Foreign exchange intervention and monetary policy design: a market microstructure analysis.

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There is substantial empirical evidence that traditional approaches of exchange rate determination (eg assets markets) fail to explain exchange rate movements in the short-run (see for example Meese and Rogoff, 1983 and Frankel and Rose, 1994). This empirical evidence shows that most exchange fluctuations at short to medium term horizons are related to order flows (as in the microstructure approach) and not to macroeconomic variables. However, in most of the models used for monetary policy analysis, the exchange rate is closely linked to macroeconomic fundamentals, as in the uncovered interest rate parity (UIP) condition. Such inconsistency between the model and the real exchange determination in practice could lead in some cases to incorrect policy prescriptions.

In this paper I extend a standard new Keynesian small open economy model to include market microstructure of exchange rate determination to investigate the impact of foreign exchange (FX) intervention on exchange rates and in the design of interest rate policy. I introduce FX dealers and information heterogeneity in the FX market, in line with Bacchetta and van Wincoop (2006) and Vitale (2010), which generate deviations from the UIP condition. More precisely, in this alternative setup, the information heterogeneity assumption adds a time variant risk-premium element to the traditional UIP that depends on policy variables and the order flow by FX dealers.

In this setup, the central bank can intervene in the FX market via unanticipated/secret operations or by a preannounced rule. Either type of intervention affects the rational expectations equilibrium of the model and also the transmission mechanism of the interest rate. Central bank FX intervention affects exchange rate determination through two channels: the portfolio balance effect and the signalling effect. In the former, sterilised intervention alters the value of the currency because it modifies the ratio between domestic and foreign assets held by the private sector; and according to the latter, operations in foreign exchange markets by a central bank may signal changes in future monetary policy, affecting market expectations and hence the exchange rate.

On the technical side, as the rational expectations equilibrium depends on portfolio decisions of FX dealers (which in turn depend on the conditional variance of the spot exchange rate), the solution strategy follows an approach in line with Devereux y Sutherland (2007, 2010). That is, I use a second order solution of the model to solve for the portfolio decisions of the FX dealers, which later feed the rational expectations solution of the model. This requires iteration between the linear and quadratic solution of the model until finding a fixed point.

Key words: Foreign Exchange Microstructure, Exchange rate dynamics, Exchange Rate Intervention, Optimal monetary policy

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