BANK FOR INTERNATIONAL SETTLEMENTS

The impact of macroprudential policies and their interaction with monetary policy: An empirical analysis using credit registry data

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"Are post-crisis statistical initiatives completed?"

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The views expressed are the presenter only and not necessarily those of the BIS

Main characteristics of the research project

- Most of the studies use aggregate data or bank-level data. A very limited use has been done of credit registry data (some exceptions Jimenez et al, 2016; Camors et al, 2016)
- Joint project under the auspices of the Consultative Council for the Americas (CCA):
  - Credit register data for five countries Latin America countries: AR, BR, CO, MX, PE (good laboratory)
  - Not possible to pool the data (data highly confidential)
  - Research protocol (same modelling strategy and similar data definition)
  - Focus on domestic credit. Project wants to complement the analysis of the IBRN (cross-border spillover of MP tools)
  - 5 country paper and one summary paper (meta analysis techniques)

Macroprudential policies analyzed

Type of instrument	Episodes		Tightening episodes		Loosening episodes	
	Meta analysis	All studies	Meta analysis	All studies	Meta analysis	All studies
a. Enhancing resilience						
Capital requirement/Risk weights (RW)	0	1	0	1	0	0
Provisioning requirement (Prov)	4	4	4	4	0	0
Limits on dividend distribution	2	2	2	2	0	0
Liquidity ratios	0	0	0	0	0	0
Other capital based tools	0	3	0	3	0	0
b. Dampening the cycle						
Changes in reserve requirement (RR)	5	8	3	5	2	3
Changes in limits on net open position (NOP)	2	2	2	2	0	0
Changes in LTV, DTI limits	0	8	0	5	0	3
Limits on credit growth or lending to specific sectors	0	0	0	0	0	0
Requirement on external borrowing operations	2	2	1	1	1	1
Other asset based instrument	0	1	0	1	0	0
Total	**15**	**31**	**12**	**24**	**3**	**7**

Note: The classification is based on Claessens et al (2013).

Main questions

1. Are macroprudential tools effective in stabilising credit cycles?

2. How is the effectiveness of macroprudential policies on credit growth affected by monetary policy conditions?

1. Are MaPs effective in stabilising the credit cycle?

$$\Delta Log\ Credit_{bft} = \delta_f + \sum_{j=1}^{4} \beta_j \Delta \text{Macro tool}_{t-j} + \sum_{j=1}^{4} \beta'_j \Delta \text{Macro tool}_{t-j} * \tilde{X}_{bt-j} + \\ + controls_{bft} + quarter_t + \varepsilon_{bft}$$

where:

$\Delta Log\ Credit_{bft}$ is the change in the logarithm of actual value of loans by bank *b* to debtor *f*

$\Delta \text{Macro tool}_{t-j}$: tightening +1; 0 invariant; easing -1.

$\tilde{X}_{bt-j}$ is a vector of bank specific characteristics (capital, liquidity, deposit ratio and size)

$controls_{bft}$ include macro variables, firms and contract characteristics

δ_f are bank fixed effects

$quarter_t$ are quarterly seasonal dummies

2. How the effectiveness of macroprudential policies on credit growth is affected by monetary policy conditions?

$$\Delta Log\ Credit_{bft} = \delta_f + \sum_{j=1}^{4} \beta_j \Delta \text{Macro tool}_{t-j} + \sum_{j=1}^{4} \delta_j \Delta r_{t-j} + \sum_{j=1}^{4} \gamma_j \Delta \text{Macro tool}_{t-j} * \Delta r_{t-j} + controls_{bft} + quarter_t + \varepsilon_{bft}$$

The main test is on the significance of $\sum_{j=1}^{4} \gamma_j$

$$\frac{\partial \Delta Log\ Credit_{bft}}{\partial \Delta \text{Macro tool}_{t-j}} = \sum_{j=1}^{4} \beta_j + \sum_{j=1}^{4} \gamma_j \Delta r_{t-j}$$

