The Currency Composition Channel of Monetary Policy and the Role of Macroprudential Regulation

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- Bank lending channel of monetary policy: central bank's actions affect the supply of credit offered by commercial banks (Kashyap and Stein, 2000)

- Currency composition channel of monetary policy: monetary policy changes the supply of credit between domestic currency and international/reserve currency
  - Domestic and foreign monetary policies (Ongena et al., 2021)
  - Foreign monetary policy (Bräuning and Ivashina, 2020)
    - set by central banks issuing the international currencies

- Less attention to:
  - The propagation of monetary policy across borders
    1. set by central banks issuing non-reserve currencies,
    2. through an international trade channel, and
    3. its likely mitigation by domestic macroprudential policy

Research questions

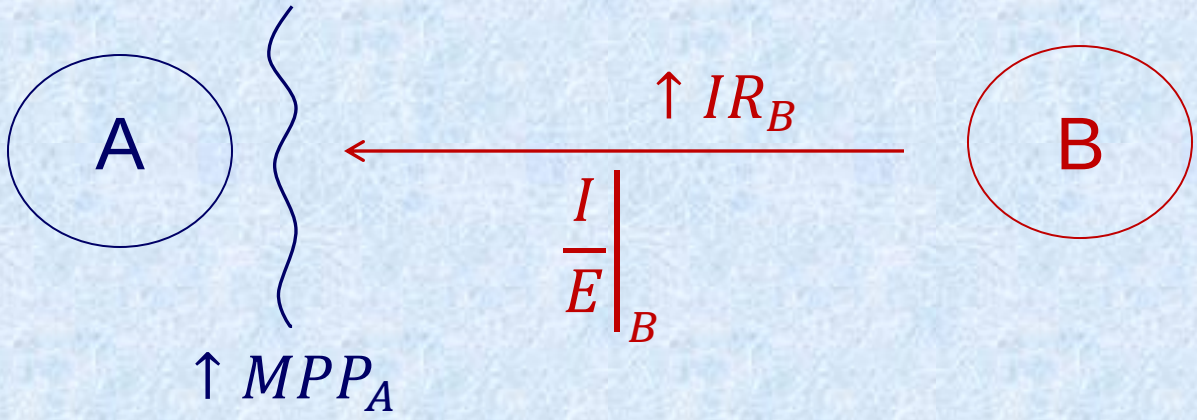
***H1**:* Can *domestic* monetary policy change the local bank supply of credit between domestic and reserve currencies?

***H2**:* Can *foreign* monetary policy of non-reserve currency issuers transmit across borders through the composition of bilateral trade, and change the local bank supply of credit between domestic and reserve currencies?

***H3**:* Can *local* macroprudential regulation reduce the inward transmission of foreign monetary policy?

Findings: Yes, Yes, Yes

Conceptual framework—2 countries



$$LC_A \neq LC_B \neq FC = RC$$

1. $\uparrow IR_A \Longrightarrow \uparrow cost\ of\ funding\ in\ LC_A \Longrightarrow \uparrow \%FCL_A$ — 99.8%

2. $\uparrow IR_B \Longrightarrow LC_B\ app \Longrightarrow \uparrow I_B\ \ \& \downarrow E_B \Longrightarrow \uparrow FC_A \Longrightarrow$
$\downarrow cost\ of\ funding\ in\ FC_A \Longrightarrow \uparrow \%FCL_A$ — I: 90%, E: 90%

3. $\uparrow MPP_A \Longrightarrow (limits\ on\ FC\ funding)_A \Longrightarrow \downarrow (\uparrow \%FCL_A \Leftarrow \uparrow IR_B)$

Literature

1. Effect of monetary policy on the currency denomination of bank loan supply
   - Bräuning and Ivashina (2020), Takáts and Temesvary (2020), Ongena et al. (2021)
2. Importance of real linkages on the international spillovers of foreign monetary policy
   - Bräuning and Sheremirov (2020), Chang et al. (2021)
3. Effectiveness of macroprudential policies in mitigating the magnitude of foreign inward monetary policy spillovers
   - Takáts and Temesvary (2019), Altavilla et al. (2020), Bussière et al. (2021)

Data

- Country-level aggregate analysis: 23 emerging Europe countries from July 1995 to December 2016
- Micro bank-level analysis: 131 banks in 10 emerging Europe countries from January 1999 to December 2012
- Combine banking-system or individual-bank activity data with
  - macroeconomic information, including domestic and foreign monetary policy variables,
  - macroprudential policy instruments, and
  - bilateral trade linkages

- Monetary policy: annual changes to the three-month interbank interest rates
- Foreign monetary conditions: the interest rate change in the foreign country weighted by the relative share of imports to exports with the home country, summed across all foreign countries

$$Weighted\ \Delta Foreign\ IR_{ijt} = \sum_{j=1}^{n-1} (w_{ijt} * \Delta IR_{jt})$$

$$w_{ijt} = \frac{(I/E)_{jit}}{\sum_{j=1}^{n-1}(I/E)_{jit}}, \text{ where } \sum_{j=1}^{n-1} w_{ijt} = 1 \ \forall\ t$$

