

Capital Controls and Macroprudential Policies: Are they countercyclical?

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Empirical observations

- After the Global Financial Crisis, there is a renewed interest in capital flows management (CFM) measures;
- Many EMEs reintroduced capital controls (Brazil 2008-09, Colombia 2007-08, Indonesia 2010, etc.) and actively used macroprudential policies to discourage capital inflows;
- IMF (2011) claims that CFMs should be "the part of a policy toolkit".

Theoretical literature

- Theoretical literature: countercyclical CFMs promote financial stability (Jeanne and Korinek, 2010; Benigno et al., 2016) and improve macroeconomic adjustment (Schmitt-Grohe and Uribe, 2016);
- Restrictions on net capital inflows and macroprudential regulations should be tightened during booms and relaxed during busts.

Research question:

Do countries in practice adjust capital controls and macroprudential policies along global and/or local business and financial cycles?

Literature review

- Databases on capital controls: Chinn and Ito (2008), Schindler (2009), Fernandez et al. (2015); Ahmed and Zlate (2014), Forbes et al. (2014), Ahmed et al. (2015);
- Databases on macroprudential policies: Lim et al. (2011), Cerutti et al. (2015); Cerutti et al. (2016);
- Cyclicity of CFM measures: Fernandez et al. (2015), Fratzscher (2012); Cerutti et al. (2016), Federico et al. (2014).

This paper

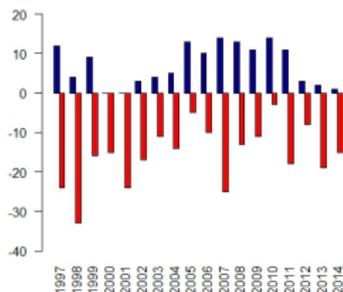
- develops an index on adjustment of capital controls on inflows and outflows for different types of assets;
- relates macroprudential policies and capital controls to global and local business and financial cycles.

Data on CFM measures

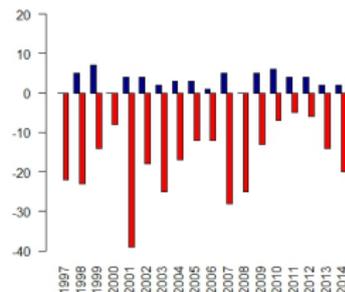
- 24 emerging economies, 1997-2014 for CC and 2000-14 for MP at a quarterly frequency:
 - Argentina, Brazil, Bulgaria, Chile, China, Colombia, Czech Republic, Hungary, India, Indonesia, Israel, Korea, Malaysia, Mexico, Peru, Philippines, Poland, Romania, Russia, Slovak Republic, Slovenia, South Africa, Thailand, and Turkey
- Macprudential policies (Cerutti et al., 2016): capital buffers, interbank exposure limits, concentration limits, LTV ratio limits, and reserve requirements. [▶ Statistics](#)
- Capital controls (based on AREAER and Ahmed et al., 2015): outflows and inflows, 5 categories of assets (portfolio equity, portfolio bonds, FDI, derivatives, and banking/other).

[▶ Statistics](#)[▶ Data_CCI](#)[▶ Data_CCO](#)

(a) Capital controls on inflows



(b) Capital controls on outflows



(c) Macroprudential policies

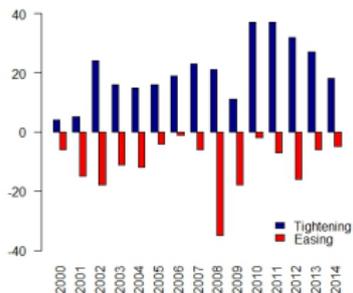


Figure 1: Capital flow management measures across time. Note: Each bar indicates the number of tightening and easing steps made by all countries in the sample at a given year.

Definition of cycles

- Types of cycles:
 - business cycle: GDP (Fernandez et al., 2015);
 - financial cycle: Credit to private NFC (Claessens et al., 2012).
- Proliferation of a cycle: global and local cycles;
- Deseasonalize the variables and remove a log-quadratic trend.

Tested hypotheses

- 1** Restrictions on macroprudential policies and capital controls on inflows are tightened during booms and relaxed during busts in business and financial activities;
- 2** Capital controls on outflows are eased during booms and tightened during busts in local business and financial activities.

