Capital Flows, International Spillovers and Macroprudential Policy

Şebnem Kalemli-Özcan
University of Maryland, CEPR, NBER

September 2018
ESRB Panel on International Perspectives on Macroprudential Policy

Global financial integration can lead to a build-up of systemic risk within the financial system due to the pro-cyclical nature of capital flows.

1. What are the effects in terms of domestic country financial conditions?
2. Are there differences for advanced countries and emerging markets?
3. What are the implications for macroprudential policy?

I will make four points and discuss policy implications:

1. Gross Capital Inflows: Important to know to which sector gross capital inflows go to, in order to correctly assess **financial stability risk.**

2. Aggregate Impact: Important to quantify the aggregate impact of "global financial cycle (GFC)" on **domestic credit conditions.**

3. The Role of Domestic Banks: Heterogeneity in financial intermediation by domestic banks have an important role in transmitting GFC that needs to be taken seriously to design better **macroprudential policies.**

4. The Role of FX Borrowing in EM: If it is cheaper to borrow in foreign currency due to country risk, then during GFC related capital inflow episodes borrowing in **domestic currency** should be relatively cheaper.

   $\Rightarrow$ Are we overlooking an important potential source of financial instability?

Gross Capital Flows by Banks, Corporates, and Sovereigns

60 % of external borrowing is debt; 70 % of debt is bank loans, 30 % bonds

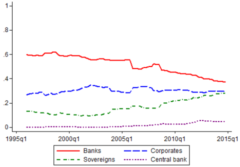


Figure: Debt, AE

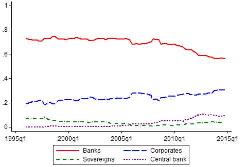


Figure: OID, AE

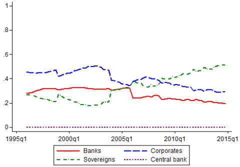


Figure: PD, AE

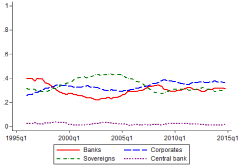


Figure: Debt, EM

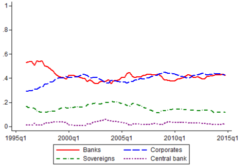


Figure: OID, EM

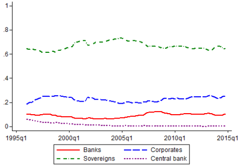


Figure: PD, EM

Global Conditions and Capital Flows

$$\frac{FLOW_{it}}{GDP_{it}} = \alpha_i + \beta \log(VIX_{t-1}) + \gamma GDPGrowth_{it-1} + \epsilon_{it}$$

Advanced Economies

	Total	Public	Banks	Corp.
$\log(\text{VIX}_{t-1})$	-9.101***	0.813	-7.630***	-2.284**
	(2.676)	(1.400)	(2.068)	(0.962)
GDP Growth_{it-1}	0.506***	0.0616	0.363**	0.0819
	(0.179)	(0.0340)	(0.131)	(0.0466)
Observations	1127	1127	1127	1127
R^2	0.065	0.002	0.056	0.026
CountryFE	Yes	Yes	Yes	Yes

Emerging Markets

	Total	Public	Banks	Corp.
$\log(\text{VIX}_{t-1})$	-2.261**	1.077	-2.265***	-1.073***
	(0.829)	(0.652)	(0.706)	(0.253)
GDP Growth_{it-1}	0.116***	-0.0394***	0.118***	0.0381***
	(0.0347)	(0.0123)	(0.0346)	(0.00928)
Observations	1372	1372	1372	1372
R^2	0.071	0.021	0.116	0.075
CountryFE	Yes	Yes	Yes	Yes

Different Views on importance of GFC

- **Very:** Rey at Jackson Hole 2013. BIS, Borio and Shin.
  - Key roles of VIX, US MP in global banks leverage and international capital flows $\Rightarrow$ need capital controls
- **Depends:** Buch, Bussire, Goldberg, and Hills 2018.
  - Cross-border transmission through banks, but more limited transmission into **non-bank lending**
- **Not much:** Cerutti, Claessens, and Rose 2017.
  - Broad insulating power of flexible exchange rates

Open Questions:

1. How do we know domestic credit conditions are affected?
2. Hard to know the full effect of GFC when policy responds ex-ante and ex-post

Reconciling Different Views

Empirical Research uses two main sources of data...

