Credit and Macroprudential Policy in a Small Economic Model of the Argentine Economy by Horacio Aguirre and Emilio Blanco

Francesco Zanetti (University of Oxford)

First Conference of the BIS CCA Research Network, Mexico City, 28-29 October, 2013

Outline of the discussion

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

Aim of the paper

- The paper builds a small scale DSGE model for the Argentinian economy. The authors use it to:
  - Study how shocks propagate in the economy
  - Test whether financial variables improve the forecasting performance of the model
  - Evaluate the merits of different macroprudential policies

Findings

- The paper finds that:
  - The credit market channel is important and should be investigated further
  - Financial variables improves the model forecasting performance of the model
  - Macroprudential policies based on capital adequacy ratio are effective smoothing fluctuations in inflation and real activity

Overall evaluation

- I enjoyed reading the paper and learned some useful insights on the Argentinian economy
- The analysis is well executed, and investigates some pressing questions for policy makers
- To my knowledge, this is the first attempt to investigate macroprudential policies for Argentina through the lens of a quantitative economic model
- Modelling the Argentinian economy is challenging for modellers. This paper is a good attempt to formalize some issues
- The authors should be more explicit about limitations and shortcomings of the analysis

Comment 1

- **The microfoundations of the model should be strengthened and their limitations highlighted. Two issues in particular:**
- **First issue.** The IS and Phillips curves resemble the microfounded versions, but the other equations seem not derived from first principles

$$g_t^y = \beta_1 \mathbb{E}_t g_{t+1}^y + \beta_2 g_{t-1}^y - \beta_3 \widehat{r}_t + \beta_4 \Delta \widehat{e}_t^{tri} - \beta_5 \widehat{sf}_t - \beta_6 \left(spread_{t-1}\right) + \varepsilon_t^y$$

  I guess that the spread enters because of some imperfect substitutability between long- and short-term bonds (see Andres, et al. (JMCB, 2004)).
- However, what is the underlined microfoundation to include the 'trilateral' real exchange rate and fiscal surplus in the IS curve?

Comment 1 (cont)

- Similar issues with the financial bloc

$$\widehat{CR}_t = A_1 \widehat{g}^y_{t-1} - A_2 \widehat{i}^{act}_{t-1} + A_3 \widehat{CR}_{t-1} + \varepsilon^{CR}_t$$

CR : Non financial private sector credit to GDP ratio

$$\widehat{i}^{act}_t = B_1 \widehat{Delinq}_t - B_2 \widehat{g}^y_{t-1} + B_3 \widehat{i}_t + \varepsilon^{act}_t$$

- It is difficult to see the microfoundations of this part of the model
- *Suggestion*: If some equations are 'ad-hoc', they might compromise the dynamics of the whole model

Comment 1 (cont)

- **Second issue.** The coefficients on the equations of the model are reduced form (i.e. do not depend on the structural parameters of the economy). Are the estimated values consistent with those of the underlined microfounded model?
- Recall the IS curve

$$g_t^y = \beta_1 \mathbb{E}_t g_{t+1}^y + \beta_2 g_{t-1}^y - \beta_3 \widehat{r}_t + \beta_4 \Delta \widehat{e}_t^{tri} - \beta_5 \widehat{sf}_t - \beta_6 \left(spread_{t-1}\right) + \varepsilon_t^y$$

- *Suggestion*: The authors should be more forthcoming on the microfoundations of the model. Even if they don't derive the model from first principles, they should provide a sense on the legitimacy of the microfoundations

