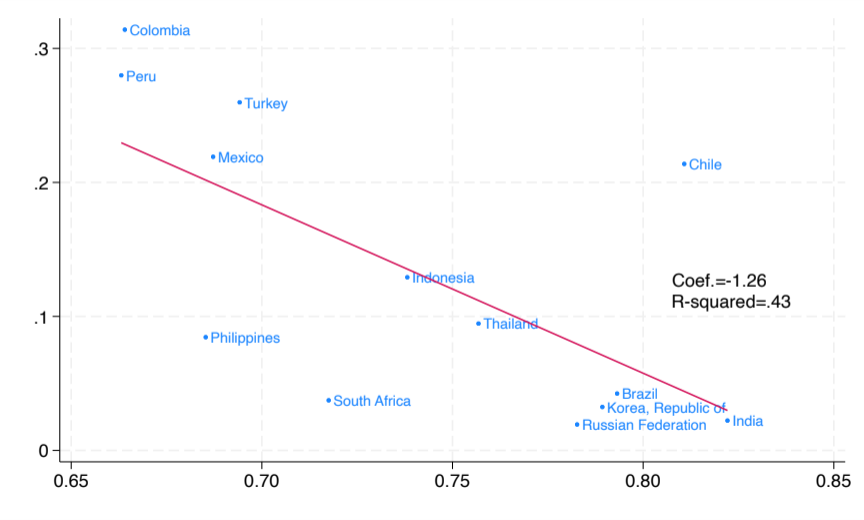
- The opposing movement of policy rates and market rates constitute a short-rate disconnect and ineffective monetary policy in EMEs
- Implication: EMEs affected worse from FED hikes
- Does this mean they are helpless?

The Role of Policy Credibility and Balance Sheets

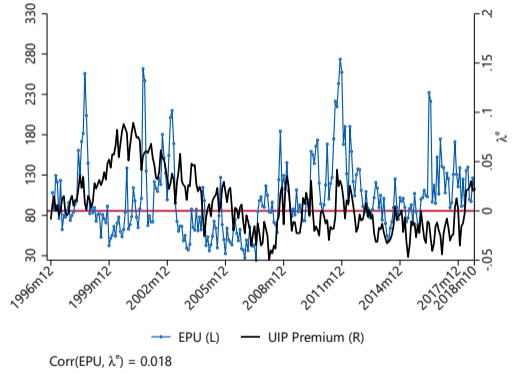
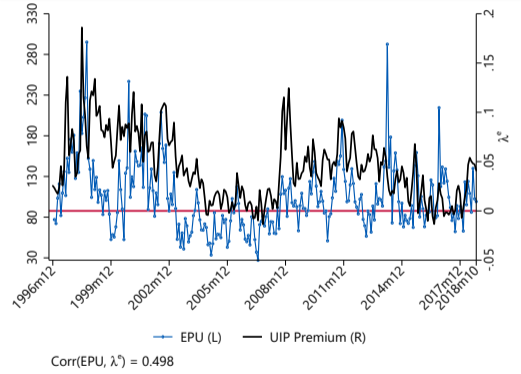
Heterogeneity in Outcomes in Other Countries when FED Hikes



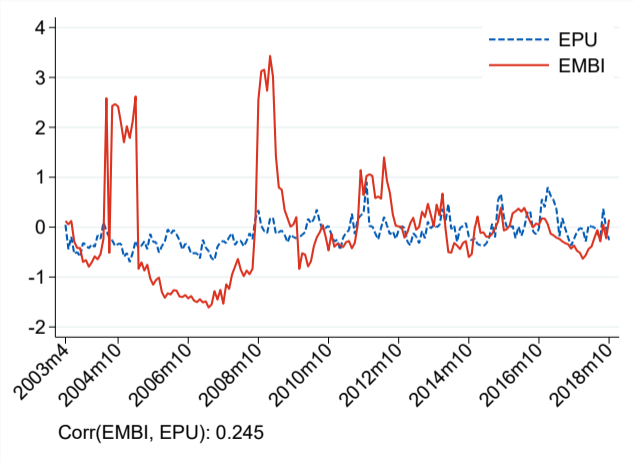
Low Credibility Countries are High FX Debt Countries



Higher policy uncertainty = higher external finance premia



Policy uncertainty leads to lack of credibility = more frequent problem than default risk



Takeaways

- **Global production and trade network** played a critical role in recent global inflation under sectoral demand, supply and AD shocks combined with input complementarity
- **Risk premia** is important for the heterogeneity in international transmission of US monetary policy
- EM's monetary policy stance, as implied by **policy** rates, is **countercyclical**
- Global financial cycle leads to limited monetary policy effectiveness in EM but not in AE
- **Credible monetary policy** and **low FX debt** are two channels that EMs can use to smooth out the effects of FED hikes