Global Financial Cycle and Liquidity Management

Olivier Jeanne, Johns Hopkins University
Damiano Sandri, IMF

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Introduction

Gross capital flows in emerging markets (EM)

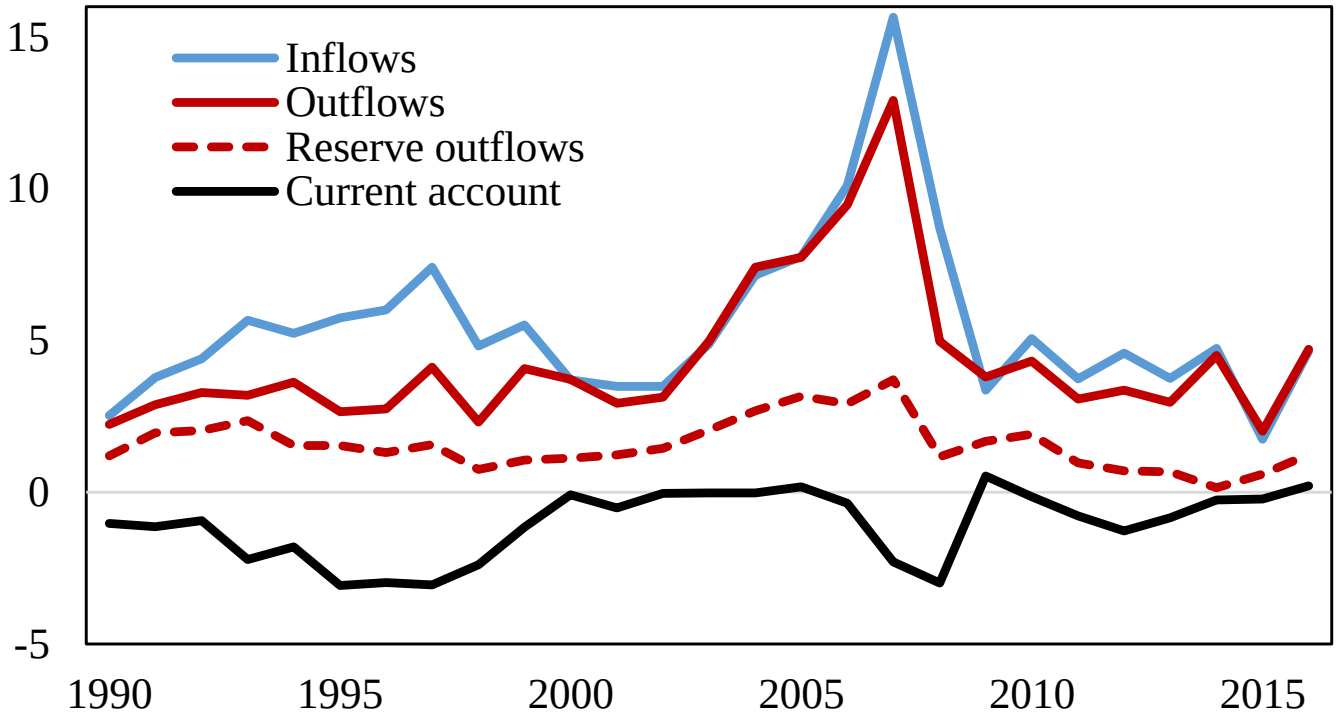


Figure: Capital flows (in percent of trend GDP), average across EMs

Introduction

- Demand for EM assets fluctuates with global financial cycle
- Calls for managing capital flows with capital controls (IMF, 2012; Rey, 2015)
- In practice EMs buffer inflows with outflows
  - private and public interventions
- Existing theory (Korinek, 2010; Bianchi, 2011 etc.) is about *net* flows: Is there a case for managing *gross* flows?