- Macroprudential policy: dummy-type indices of tightening (+1) and loosening (-1) actions for policy instruments focused on the foreign exchange funding and lending of banks cumulated over twelve months
- Bank balance-sheet: an array of bank characteristics
- Other covariates: a host of macroeconomic variables

Identification

- *Challenge*: disentangle changes in loan demand from changes in loan supply

- *Strategy*: following a monetary policy change we identify supply shifts that are driven by
  - a change in a banks' ability to lend due to its bank capital-to-assets ratio, while
  - controlling for credit demand conditions with macroeconomic variables and a multitude of fixed effects, including country-month:year fixed effects
  - In further specifications, we explicitly control for time-varying credit demand in the domestic banking system through bank responses to the national Bank Lending Survey

Empirical Strategy

- Spatial regression model that allows a shock propagation pattern across countries
  - The spatial Durbin model incorporating spatial spillover effects in an independent variable of interest and the spatial error model correcting standard errors for spatial heteroscedasticity and autocorrelation

$$\%FCL_{bit} = \alpha_b + \alpha_{i,t} + \nu Bank_{bit-1} + \zeta(\Delta IR_{it-1} * BKR_{bit-1})$$
$$+\xi\left(\sum_{j=1}^{n-1} w_{ijt-1}\,\Delta IR_{jt-1}\right) * BKR_{bit-1}$$
$$+\chi\left(\sum_{j=1}^{n-1} w_{ijt-1}\,\Delta IR_{jt-1}\right) * MPP_{it-1} * BKR_{bit-1} + \varepsilon_{bit};$$

$$\varepsilon_{bit} = \rho \sum_{j=1}^{n-1} w_{ijt}\,\varepsilon_{bjt} + u_{bit}$$

H1: $\zeta<0$
H2: $\xi<0$
H3: $\chi>0$

Bank-Level Evidence

	(1)	(2)	(3)	(4)	(5)	
	Time FE	Country-Time FE	Net out Δe	Ln(FCL)	(I-E)	
Δ interest rate	0.387*					
	(0.239)					
Δ interest rate * Bank capital ratio	-3.24***	-3.86***	-3.63***	-11.8***	-3.98***	$\zeta<0$: *H1*
	(1.19)	(0.648)	(0.713)	(2.11)	(0.685)	
Weighted Δ in foreign interest rate	0.373***					
	(0.123)					
Weighted Δ in foreign interest rate * Bank capital ratio	-2.24***	-2.31**	-0.935***	-15.5**	-0.105***	$\xi<0$: *H2*
	(0.731)	(0.907)	(0.323)	(6.81)	(0.040)	
Δ macroprudential regulation	-0.027***					
	(0.008)					
Weighted Δ in foreign interest rate * Δ macroprudential regulation	-0.173***					
	(0.025)					
Weighted Δ in foreign interest rate * Δ macroprudential regulation * Bank capital ratio	1.29***	1.44***	0.151***	4.61***	2.81***	$\chi>0$: *H3*
	(0.175)	(0.173)	(0.022)	(0.435)	(0.337)	
Bank controls	Yes	Yes	Yes	Yes	Yes	
Bank fixed effects	Yes	Yes	Yes	Yes	Yes	
Time fixed effects	Yes	–	–	–	–	
Country-time fixed effects	No	Yes	Yes	Yes	Yes	
R-squared	0.142	0.145	0.149	0.425	0.149	
Number of observations	5964	5964	5964	5802	5964	
Semi-elasticity of the differential response of capital-constrained banks (at the 25th ptile) vs. capital-abundant banks (at the 75th ptile) to a 25 bps increase in the:						
Local interest rate	*7.8%*	*9.4%*	*8.8%*	*14.8%*	*9.7%*	
Foreign interest rate	*5.4%*	*5.6%*	*2.3%*	*19.4%*	*0.3%*	
Foreign interest rate mitigated by local MPP	*-3.1%*	*-3.5%*	*-0.4%*	*-5.8%*	*-6.8%*	

Policy Relevance

- The design of monetary policy by local policymakers in small open economies should consider the effects of foreign monetary policies
  - Especially from countries they trade a lot with
- Emerging market economies may benefit by more coordinated monetary policies with each other
- In the absence of coordination, local macroprudential policies represent an alternative effective instrument to mitigate disruptions stemming from foreign monetary policies

Robustness

1. Dependent variable: volume of foreign currency lending
2. Other macroprudential policies
3. Other potential channels of foreign monetary policy transmission
4. Other macroeconomic conditions, institutional factors, timing of policies, monetary policy surprises, and asymmetries
5. Other bank characteristics and pre-GFC versus post-GFC
6. Monetary policies of issuing countries of major foreign currencies
7. Other currency dimensions of lending
8. Controlling explicitly for credit demand