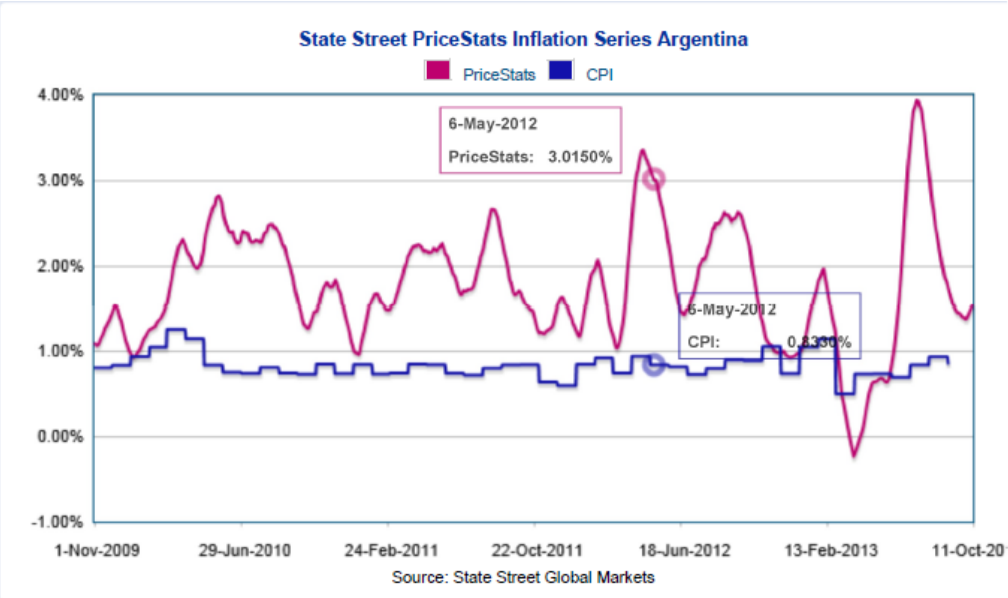
Comment 2

- **The model is estimated on a short sample period (2003Q3-2011Q2)? Two issues:**
- **First issue**. Are eight years enough to estimate the model?–Econometrically the more data the better
  - My guess is that the sample is limited since before 2002 a currency board was in place (i.e. no clear role for having an exchange rate) and after 2011 a law forbids citizens to buy foreign currencies without approval (again the no clear role for having an exchange rate).
- The authors should be upfront on why they choose this sample period

Comment 2 (cont)

- **Second issue**. The model is estimated using official data for GDP and inflation. However, there is a lot of controversy on this data (see The Billion Prices Project @ MIT). Are the results robust to the use of alternative data sources?
- Example of difference in the inflation series

(http://statestreetglobalmarkets.com/research/pricestats/)



- *Suggestion*: Expand the data sample if possible. If it's impractical state the reasons. Perform robust check using alternative data sources

Comment 3

- **When using impulse response functions to sketch out the transmission mechanism of shocks in the model, it would be helpful to compare them against the correspective responses in VAR**

- This would strengthen the findings and provide evidence on:
  - 1. whether the transmission of shocks is different for the Argentinian economy
  - 2. to what extent the model describes well the dynamics in the data

Comment 4

- **What's the economic rational of the macroprudential policy rule?**

First Option: Exogenous

$$\widehat{CAR}_t = \psi_0 + \psi_1 \widehat{CAR}_{t-1} + \varepsilon_t^{CAR}$$

Second Option: Endogenous .

$$\widehat{CAR}_t = \psi_0 + \psi_1 \widehat{CAR}_{t-1} + \psi_2 \hat{y}_t + \varepsilon_t^{CAR}$$

$$\widehat{CAR}_t = \psi_0 + \psi_1 \widehat{CAR}_{t-1} + \psi_2 \widehat{CR}_t + \varepsilon_t^{CAR}$$

$$\widehat{CAR}_t = \psi_0 + \psi_1 \widehat{CAR}_{t-1} + \psi_2 spread_t + \varepsilon_t^{CAR}$$

- Are they linked on how macroprudential policy was conducted in Argentina? More justification needed (see next comment)

Comment 5. (Technical)

- **In order to compare the forecasting performance of the model, it would be advisable to re-write the model with a more general capital adequacy ratio**
- At present the four versions of the models are estimated with four different rules
- Have one rule that nests the four rules if some parameters are set to zero:

$$\widehat{CAR}_t = \psi_0 + \psi_1 \widehat{CAR}_{t-1} + \psi_2 \widehat{y}_t + \psi_3 \widehat{CR}_t + \psi_4 spread_t + \varepsilon_t^{CAR}$$

- The data would establish what variables in the rules matters most and it's a fairer comparison for likelihood evaluation

Conclusion

- Overall, this is a novel analysis, carefully executed and focused on a topical issue
  - It provides insights on the importance of credit markets for modelling the Argentinian economy during the period 2003-2011
  - It sheds light on the importance of macroprudential policies to stabilize the economy
- Two natural extensions:
  - Challenging: Build up a model that allows for regime shifts to interpret a wider time span of economic history in Argentina
  - Interesting: Use the model to investigate macroprudential policies beyond the capital adequacy ratio