

Report on Economics MS 764:

**"A DSGE model for a SOE with a Systematic Interest and Foreign Exchange policy in which the central bank exploits the risk premium for stabilization purposes"**

The paper develops a DSGE model in which the central bank intervenes in the domestic currency bond and the FX markets. The performance of alternative policy regimes (Taylor rule only, FOREX rule only, combination of Taylor and FOREX rule) is compared on the basis of ad-hoc policy objective functions for simple policy rules, optimal simple policy rules and the optimal commitment solution using Dynare. The author finds losses to be systematically lower when both policy rules are used simultaneously. It is shown that this result is basically due to the central bank's enhanced ability with two policy rules to influence capital flows through the effects on the endogenous risk premium in the (risk-adjusted) interest parity equation.

I very much appreciate the paper as it is among the first/very view contributions to introduce Forex intervention in a New Keynesian macro model (another recent one is, e.g., Benes et al., 2013). The author presents a very clear and intuitive exposition of the model and a clean introduction of Forex intervention via a policy rule and the central bank/government budget constraint.

I am very positive about the approach, but have several remarks which I think could add value to the paper:

(1) Most fundamentally, instead of analysing ad-hoc policy targets I have a general preference for optimal policy analysis on the basis of household welfare (eq. 5 in the paper), which is done in the first paragraphs of section 3.2. Looking at household welfare gives (more) interesting results w.r.t. the desirability of Forex intervention or a mixed strategy in certain economic environments. It would also allow the author to streamline the lengthy and complex exposition of results in sections 3 and 4. The author could derive a 2<sup>nd</sup> order approximation of utility for the linearized model or simulate the model at higher order in Dynare. The author may still analyse whether simple (ad hoc) loss functions approximate the optimal policy, but the hierarchy of results would be clear. I recognise that this comment would require a major overhault of the analysis, so that the author may also take it as suggestion for further research instead. Note that micro-founded loss functions for small open economies under general assumptions (can) include an explicit exchange rate stabilisation target (e.g., Kirsanova et al., 2006).

(2) The author uses Dynare routines for optimal simple rules (OSR) and the optimal commitment solution. My experience with previous versions of these routines is that the iteration may be draped in local maxima especially if the model is complex and the number of policy parameters to optimise over is - as in the paper - rather large. The required use of a large omega weight (discussion on p. 34) suggests that this may also be the case in the present ex-

ercise. In other words, I wonder about how robust are the optimality results? Do little deviations from the optimal parameters have large consequences for the policy outcome? Do different sets of parameter values give (almost) identical results? An alternative to presenting just optimal parameter sets is look at the loss frontier across a larger parameter space, which gives a better feeling for the robustness of the parameter combinations and the relevance of finding the optimal point, i.e. how steep or flat is the loss frontier. Examples for looping over the parameter space in include Andrés et al. (2006, 2008), Andrés and Doménech (2006), and Duval and Vogel (2012). I think that given the ad-hoc nature of the loss functions, the robustness of optimal solutions may be more interesting than concrete numerical values.

(3) If OSR results are robust, the author may drop the display and discussion of non-optimal simple rules to better focus the attention of readers. Instead the author could explore whether an interest rate rule with exchange rate target would perform similarly to a combination of interest rules with domestic variables only and a Forex intervention policy with exchange rate target.

(4) Standard open economy models suggest the degree of capital mobility to be a crucial determinant for the effectiveness and/or feasibility of Forex intervention. How large would the CB balance sheet (risk exposure) become to stabilise the exchange rate for the given configuration of shocks? Would this amount of intervention be (politically) feasible (see, e.g., the related discussion in Vogel, 2010)? As Forex intervention should be ineffective with perfect capital mobility if policy targets domestic variables ("impossible trinity"), which is the friction that allows for effective Forex intervention? Is it the endogenous NFA-dependent risk premium in the UIP condition? If so, how sensitive are results to this parameter? How would the model perform under perfect risk sharing or alternative closure rules as discussed in Schmitt-Grohé and Uribe (2003)? The latter is especially relevant as the author states that "this result is basically due to the central bank's enhanced ability, when it uses the two policy rules, to influence capital flows through the effects of its actions on the endogenous risk premium in the (risk-adjusted) interest parity equation" and given that the closure rule may not reflect a stable relationship between NFA positions and interest rate spreads especially in periods of financial stress and high exchange rate volatility.

(5) The annex presents a discussion of the parameter calibration based on parameter estimates and steady-state values. I would like the author to add some comparison of model moments with actual data moments to illustrate that the chosen combination of parameters and shocks is able to replicate key properties of main macroeconomic time series for Argentina (or other countries of focus).

(6) The author could also discuss the importance of other modelling assumptions and related alternatives, such as pricing to market or export price stickiness, for the results.

## References:

- Andrés, Javier, Rafael Doménech, and Antonio Fatas, 2008. "The stabilizing role of government size," *Journal of Economic Dynamics and Control*, Elsevier, vol. 32(2), pages 571-593.
- Andrés, Javier, Rafael Doménech, and Campbell Leith, 2006. "Fiscal Policy, Macroeconomic Stability And Finite Horizons," *Scottish Journal of Political Economy*, vol. 53(1), pages 72-89.
- Andrés, Javier and Rafael Doménech, 2006. "Automatic stabilizers, fiscal rules and macroeconomic stability," *European Economic Review*, vol. 50(6), pages 1487-1506.
- Benes, Jaromir, Andrew Berg, Rafael A. Portillo, and David Vavra, 2013. "Modeling Sterilized Interventions and Balance Sheet Effects of Monetary Policy in a New-Keynesian Framework," IMF Working Paper 13/11.
- Duval, Romain and Lukas Vogel, 2012. "How Do Nominal and Real Rigidities Interact? A Tale of the Second Best," *Journal of Money, Credit and Banking*, vol. 44(7), pages 1455-1474.
- Kirsanova, Tatiana, Campbell Leith, and Simon Wren-Lewis, 2006. "Should Central Banks Target Consumer Prices or the Exchange Rate?," *Economic Journal*, vol. 116(512), pages 208-231.
- Schmitt-Grohe, Stephanie and Martin Uribe, 2003. "Closing small open economy models," *Journal of International Economics*, vol. 61(1), pages 163-185.
- Vogel, Lukas, 2010. "China's External Surplus: Simulations with a Global Macroeconomic Model," *European Economic Review* 430.