Exchange rates and monetary spillovers

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Discussion, M. Marx, Banque de France
Very interesting paper.

Motivation: currency appreciation, associated with loose monetary policy, and capital inflows.

Parsimonious model, two steps in the analysis: first, steady states, then, dynamic global game model.
Ingredients

- Global investors choose between local currency bonds or US dollar bonds.
- Nominal rigidities imply an incomplete pass-through measured by $(1 - \gamma)$.
- Monetary policy rule reacts to inflation with coefficient $1 + \Phi$. 
Steady state analysis

Result

If $\Phi(1 - \gamma) < \gamma$, and $l < \frac{(1-\gamma)\Phi \ln(I^*/R)}{\gamma-\Phi(1-\gamma)} < \bar{l}$, then there exists 3 steady states

- maximal capital inflows, $\bar{l}$, $i = r - \frac{1+\Phi}{\Phi} \bar{l}$, domestic currency returns higher than dollar returns.
- $l^*$, UIP holds.
- maximal capital outflows, $l$, $i = r - \frac{1+\Phi}{\Phi} l$, domestic currency returns lower than dollar returns.

idea: if $l$ increases, this lowers the real interest rate, and inflation, return $\theta$ results from 2 opposite effects: lowering through low real interest rate, increase through appreciation of exchange rate, second effect dominates for small $\Phi$ and $(1 - \gamma)$.
Stochastic model

- US interest rate stochastic, affected by a shock $w_t$.
- Portfolio choice of investors, revision at switching dates, choice between long position $\bar{T}$ or short position $\bar{I}$.
- Model fully described by the share of long global investors $x_t$.
If $\Phi(1 - \gamma) < \gamma$, and $\lambda$ small enough, there exists a unique equilibrium satisfying

$$\theta_t = \frac{w_t + l(\chi - 1)}{\lambda + \rho} + (\bar{l} - \bar{l}) \int_0^{+\infty} K(v) E_t(x_{t+v}) dv$$

$$\frac{dx_t}{dt} = \lambda[1_{\theta_t > 0} - x_t]$$

Moreover, using results in Burdzy et al. (2001), the authors have analytical properties of this equilibrium.

Idea: expectations of long positions for other investors are the combination of a congestion effect and an appreciation effect. For $\lambda$ small enough, appreciation effect dominates.
Question 1

The trade off congestion/appreciation effects is highly based on the assumption of the process driving the portfolio choice of investors. How realistic is this assumption?

- values of $\lambda$ seem in line with literature
- but what about the independency of revision dates across global investors?
Existence and uniqueness of the equilibrium

For a process such that, for any \( u \)

\[
\frac{dx_{t+u}}{du} = -\lambda x_{t+u}
\]

\[
\theta_t = \frac{w_t + l(\chi - 1) + (\overline{l} - l)(\chi - 1)x_t}{\lambda + \rho} = \frac{w_t + f_0(x_t)}{\lambda + \rho}
\]

Then, for any \( f_n, f_{n+1} \) is such that, for a process \( x_t \), such that

\[
\frac{dx_t}{dt} = \lambda[1_{w_t > f_n(x_t)} - x_t]
\]

\[
\theta(x_t, w_t) = 0 \iff w_t = f_{n+1}(x_t)
\]
What ensures that we can find such a function?

\[
\theta(x_t, w_t) = \frac{w_t + l(\chi - 1)}{\lambda + \rho} + (\bar{l} - l) \int_{0}^{+\infty} K(v) E_t(x_{t+v}) dv
\]

\[
\theta(x_t, w_t) = \frac{w_t + l(\chi - 1)}{\lambda + \rho} + (\bar{l} - l) F(x_t, w_t)
\]

It seems that \( F(x_t, w_t) \) depends on \( x_t \) and \( w_t \) in a potentially complex manner?

Moreover, what ensures the convergence of this sequence of functions?
Question 3

To prove the uniqueness,

1. why $\tilde{f}_\infty$ is necessarily constructed in the same way than $f_\infty$?
2. why do we assume that the spread between the two functions is necessarily constant?
Conclusion

- very elegant and simple model
- simple, crucial and plausible assumptions.
- but sufficient to get important features