

U.S. Monetary Policy and International Risk Spillovers

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Questions:

- 1 Which countries are more vulnerable to spillovers created by the shifts in U.S. monetary policy? And why?
- 2 What are the implications of monetary policy divergence for exchange rates and economic activity?
- 3 Does exchange rate regime matter in mitigating the effects of monetary policy spillovers?

Answers:

- 1 Emerging market economies (EMEs) are more vulnerable to monetary policy spillovers as their capital flows are more **risk-sensitive**
- 2 Exchange rate disconnect from interest rates is explained by fluctuations in **risk premia**, implying negative output effects of spillovers in EMEs who are exposed to such fluctuations
- 3 EMEs with “free floats” do not experience these negative output effects since **risk shocks** are absorbed in these regimes

Monetary Policy Divergence:

Policy rate differentials vis-a-vis the U.S. [$i_p - i_p^{US}$]

Much higher and more dispersed differentials in EMEs than in AEs

- EMEs currently experience policy rate differentials similar to those observed in the 1990s
- Dispersion in policy divergence captures differential exposure to investors' risk sentiments and associated monetary policy responses

Figure 1a. Emerging Market Economies

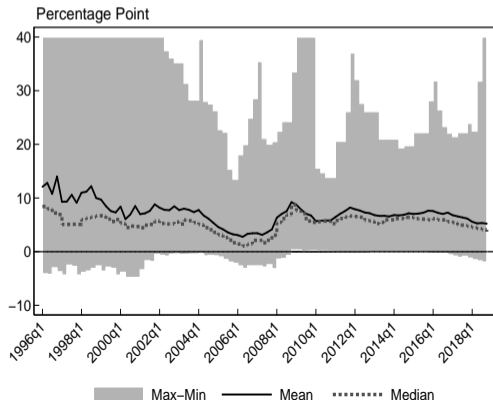
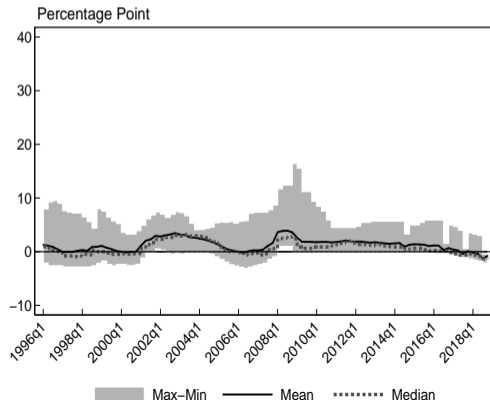


Figure 1b. Advanced Economies



Facts

$i_p - i_p^{US}$ comoves positively with VIX, a measure of global risk sentiments

- If there is a (+) shock to i_p^{US} that increases VIX, it must be the case that, i_p increases more
- If there is a (+) shock to VIX:
 - If all countries ease monetary policy as a response, i_p decreases less than i_p^{US} or
 - i_p increases to prevent capital outflows as a response to higher VIX

Figure 2a. EMEs

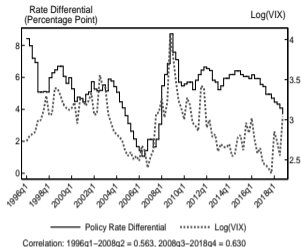
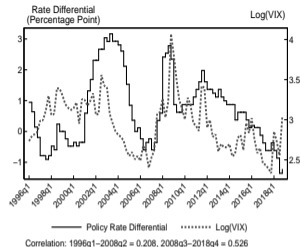


Figure 2b. AEs



Correlation between $i_p - i_p^{US}$ and capital flows changes over time, depending on risk shocks

- Conditioning on fundamentals, but not risk, correlation between $i_p - i_p^{US}$ and capital inflows is (-) for EMEs and (0) for AEs
- Conditional correlation becomes (+) for AEs upon controlling for **global risk** and for EMEs upon controlling for **global and country-specific risk** (VIX and EMBI)

Table 1.

Dependent Variable:	Capital Flows/GDP				
	Emerging Markets			Advanced Economies	
	(1)	(2)	(3)	(4)	(5)
$i_p - i_p^{US}$	-0.07*** (0.03)	-0.04* (0.02)	0.28*** (0.07)	0.32 (0.37)	0.63* (0.37)
Global Risk	no	yes	yes	no	yes
Local Risk	no	no	yes	no	no
Fundamentals	yes	yes	yes	yes	yes
Country Fixed-Effects	yes	yes	yes	yes	yes

Implications for Real Effects

Adding “risk” to the standard model delivers negative output effects in a small open economy (SOE) of U.S. monetary policy

- 1 $Y = DD + NX$; Domestic output (Y) depends on domestic demand (DD) and external demand (NX)
- 2 $DD = f(i, E)$; $NX = f(E)$; Depreciation of exchange rate ($\uparrow E$) increases NX and decreases DD

Adding “risk” via country risk premium (λ)