Business cycle and CFMs

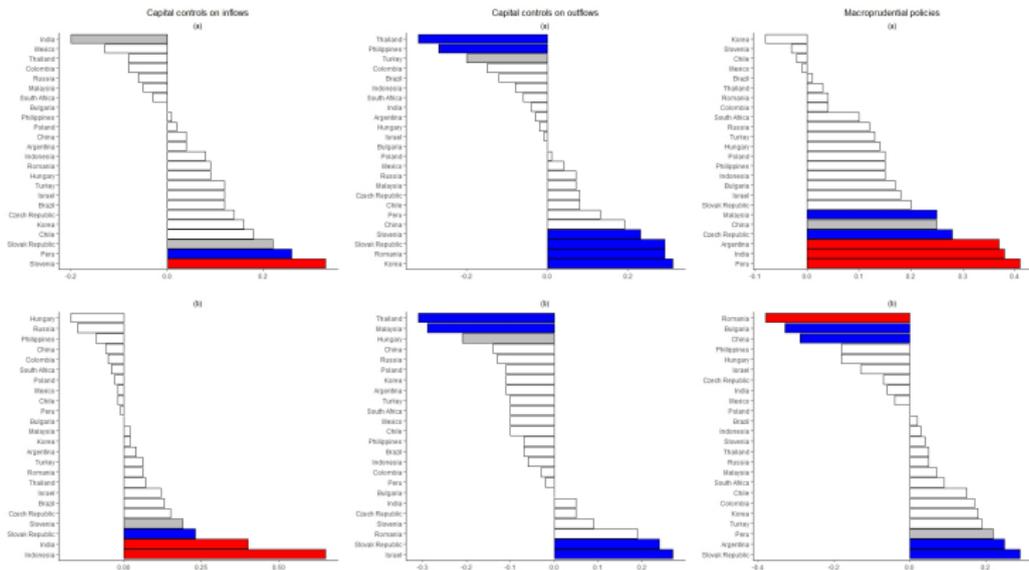


Figure 2: Country-by-country correlations between CFMs and global (upper row) and local (lower row) business cycles. Note: Red, blue, and grey bars indicate statistical significance at 1, 5, and 10 percent level. Missing bars indicate covariances equal to zero.

