Foreign exchange reserves accumulation: forecasting implications for the banking system’s balance sheet

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In a number of emerging market economies the public sector has in recent decades accumulated sizeable cross-border financial assets, mainly in the form of central banks’ foreign exchange reserves. To deal with the undesirable effects of foreign exchange interventions (FXIs) on the domestic monetary conditions, they have frequently resorted to sterilization operations to mitigate the impact of reserve accumulation on domestic interest rates. Even when successful in interest rate steering, such a strategy may potentially lead to economic distortions, which have been discussed in the related literature (International Relations Committee Task Force 2006, Mohanty and Turner 2006). We will contribute to this strand of research by analysing one aspect (which arguably receives less attention than it deserves) of such a monetary policy strategy – the balance sheet effects of that may affect the commercial banks behaviour (Disyatat 2011) and money creation (Duc et al. 2008, Kuzin and Schobert 2015 and Ponomarenko 2017).

For this purpose we set-up an agent-based model (ABM) focused mostly on the description of the banking sector (in the spirit of Krug 2018, Chan-Lau 2017). We apply our model to the Russian data. In order to parametrize the model we minimize in-sample weighted mean squared in-sample forecast error for the variables of interest. Using the fact that it is possible to sample trajectories from ABM model we apply stochastic optimization (see Kushner and Yin (2003)) for finding the minima. We divide the time sample into two sub-samples: the first including the periods of active reserve accumulation and the second containing the periods with insignificant fluctuations in foreign reserves. We estimate the model using one sub-sample and examine the usefulness of the ABM in improving the out-of-sample projections of money and credit growth over the other time sample.
References