- 3 $\lambda = \lambda^{global} + \gamma$; Global risk + country-specific risk
- 4 Under global financial cycle (GFC), $\lambda^{global} = f(i_p^{US})$;
- 5 $i = i_p + \lambda$; Policy and short-term interest rates are disconnected
- 6 $E = d(i^{US} - i) + \lambda$; Exchange rates and interest rates are disconnected (risk-adjusted UIP)

$$\uparrow i_p^{US} \Rightarrow \uparrow \lambda^{global} \Rightarrow \uparrow \lambda \Rightarrow \uparrow E, i \Rightarrow dY/di_p^{US} < 0$$

Evidence for mechanism I: Short Rate Disconnect (equation 5)

Domestic monetary policy transmission is incomplete, leading to a direct effect of risk-sensitive capital flows on lending spreads

- There is a **short rate disconnect** in EMEs, where the pass-through of policy rates into domestic short rates is less than full
- The degree of pass-through for EMEs is higher once we control for global and country-specific risk

- Lending spreads** (between lending rates to firms and government bond rate) go down and up with capital inflows and outflows, both in EMEs and AEs
- Monetary policy is effective in mitigating this effect for AEs, but ineffective for EMEs

Table 2.

Dependent Variable:	Emerging Market Economies			Advanced Economies		
	3m depo (1)	12m depo (2)	Lending (3)	3m depo (4)	12m depo (5)	Lending (6)
i^P	0.7*** (0.02)	0.5*** (0.02)	0.8*** (0.03)	0.9*** (0.02)	0.9*** (0.01)	1.0*** (0.01)
Country Fixed Effects	yes	yes	yes	yes	yes	yes

Dependent Variable:	Emerging Market Economies			Advanced Economies		
	3m depo (1)	12m depo (2)	Lending (3)	3m depo (4)	12m depo (5)	Lending (6)
i^P	0.9*** (0.02)	0.9*** (0.04)	0.9*** (0.03)	0.9*** (0.01)	0.9*** (0.02)	1.0*** (0.01)
Global Risk	yes	yes	yes	yes	yes	yes
Local Risk	yes	yes	yes	no	no	no
Country Fixed Effects	yes	yes	yes	yes	yes	yes

Table 3.

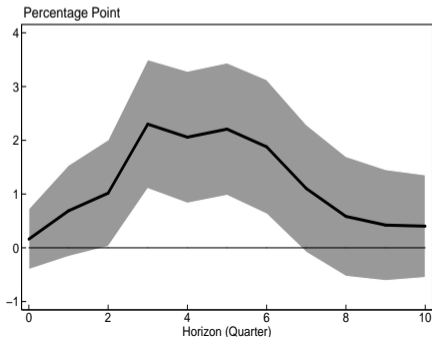
Dependent Variable:	Lending spread			
	Emerging Market Economies		Advanced Economies	
	(1)	(2)	(3)	(4)
Capital Flows/GDP	-0.025*** (0.009)	-0.027*** (0.010)	-0.012*** (0.004)	-0.001 (0.003)
Policy Rates	no	yes	no	yes
Country FE	yes	yes	yes	yes
Time FE	yes	yes	yes	yes

Incomplete domestic monetary policy transmission implies that, when U.S. monetary policy shocks lead to changes in risk sentiments, borrowing costs in EMEs are affected due to changes in risk premia

Using surprise \uparrow in U.S. policy rate (changes in Fed Funds Futures in 30-min window):

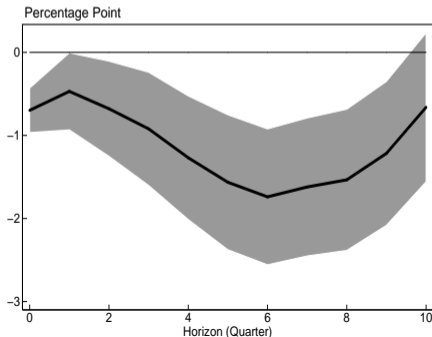
Government bond rate differentials (12month) increase in EMEs and decrease in AEs as a response to contractionary U.S. monetary policy shocks, conditional on domestic policy response

Figure 3a. **Emerging Economies**



US 3-month Treasury Rate Shock

Figure 3b. **Advanced Economies**



US 3-month Treasury Rate Shock

**Evidence for mechanism II:
Risk-Adjusted UIP (equation 6)**

UIP deviations (λ) comove with VIX

$$\text{UIP Deviation} \equiv \lambda = \underbrace{i - i^{US}}_{\text{IR Differential}} - \underbrace{[s^e - s]}_{\text{ER Adjust}}$$

- UIP deviations comove more strongly with short-term **interest rate differentials** in EMEs and with **exchange rate fluctuations** in AEs
- In response to a surprise contractionary shock in U.S., the UIP deviations increase in EMEs, due to **increased risk premia** captured by **interest rate differentials**

Figure 4a.