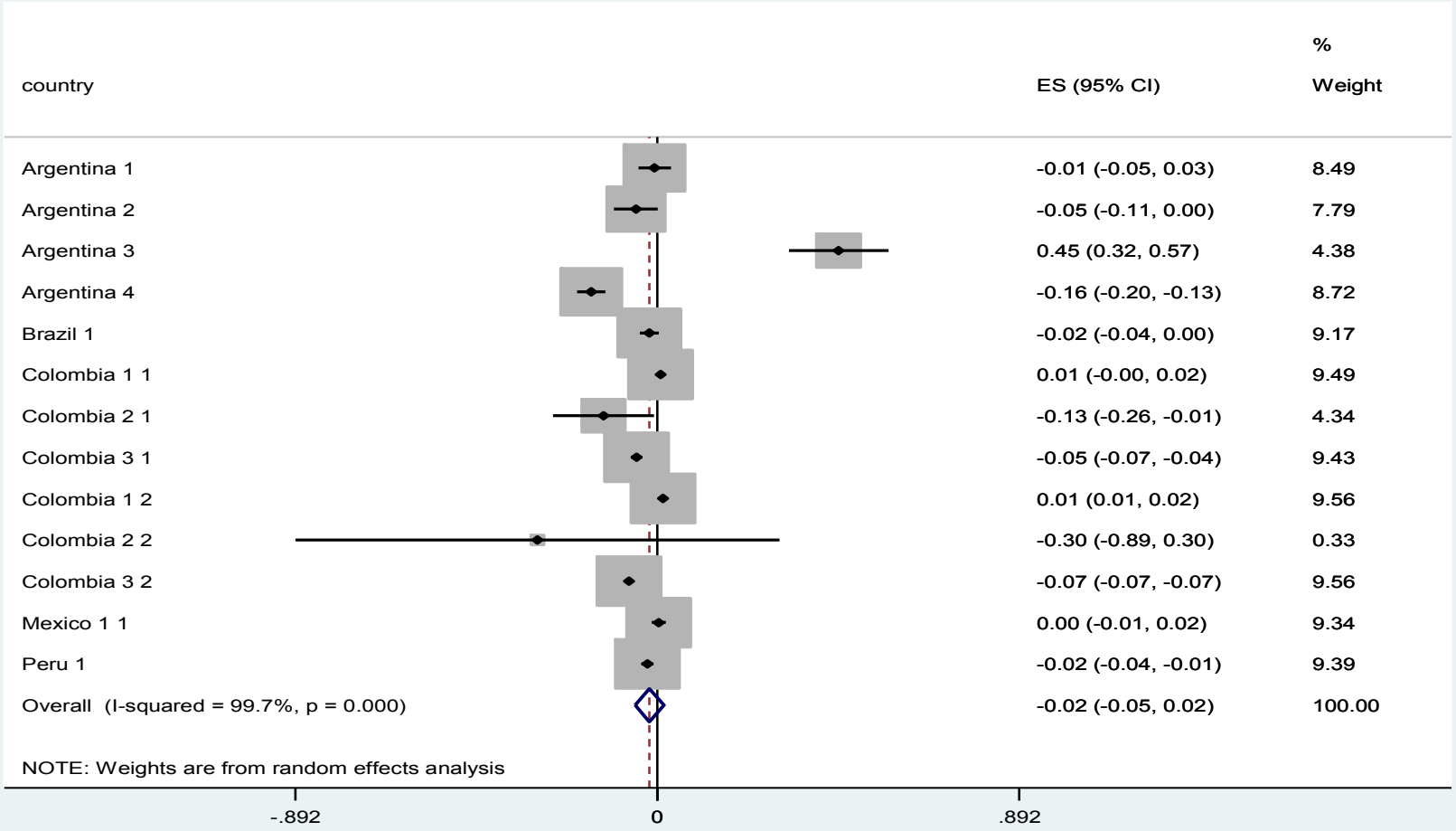
<0 **?**

- If $\sum_{j=1}^{4} \gamma_j < 0$ then each policy will reinforce the other
- By contrast, if $\sum_{j=1}^{4} \gamma_j > 0$, a monetary policy tightening reduces the effectiveness of a macroprudential tightening