1. Cross-Country Capital Flows
2. Cross-Border Activity of Global Banks

...and two main sources of identification:

1. OLS regressions—endogeneity of flows
2. VARs—identification assumes no response from policy makers

- Hard to detect domestic loan growth and real effects of spillovers in non-financial sector with these data and techniques
  $\Rightarrow$ cannot design the right macropru

Focus on Emerging Markets

- Business cycles correlate strongly with credit cycles.
- Capital flows go hand-in-hand with credit cycles.

⇒ Often resulting in financial crisis.

- **Many different macroprudential policies employed by the EM policy makers to deal with capital flows related financial stability concerns.**
- A good laboratory to study whether capital flows *causally* drive domestic credit cycles
- And also to investigate the mechanisms at work
- ..and how BIG are the magnitudes? **Enough to justify EM macroprudential policies**

Findings from BIG DATA

1. Supply ("push") driven capital inflows have a *quantitatively* important impact on domestic credit
   - Large effect of VIX on capital flows
   - An increase in capital flows equivalent to its IQR leads to 1 pp reduction in real borrowing costs.
   - Supply driven capital inflows explain 43% of *aggregate* corporate sector cyclical credit growth on average.

Findings from BIG DATA

1. Supply ("push") driven capital inflows have a *quantitatively* important impact on domestic credit
    - Large effect of VIX on capital flows
    - An increase in capital flows equivalent to its IQR leads to 1 pp reduction in real borrowing costs.
    - Supply driven capital inflows explain 43% of *aggregate* corporate sector cyclical credit growth on average.

2. Internationally-funded large *domestic* banks are more procylical:
    - Banks who borrow internationally expand more credit domestically and offer lower rates during "risk-on" periods.
    - FX borrowing is cheaper on average but during "risk-on" episodes, domestic currency borrowing becomes relatively cheaper.

Findings from BIG DATA

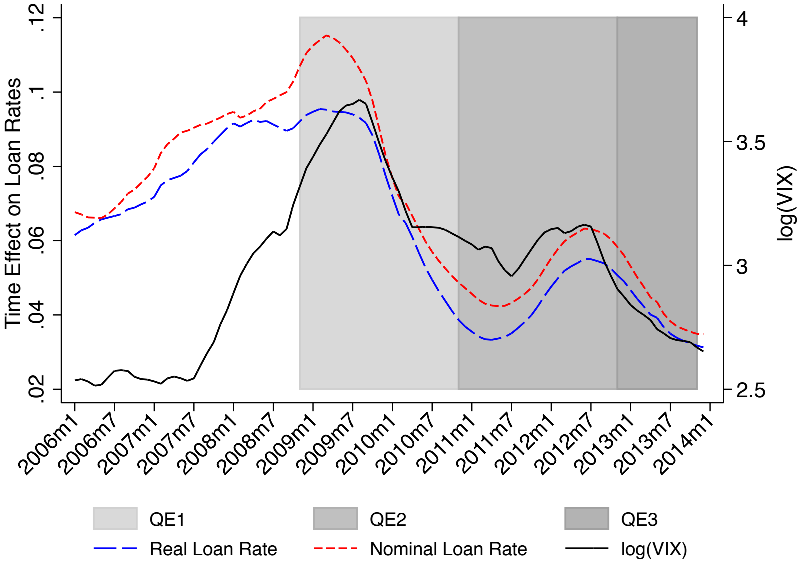
1. Supply ("push") driven capital inflows have a *quantitatively* important impact on domestic credit
   - Large effect of VIX on capital flows
   - An increase in capital flows equivalent to its IQR leads to 1 pp reduction in real borrowing costs.
   - Supply driven capital inflows explain 43% of *aggregate* corporate sector cyclical credit growth on average.

2. Internationally-funded large *domestic* banks are more procylical:
   - Banks who borrow internationally expand more credit domestically and offer lower rates during "risk-on" periods.
   - FX borrowing is cheaper on average but during "risk-on" episodes, domestic currency borrowing becomes relatively cheaper.

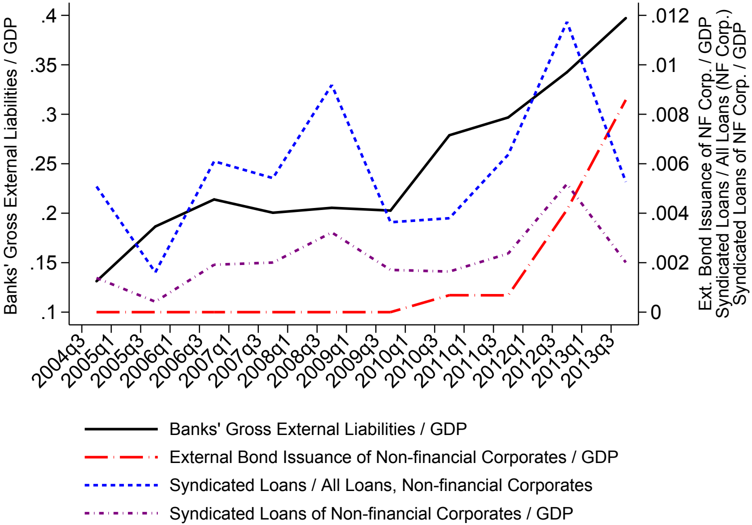
3. "Risky" firms finance borrowing at lower interest rates during "risk-on" periods but remain collateral constrained and not "overborrow"