Emerging Market Economies

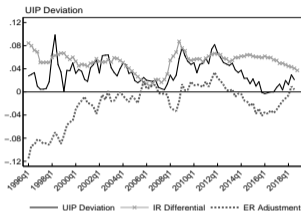


Figure 5a.

Emerging Market Economies

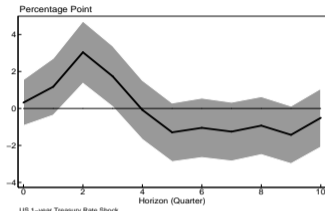


Figure 4b.

Advanced Economies

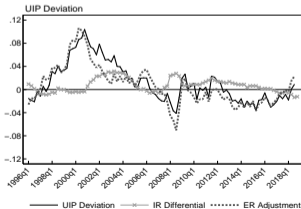
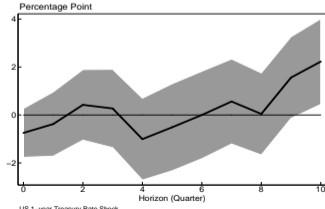


Figure 5b.

Advanced Economies



Implication 1: Flexible exchange rates can help to smooth out real effects of monetary policy spillovers by smoothing risk shocks

Figure 6a. EMEs with Managed Floats

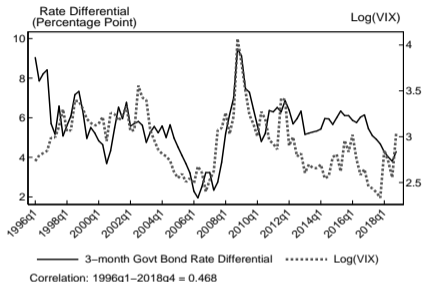
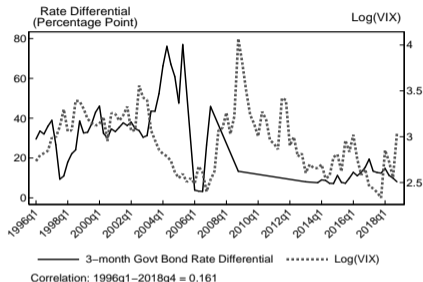


Figure 6b. EMEs with Free Floats



- Strong positive correlation between risk and policy divergence in EMEs with managed floats, but not in EMEs with free floats
- The negative effect of risk perceptions on **growth of GDP** in EMEs with managed floats disappears in EMEs with free floats

Table 4.

Dependent Variable:	GDP Growth	
	Emerging Market Economies	
	Managed Floats (1)	Free Floats (2)
Log(VIX)	-0.006*** (0.001)	-0.010 (0.008)
Country FE	yes	yes

Implication 2: Countries managing the exchange rate due to foreign currency debt might still suffer from risk spillovers and might make the “foreign currency debt” problem worse

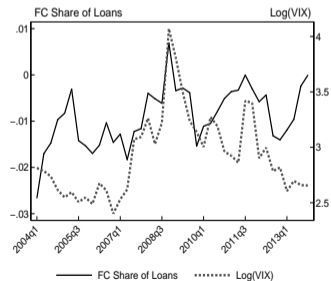
- Spillovers, working through risk channel, are correlated with boom-bust cycles in **leverage** in all countries regardless of foreign currency debt

- Accumulation of foreign currency debt is endogenous to risk premia; foreign currency debt can \uparrow in managed floats

Table 5.

Dependent Variable:	Firm Leverage		
	All Countries (1)	High Foreign Currency Debt Countries (2)	Low Foreign Currency Debt Countries (3)
Log(VIX)	-0.04*** (0.009)	-0.04*** (0.004)	-0.02*** (0.004)
Change in Exchange Rate	-0.09*** (0.002)	-0.4*** (0.002)	-0.006 (0.01)
Firm FE	yes	yes	yes
Country FE	yes	yes	yes

Figure 8. Example EME with “managed float”



Findings:

- 1 EMEs are affected more by monetary policy spillovers because:
 - EMEs' capital flows are more-risk-sensitive
 - Domestic monetary policy transmission in EMEs is incomplete, leading to direct effects of capital flows on domestic financial conditions
- 2 The fluctuations in risk premia are correlated with UIP deviations:
 - Trying to stabilize exchange rate fluctuations can be counterproductive as a large change in domestic policy rate is required
- 3 Monetary policy spillovers, working through risk channel, associated with lower GDP growth, especially in “managed floats”

Policy Implications:

- 1 **Higher quality institutions are important** to lowering the country risk, which in turn will lower the risk-sensitivity of capital flows
- 2 **The case for flexible exchange rates is stronger** under international risk spillovers as exchange rates can absorb risk shocks
 - By managing the exchange rate, countries can turn nominal volatility into real volatility
- 3 **Fear of floating practices are harder to justify** under international risk spillovers since foreign currency debt is endogenous to fluctuations in risk premia and can increase under managed floats