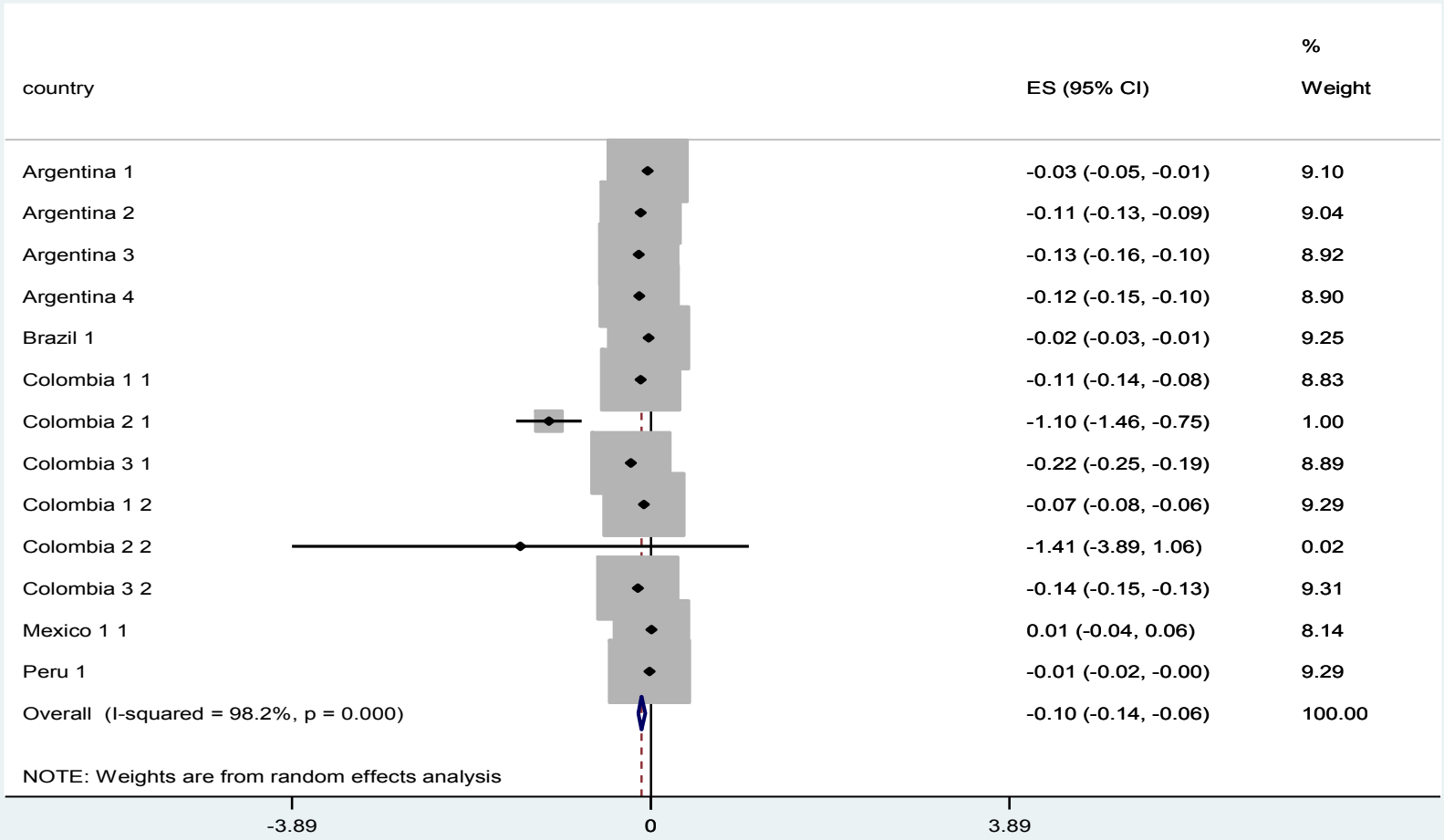
1. Effects of macroprudential policies on lending

- A tightening in macroprudential policies is associated with a reduction in credit growth of 4.2% after three months and 7.2% after one year
- Prudential policies aimed at raising additional buffers through capital requirements or provisioning take more time to manifest their effects
- There is evidence from country team papers that lending supply reacts differently for banks with a different level of risk and capitalization

Forest plot of the effects of MaPs on credit growth controlling for bank characteristics (after 3 months)