Introduction

What we do in the paper

- We provide stylized facts about the behavior of gross flows to EMs
- We provide a *tractable* three-period model for positive and normative analysis of gross flows
- In the model the private sector tends to offset inflows with outflows
- But there is a gap between private and social valuation of gross flows, so a case for public intervention

Stylized facts

Five stylized facts

1. Countries with larger foreign liabilities tend to experience more volatile capital inflows
2. Countries with larger foreign liabilities tend to experience a higher covariance between capital inflows and outflows
3. Countries tend to experience a positive correlation between capital flows and realized international borrowing spreads
4. Countries with larger foreign liabilities tend to have lower international borrowing spreads
5. Countries with larger foreign liabilities tend to have a lower share of official reserves in foreign assets

Stylized facts

Example: Stylized fact 4

Table: International borrowing spreads over size of foreign liabilities

	(1)	(2)	(3)	(4)	(5)	(6)
	Annual data			Quarterly data		
		Without outliers			Without outliers	
	All	All	EMs	All	All	EMs
Liabilities	-0.020***	-0.033**	-0.040***	-0.042	-0.081***	-0.128***
	(0.005)	(0.014)	(0.014)	(0.120)	(0.022)	(0.039)
Constant	5.189***	5.299***	6.674***	24.491	10.172***	15.154***
	(1.056)	(1.454)	(1.231)	(23.415)	(2.428)	(4.172)
Countries	90	81	33	44	38	19
R-squared	0.155	0.062	0.202	0.003	0.283	0.394

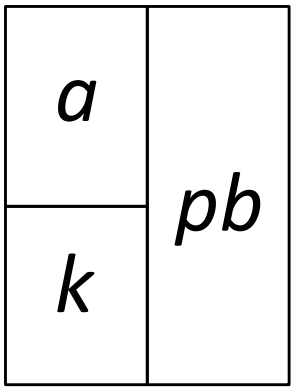
*** p<0.01, ** p<0.05, * p<0.1

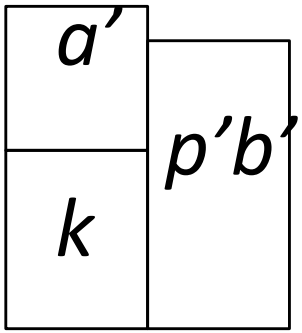
Theory

- Three-period model, $t = 0, 1, 2$
- EM private borrowers finance investment with *long-term* debt
- Global financial conditions have impact on the price of long-term debt in $t = 1$
- EM borrowers can accumulate liquid foreign assets ("private reserves") and intervene in the market for EM debt in period 1

Borrowers

t=0	***t=1***	***t=2***
Investment and **balance sheet** design	Balance sheet adjustment to **global financial conditions**	Production and consumption, $U=E_0(c_2)$
k fixed (relaxed later)	$a-a'=p'(b-b')$	

