Comment on “Accounting for persistence and volatility of good-level real exchange rates: the role of sticky information”

by Crucini, Shintani, and Tsuruga

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The essence of the paper

- Extend the latest work by Kehoe and Midrigan (2007)
- Add information stickiness (Mankiw and Reis 2002) to price stickiness (Calvo 1983)
- Shows that the “dual stickiness” has a substantial advantage over the conventional sticky price model in generating the persistence and volatility in individual goods-based real exchange rates

Overall impression

- A very important issue in the field: the well-known puzzling dynamics of real exchange rates
- Effectively exploits a rich micro panel dataset
- Conducted with much technical rigor
- Data are micro and detailed, the issue is at the heart of macroeconomics (Awesome!)
- Overall, a highly sophisticated piece of research

Contributions

- Offers a micro econometric perspective to the ongoing efforts to understand the puzzling dynamics of real exchange rates
- Addresses the real exchange rate issue while placing it in the larger context of macroeconomic rigidity literature
- Explicitly derives implications of information stickiness
- Bring different strands of literature together

Are the findings striking?

- Well,… not so much. Just like Calvo model introduces stickiness in prices, the current model introduces an additional sources of rigidity in an *ad hoc* fashion

- With the additional source of rigidity, the model should do at least as good as and perhaps better than the Calvo model

Why are the findings not so striking?

- In principle, one can generate certain types of price dynamics by devising various *ad-hoc* mechanisms in the underlying model to calibrate
- Thus, being able to generate persistence and volatility is interesting, but not sufficient
- A critical question is whether or not the persistence and volatility are generated by an empirically relevant and plausible framework

What the paper demonstrates

- The traditional sticky price model is not capable of generating *the same level* of persistence and volatility in individual goods-based real exchange rates as we observe
- Introducing the information stickiness leads to substantial improvement in the model performance

What the paper does not demonstrate

- Whether or not the assumptions and restrictions necessary to generate persistence and volatility are empirically plausible
- Whether or not other model implications (than the ones highlighted as the main results) are plausible
- Thus, overall relevance of the results to the empirics remains unclear
- Some concrete issues follow

Issue 1: Real exchange rate and relative consumption

- From (16) and footnote 4,

$$\Delta q_t = \Delta c_t - \Delta c_t^*$$

- This implies that Δq and (Δc- Δc*) share the same order of persistence and volatility
- However, my calculation for 1990-2004 data yields

$$\frac{\text{var}(\Delta q_t)}{\text{var}(\Delta c_t - \Delta c_t^*)} \approx 25.1$$

Issue 2: Nominal exchange rate and relative money

- From (17) and footnote 4,

$$\Delta s_t = \Delta m_t - \Delta m_t^*$$

- This implies that Δs and (Δm- Δm*) share the same order of persistence and volatility
- Yet, my calculation for 1990-2005 data suggests

$$\frac{\text{var}(\Delta s_t)}{\text{var}(\Delta m_t - \Delta m_t^*)} \approx 0.30$$

Issue 3: Dynamics of money growth

- The main results critically hinges on the assumption that money growth follows AR(1) process with a common parameter
- But this is an empirical issue
- In fitting various ARMA models, I find

	M1, M2	M1s.a.	M2s.a.
USA	AR(12)	AR(6)	AR(6)
Canada	AR(12)	AR(3)	AR(2)

Issue 3: Dynamics of money growth

- Another implication arising from the assumption is that the persistence and volatility of the real exchange rates must be monetary-regime specific
- This warrants additional analyses on regime shifts in both money growth and real exchange rate dynamics

Issue 4: ARMA structure restriction

- The same ARMA(4,2) structure is imposed on all of the individual goods-based real exchange rate series
- But the temporal dynamics of the individual goods prices needs to be verified empirically
- My experience with different price dataset suggest that there is sufficient heterogeneity in the temporal structures across goods

Suggestions

- To enhance the credibility of the current results,
  - Test and report empirical validity of the key assumptions
  - Check and discuss plausibility of other model implications
- These should be very helpful for thinking about strength and weakness of the model
- Even if they turn out to be implausible, that is still quite informative and educating to readers