QE, VIX, Interest Rates

Effect of VIX on Dynamics of Real Borrowing Costs



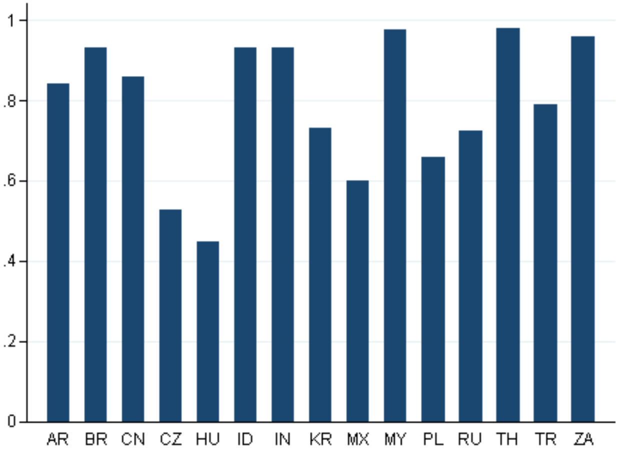
Bank and Firm External Financing in Turkey



Sources: CBRT

Role of Domestic Banks in EM

Figure 1: Average Share of Credit from Domestic Banks, 2006-2013



Source: BIS, author's calculations. Variable is the country average of credit to the private non-financial sector from the domestic banking sector relative to total credit received. The countries are: Argentina, Brazil, China, Czech Republic, Hungary, Indonesia, India, Korea, Mexico, Malaysia, Poland, Russia, Thailand, Turkey, and South Africa.

Implications for Macroprudential Policies

- The literature is mostly theoretical, very little evidence
- **Cannot design right macroprudential policies without evidence:** it might be better to focus on lenders=banks in EM but maybe borrowers in advanced countries (households and firms)
- Who is the procyclical agent/sector in a given economy and what is the channel: no evidence that it is via externalities that results in overborrowing via collateral constraint relaxation
- **ESRB, 2018:** Macroprudential measures in the non-banking sectors have been rare to date....focused on communication as a soft tool...macroprudential supervision of the non-banking sectors is enhanced by institutional cooperation between the macroprudential authority, the sectoral supervisory authorities, and the central bank.

Summary

1. Aggregate Impact: 43 percent of actual aggregate credit growth can be explained by VIX.

Summary

1. Aggregate Impact: 43 percent of actual aggregate credit growth can be explained by VIX.

2. The Role of Domestic Banks: 94 percent of this impact is due to bank heterogeneity.

   ⇒ Large DOMESTIC banks, who fund themselves cheaply in international markets during episodes of abundant global liquidity, pass-through lower costs of funding to firms as lower borrowing costs.

Summary

1. Aggregate Impact: 43 percent of actual aggregate credit growth can be explained by VIX.

2. The Role of Domestic Banks: 94 percent of this impact is due to bank heterogeneity.

   ⇒ Large DOMESTIC banks, who fund themselves cheaply in international markets during episodes of abundant global liquidity, pass-through lower costs of funding to firms as lower borrowing costs.

3. The Role of FX Borrowing: FX borrowing is 8 pp cheaper on average but during episodes of low VIX/high capital inflows local currency borrowing becomes relatively cheaper and this fuels a domestic credit boom

   ⇒ An overlooked channel that works via UIP failure.

Summary

1. Aggregate Impact: 43 percent of actual aggregate credit growth can be explained by VIX.

2. The Role of Domestic Banks: 94 percent of this impact is due to bank heterogeneity.

   ⇒ Large DOMESTIC banks, who fund themselves cheaply in international markets during episodes of abundant global liquidity, pass-through lower costs of funding to firms as lower borrowing costs.

3. The Role of FX Borrowing: FX borrowing is 8 pp cheaper on average but during episodes of low VIX/high capital inflows local currency borrowing becomes relatively cheaper and this fuels a domestic credit boom

   ⇒ An overlooked channel that works via UIP failure.

4. Policy Implication: Macroprudential policy regulating domestic banks' capital inflow intermediation.