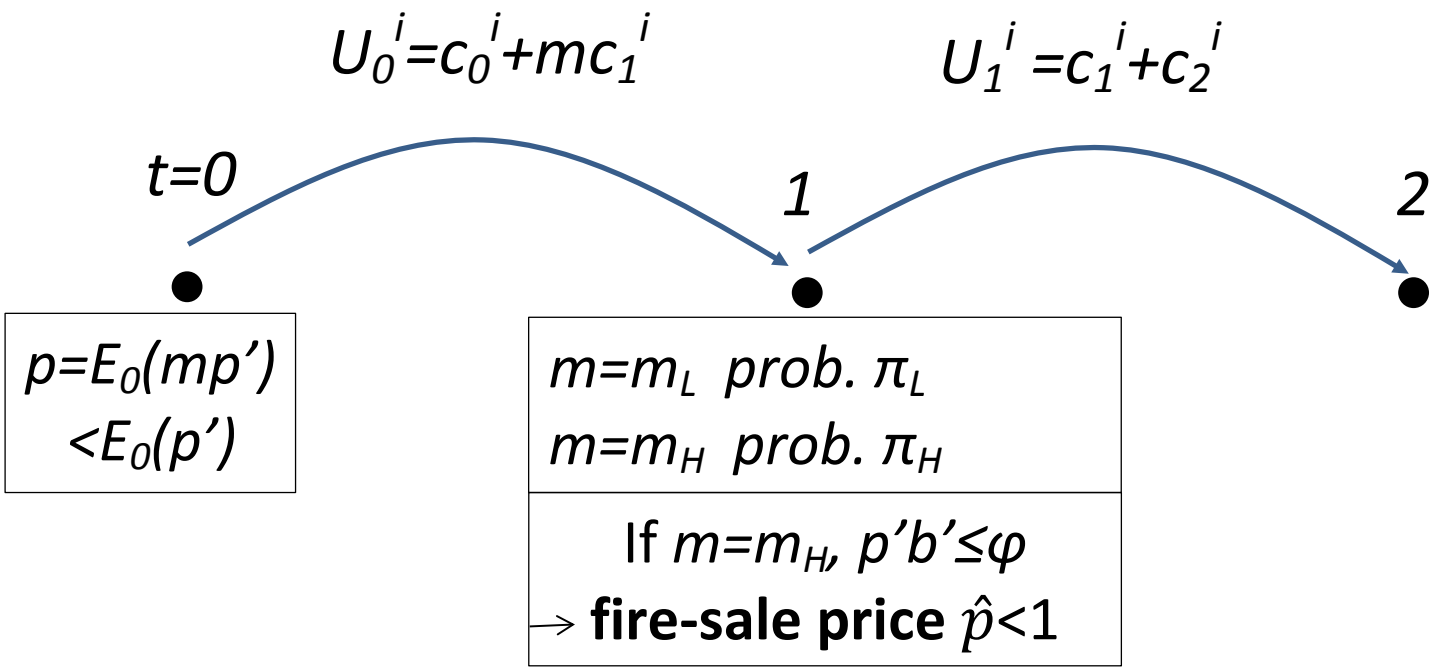




$c_2=y-b'+a'$

Lenders

- Two rounds of investors
- Global financial tightening in $t = 1$: high SDF m and financial constraint



Laissez-faire

- EM borrowers spend all the reserves in $t = 1$ when global financial conditions are tight
- Demand for private reserves in $t = 0$

$$a = \frac{m_L}{m_H} b - \phi$$

(equates expected benefit of reserves with opportunity cost)

- BOP equation

$$k = \pi_L m_L (b - a) + \pi_H m_H \phi$$

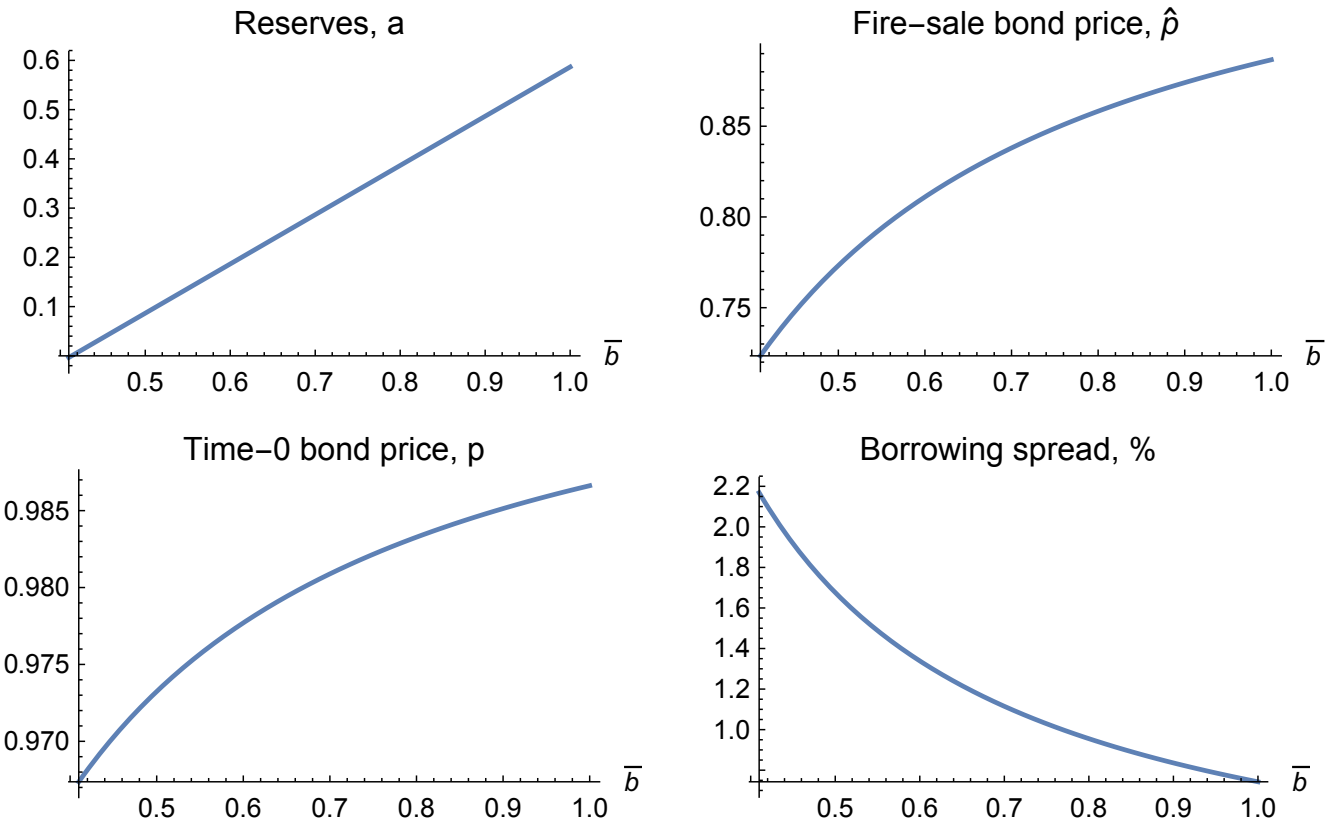
- This determines unique equilibrium with positive level of reserves $a^{LF} > 0$ if ϕ small enough and $\hat{p} = m_L / m_H$ (Proposition 1)

