Discussion on: "Monetary and macroprudential policies: Interaction and complementarity", by Jessica Roldán-Peña, Daniel Sámano and Alberto Torres (Bank of Mexico)[1]

Francesco Zanetti
University of Oxford

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[1] I thank Gabriele Galati for useful discussions on the topic.

Outline of the discussion

- Brief summary of the paper
- Overall evaluation
- Comments and suggestions
- Conclusions and possible extensions

Aim of the paper

- *Premise*: Basel III use of Coverage Ratio Rule (CRR) to promote the short-term resilience of the liquidity risk profile of banks
- The paper builds a small scale model with monetary and macroprudential policy for the Mexican economy
- Evaluate the welfare gain from using a second instrument set by the macroprudential authority
- Study the *integration* of monetary and macroprudential authorities. Three cases:
  - Monetary policy only (baseline case)
  - Uncoordinated policy (independent objectives)
  - Coordinated policy (common objective)

Findings

- The paper finds that:
  - Coordinated policy is Pareto optimal
  - Coordinated policy must put high weight on the traditional loss function (i.e. inflation, output)
- "Hidden" findings
  - Even uncoordinated policy is Pareto-superior to monetary policy committee only
  - Inflation volatility is crucial for monetary policy and welfare analysis
  - Delinquency rate is crucial for macroprudential policy

Overall evaluation

- Ambitious project, it develops an analytical model to evaluate macroprudential policy (i.e. CRR) and the integration with monetary policy
- The analysis is well executed, and investigates some pressing questions for policy makers
- To my knowledge, this is one of the first studies that investigates the interaction between monetary and macroprudential policies for Mexico through the lens of a quantitative economic model
- The model is helpful in addressing the issue, but some more analysis is needed to finalize the results

Comment 1: on the modelling strategy

Three potential issues

- The analysis is based on a hybrid model, very useful in central banks
- However, microfoundations are not spelled out
- Given the nature of the analysis, three potential issues:
  1. Relation between policy changes and model dynamics
  2. Weights in the welfare function
  3. Optimal policy function

Comment 1

Potential issue 1: **relation between policy changes and model dynamics**

- Coefficients in the equations are not linked with structural parameters
- This can be problematic since policy changes ought to be reflected in changes in the coefficients and therefore model dynamics
- For instance, the IS includes a term with the spread
- One way to introduce the spread is to assume some imperfect substitutability between long- and short-term bonds (see Andres, et al. (JMCB, 2004))
- If so, the coefficient given to this term in the IS curve depends on the degree of imperfect substitutability, which *can vary reflecting policy changes*

Comment 1

Potential issue 1 (cont)

- Are we missing some important effect of policy changes?
- Showing/discussing a bit more the microfoundations of the model is critical to convince the reader on the plausibility of the model

- *Suggestion*: Even if they don't derive the model from first principles, they should provide a sense on how policy changes might affect the dynamics of the model

Comment 1

Potential issue 2: **weights in the welfare function**

- Each objective is given a pre-set weight (i.e. it does not depend on the structural parameters of the economy)
- Are the weights in the welfare function policy independent?
- Typically, the weights in the welfare function depend on policy objectives: $\sum_{t=0}^{\infty} \beta^t \left(\alpha_x x_t^2 + \pi_t^2\right)$, where $\alpha_x = \frac{\kappa}{\varepsilon}$, where κ is a function of other structural parameters
- I suspect that the weights for macropru welfare $\{\alpha_{delin}, \alpha_{spread}, \alpha_{CRR}\}$ depend on macropru policy whereas in the paper $\alpha_i = 1/3$

Comment 1

Potential issue 3: **Optimal policy function**

- The optimal policy does not account for policy changes
- Think about the standard, optimal policy (commitment): $\sum_{t=0}^{\infty} \beta^t \left(\alpha_x x_t^2 + \pi_t^2\right)$ s.t. $\pi_t = \beta E_t \pi_{t+1} + \kappa x_t + u_t$
- Optimal policy function is $x_t = -\frac{\kappa}{\alpha_x} \widehat{p}_t$
- Policy changes affect optimal policy, but in this model the optimal policy would be $x_t = -\beta \widehat{p}_t$, where β estimated and policy independent

Comment 2: on the role of inflation

- Minimize $\alpha L_m + (1-\alpha) L_{mp}$ s.t. model equations, $L_m \leq \overline{L}_m$ and $L_{mp} \leq \overline{L}_{mp}$
- $\overline{L}_m$ and $\overline{L}_{mp}$ are the losses in the benchmark case (i.e. monetary policy only)

- If $\alpha_\pi = \alpha_x \Rightarrow \alpha \in (0.92, 0.97)$
- If $\alpha_\pi > \alpha_x \Rightarrow \alpha \in (0.94, 0.98)$
- If $\alpha_\pi < \alpha_x \Rightarrow \alpha \in (0.90, 0.96)$

- The more monetary authority cares about inflation the more weight ought to be placed on monetary policy objectives

Comment 2 (cont)

- If $\alpha \longrightarrow 0$, all variable volatilities fall except inflation volatility
- The quantitative results imply that inflation dynamics is crucial

le 1.A.- Macroeconomic and Financial Shocks

	Baseline Case	Uncoordinated Policy Case	Policy Comm α				
			0.99	0.98	0.97	0.96	0.95
L_m	212.64	209.99	201.79	205.83	207.69	208.92	209.89
σ^2_x	13.01	12.35	9.20	10.00	10.07	9.94	9.72
σ^2_π	180.79	178.69	173.15	176.71	178.64	180.09	181.36
$\sigma^2_{\Delta i}$	18.84	18.95	19.44	19.12	18.98	18.89	18.81
L_{mp}	113.86	69.54	342.52	145.65	99.51	80.42	69.89
σ^2_{delin}	71.15	66.53	49.56	52.76	52.27	50.77	48.91
σ^2_{spread}	42.71	2.00	181.74	58.19	29.69	18.67	13.25
$\sigma^2_{\Delta CRR}$	0.00	1.01	111.22	34.70	17.55	10.97	7.73

- The paper explains how macroprudential policy decreases output gap volatility
- However, it is not discussed why inflation volatility rises

Comment 3: empirical evidence

- The link between capital requirement and inflation/monetary policy seems tenuous in the data
- Basel I imposed increase in capital requirements ranging from 8% to 23% on UK banks (period 1997-2007)
- Aiyar, Calomiris and Wieladek (2012) show that macroprudental changes had little effect on inflation and monetary policy in UK
- Difficult to square this evidence with the main transmission mechanism in the model
- Is there any evidence for Mexico that can support the interaction between macroprudental policy and inflation?

Comment 4: on the estimation

- The model is estimated on a short sample period (2003Q1-2011Q4)
- Are eight years enough to estimate the model?–Econometrically the more data the better
- The authors should be up-front on why they choose this sample period
- Some *key* parameters are not estimated but calibrated appended to equations

$$delin_t^{corp} = \varphi_0^{corp} + \varphi_1^{corp} delin_{t-1}^{corp} + \varphi_2^{corp} x_t + \varepsilon_t^{corp}$$

Conclusion

- Overall, the analysis is novel and focused on a topical issue
  - It provides insights on the interaction between monetary policy and macroprudential policy
  - It sheds light on the importance of having two committees (either joint or disjoint)
- Two natural extensions:
  - Challenging: develop the model from first principles, using the utility function as a welfare criterion
  - Interesting: Use the model to investigate macroprudential policies beyond the CRR