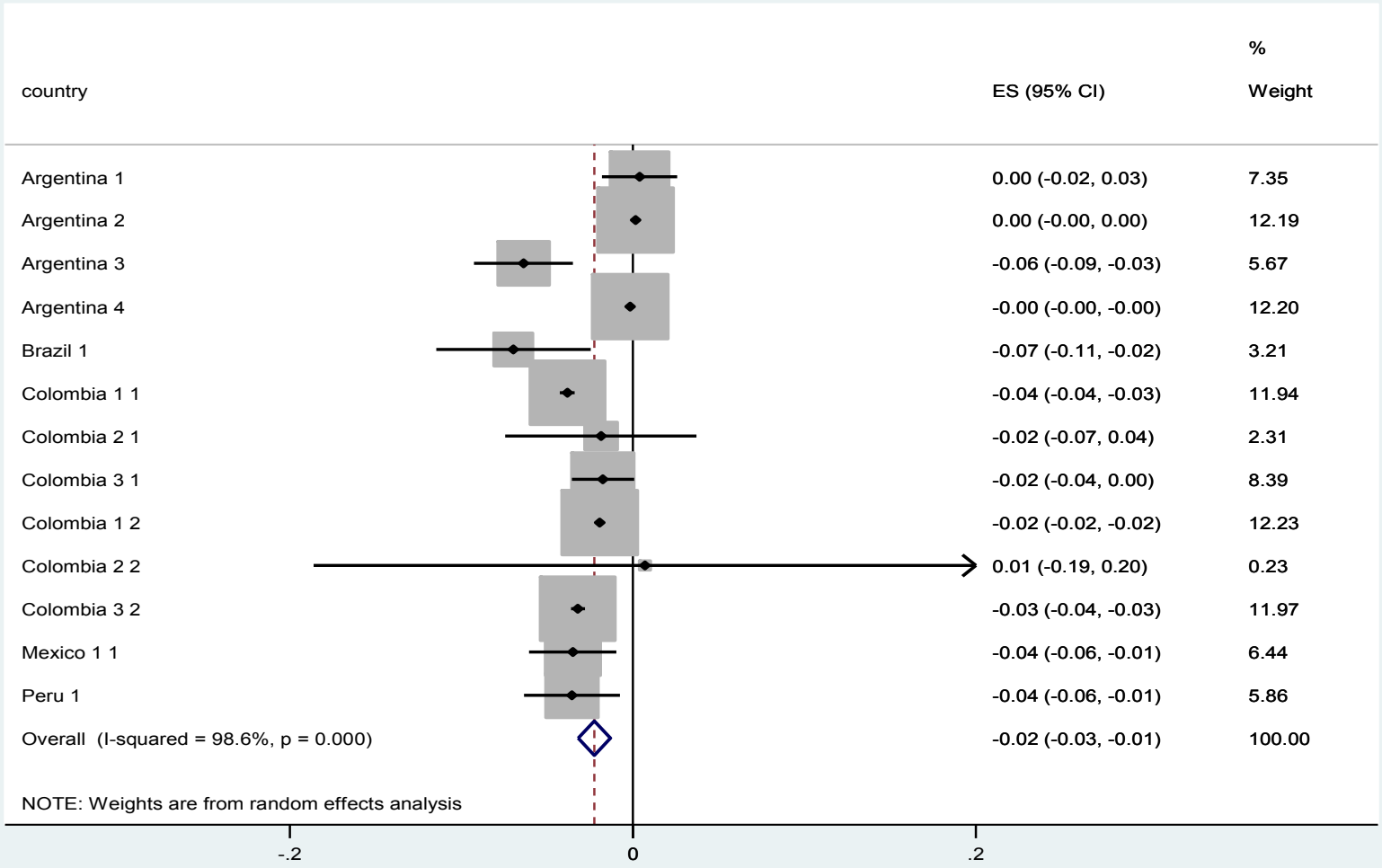
Forest plot of the effects of MaPs on credit growth controlling for bank characteristics (after one year)



2. Interaction of monetary and macroprudential policies

- The effectiveness of macroprudential tools on credit growth is affected by the contemporaneous use of monetary policy
- $\sum_{j=1}^{4} \gamma_j < 0$ so each policy reinforce the other
- Macroprudential tools that acted as a complement to monetary policies (ie pushed in the same direction) were relatively more effective

Forest plot of the sum of the interaction terms between monetary and macroprudential policies ($\sum_{j=1}^{4} \gamma_j$ in Equation 2)



Conclusions

1. *Are macroprudential tools effective in stabilising credit cycles?*

   - Yes. They have been effective in stabilising credit cycles
   - The propagation of the effects on credit growth is more rapid (after one quarter) for those policies with a purpose of dampening the cycle than for capital based requirements (within a year)

2. *How the effectiveness of macroprudential policies on credit growth is affected by monetary policy conditions?*

   - The effectiveness of macroprudential tools on credit growth is affected by the contemporaneous use of monetary policy
   - Macroprudential tools that acted as a complement to monetary policies (ie pushed in the same direction) were relatively more effective

Thanks for your attention!

For more details see:
https://www.bis.org/publ/work636.htm