Financial development and capital flows

- Financial development

$$b \leq \overline{b}$$

- The model explains stylized facts 1 to 4

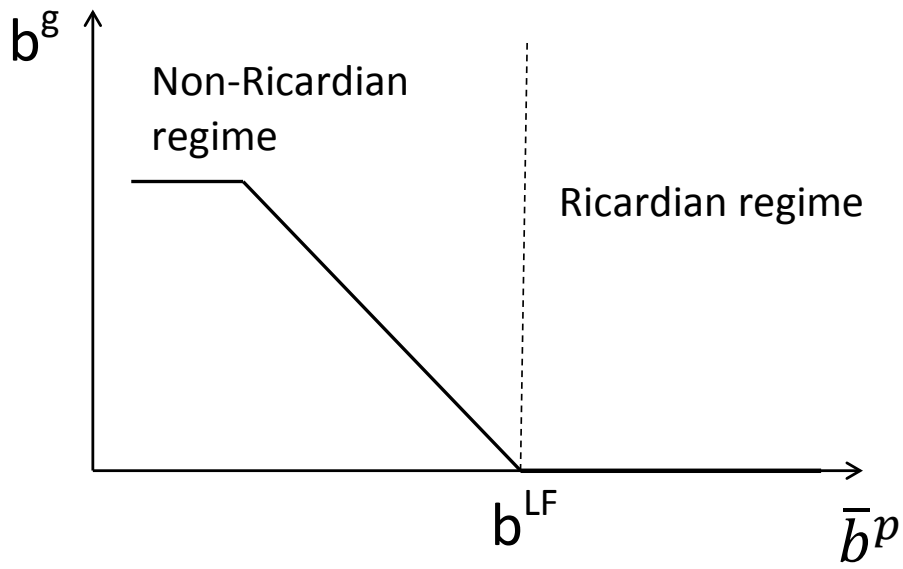


Sterilized interventions

- Assume separate constraint for private sector and government

$$\begin{aligned} b^p &\leq \overline{b}^p \\ b^g &\leq \overline{b}^g \end{aligned}$$

- Sterilized interventions: $a^g = pb^g$
- The model explains stylized fact 5 (Proposition 2)



Social planner

- Constrained EM social planner sets a and b subject to same financial frictions as private borrowers
- Result: the social planner maximizes level of reserves subject to $b \leq \bar{b}$ (Proposition 3)
- *The social planner increases the level, variance and covariance of gross capital flows above the laissez-faire level*
- Unlike private borrowers, the social planner internalizes that the price of EM debt increases with level of reserves
- The social planner transfers rent from foreign investors to domestic borrowers
  - no true externality, laissez-faire is constrained efficient

Capital controls

- Assume variable capital, $y = f(k)$ and convex cost $g(b)$ of issuing bonds
- **Proposition 4.** *The EM social planner allocation has larger gross capital inflows and outflows but smaller net capital inflows that under laissez-faire*

$$a^{SP} > a^{LF},\ b^{SP} > b^{LF},\ k^{SP} < k^{LF}$$

The social planner allocation can be implemented with a subsidy on reserves accumulation combined with a tax on capital inflows (the tax rate on inflows being smaller than the subsidy rate on outflows)

$$\tau^b > 0,\ \tau^a < -\tau^b$$

- The EM social planner reduces global welfare (lower k)
- Capital flow management less efficient than outside liquidity provision by institution such as IMF (leads to first-best with $f'(k) = 1$)

Conclusion

Conclusions

- Simple model but captures several stylized facts and yields nontrivial normative implications
- Quantitative implications could be explored in DSGE model

THANK YOU!