Discussion: Effectiveness of sterilized foreign exchange intervention under imperfect financial markets

By Serra Pelin (UC Berkeley)

Guangling Liu (Stellenbosch University)

CEPR/ERSA workshop, Pretoria

Jan 26, 2024

Overview

What the paper does:

Motivation

Main findings

The model

What the paper does:

Using an open economy New Keynesian DSGE model, this paper investigates the effectiveness of sterilized foreign exchange intervention for emerging market economies (EMEs).

- Effectiveness:
  - Business cycle, mainly on inflation, output gap, and exchange rate
  - Welfare
- Two key elements:
  - Sterilized intervention
  - Imperfect financial market in home economy (EME): UIP no longer holds
- Contribution to the literature:
  - Closing the gap: Ex intervention vs. economic theory
  - Foreign MP shock on EMEs

Comments on motivation:

- Economic theory on exchange rate intervention: The trilemma: MP, EX, and capital flows (only one at a time);
- The nature of shocks in question: nominal
- Ex intervention in EMEs: More evidence should be provided;
- Inverse correlation between foreign reserves and domestic CPI in EMEs:
  - Data vs. theory (R^{usd} *holdings* $\downarrow$, M^s $\downarrow$, π $\downarrow$)
  - Is there a causality relationship between the two?
  - $>$ 0.5: high correlation?

Comments on main findings:

- Welfare: Sterilization is welfare (in consumption equivalent term) enhancing
  - Welfare in the paper: $W_t = (\frac{C_t^{1-\sigma}}{1-\sigma} - \chi_0 \frac{1+\chi}{1+\chi}) + \beta W_{t+1}$
  - Welfare in the literature (e.g., Lucas (1987)):

$$W_t = \frac{C_t^{1-\sigma}}{1-\sigma} - \chi_0 \frac{1+\chi}{1+\chi} \quad (1)$$

$$CE_t = \exp\left[(1-\beta)(W^*_{s,t} - W^*_{ns,t})\right] - 1 \quad (2)$$

Comments on main findings:

- Sterilization reduces volatilities of output gap, inflation, and real exchange rate: Working in progress?
- No significant impact on CPI, otherwise for PPI: Why is this the case?
- Benefits of Sterilization come at a cost of declining in net exports: Is this conclusion based on any comparison analysis?
- Spill-back effect on US CPI inflation and negative welfare effects for the US.

An asymmetric two-country NK DSGE model:

- Home (EME): Incomplete financial market (a banking sector); MP: Strict inflation targeting; Sterilization;
- Foreign (US): Complete financial market (no financial friction); MP: Strict inflation targeting; Foreign HHs don't hold domestic D or B;
- Production: Conventional NK setup;
- Households (home): U(C, L); hold domestic D and B; no non-tradable goods (something to be considered?);
- Banks (home): Assets: Capital goods and sterilized bonds; liabilities: domestic and foreign Ds.

Comments on the model:

- Is the banking sector necessary?
  - Incomplete financial market $\Rightarrow$ endogenous deviation of UIP
  - A simple model without banks, as the same can be achieved with an imperfect substitution of domestic and foreign assets (portfolio share)?
- Sterilization

$$R_t^{usd} = (R_{t-1}^{usd})^{\eta}\left(\frac{1}{E_t^{\gamma_e}}\right)^{1-\eta} \tag{3}$$

$$Q_t(R_t^{usd} - R_t^* R_{t-1}^{usd}) = S_{t+1}^b - R_{t-1} S_t^b \tag{4}$$

  - Foreign reserve (R_t^{usd}): Limit? Linkage between the rest of the model;
  - Sterilized bond (S_t^b): Equilibrium supply: 0; difference between domestic bond (B)

Comments on the model:

- Real exchange rate $Q_t \equiv P*/P$;
- D, B, S^b;
- R: real return to D; R^n: nominal return to B;
- Notations for home and foreign;
- Timing for interest rates;
- Missing inflation: E.g., ... $= ... P_t R_t D_{t-1} + R_t^n B_{t-1}$

END