Financial cycle and CFMs

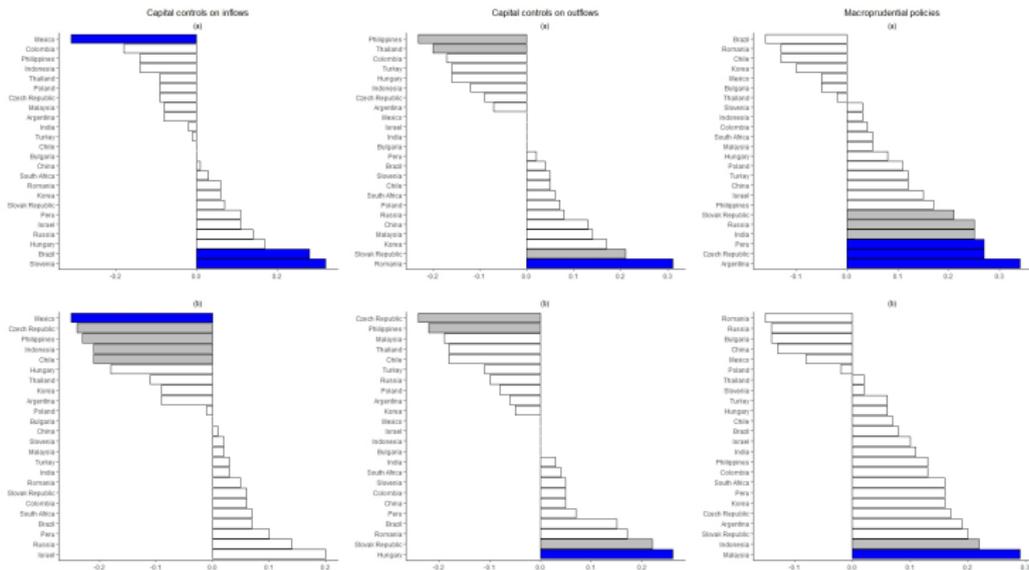


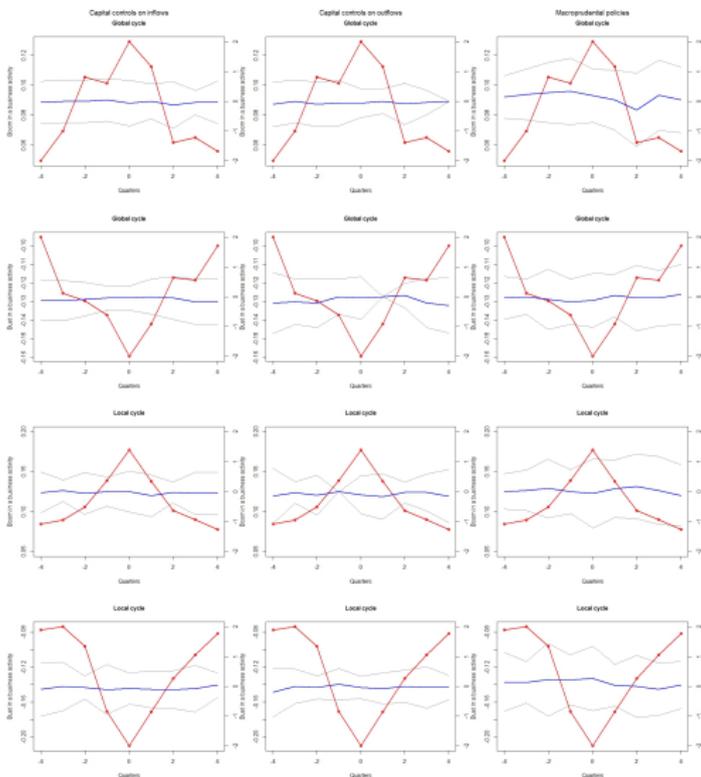
Figure 3: Country-by-country correlations between CFMs and global (upper row) and local (lower row) financial cycles. Note: Red, blue, and grey bars indicate statistical significance at 1, 5, and 10 percent level. Missing bars indicate covariances equal to zero.

Booms and busts

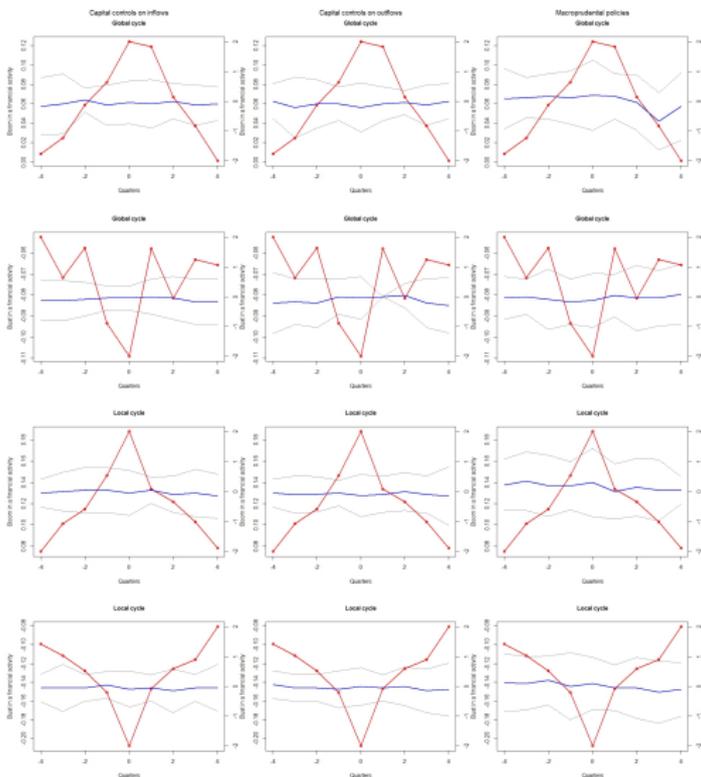
Definition of a boom (bust):

A period longer or equal to three years in which GDP or credit to private NFC are always above (below) their trend.

Boom-bust episodes in business cycles



Boom-bust episodes in financial cycles



Logit model

$$\text{Prob}(CFM_i = 1) = F(\alpha_i + \beta_j \times \text{Local_cycle}_i + \gamma_j \times \text{Global_cycle}_i + \theta_j \times \text{CFM_prev}_i + \epsilon_i)$$

where

$$CFM_i = \begin{cases} 1, & \text{policy is tightened} \\ 0, & \text{policy is eased.} \end{cases}$$

$j = \{ \text{Business_cycle}, \text{Financial_cycle} \};$

Business cycle is a fluctuation of GDP around its trend;

Financial cycle is a fluctuation of credit around its trend;

CFM_prev indicates the policy direction at the previous year.

Table 1: Regression results - Logit model

	<i>Dependent variable:</i>					
	Capital controls on inflows		Capital controls on outflows		Macroprudential policies	
	(1)	(2)	(3)	(4)	(5)	(6)
Local GDP gap	1.008 (1.982)		-8.113** (3.363)		-0.907 (1.131)	
Global GDP gap	3.162 (3.286)		6.126 (4.072)		6.758*** (2.197)	
Local credit gap		-0.213 (2.358)		-2.807 (2.428)		1.080 (1.136)
Global credit gap		3.707 (4.728)		3.041 (5.387)		3.887 (3.122)
CFM_prev.	0.948*** (0.321)	0.831** (0.326)	0.283 (0.375)	0.544 (0.352)	0.388** (0.190)	0.498*** (0.184)
Observations	185	167	171	160	302	302
Log Likelihood	-69.308	-64.054	-55.523	-56.334	-162.098	-165.561
Akaike Inf. Crit.	190.616	180.107	163.046	160.669	378.195	385.123

Note:

*p<0.1; **p<0.05; ***p<0.01

Robustness checks and extensions

- multinomial logit model (zeros for no action);
- 1-quarter & 1-year lags of explanatory variables;
- exclude explanatory variables and countries one-by-one;
- analysis based on a disaggregation by asset types and MP instruments.

Conclusion

- 1** Capital controls on inflows are largely acyclical (with the exception of CC on banking flows);
- 2** Capital controls on outflows are imposed procyclically with regard to a local business cycle;
- 3** Macroprudential policies are imposed countercyclically with regard to a global business cycle (mostly driven by RR on local currency).

Further steps

- Robustness checks with regard to alternative definitions of business and financial cycles (REER, financial stability risk);
- Analysis of threshold values in explanatory variables;
- Implementation of CFM measures by countries with different characteristics (level of income, external indebtedness, and exchange rate arrangements).

Thank you for your attention!



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Table 2: Macroprudential policies: main statistics

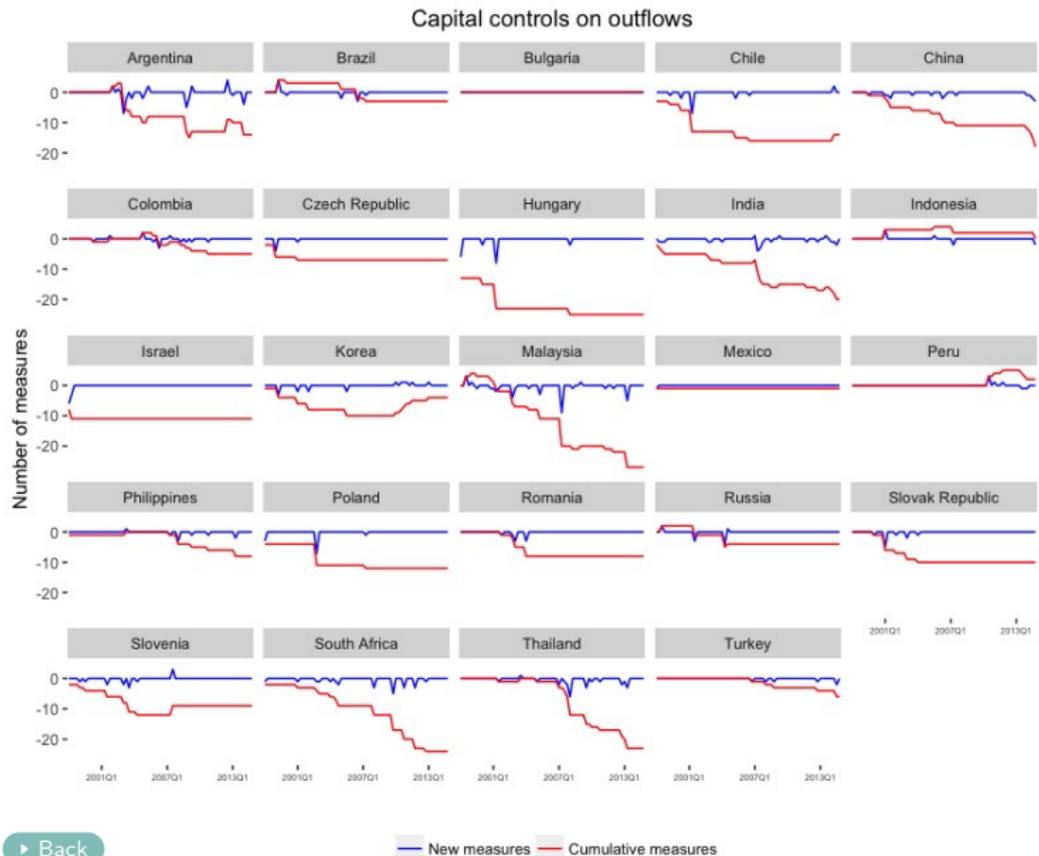
	Tightening	Easing
Sector-specific capital buffers	42	12
Capital requirements	39	0
Concentration limit	14	2
Interbank exposure limit	9	0
LTV capital ratio	34	10
RR foreign	65	42
RR local	102	96
Total	305	162

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Table 3: Capital controls: main statistics

	CC on outflows		CC on inflows	
	Tightening	Easing	Tightening	Easing
Equity	14	79	23	59
Debt	15	72	31	50
Credits	14	61	33	83
FDI	3	48	8	37
Derivatives	11	51	26	63
Total	57	311	121	292

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