The Optimal Exchange Rate Policy

by

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- Investigation of optimal **monetary policy** and **foreign exchange market intervention** for a small open economy.

- The setting is one with sticky nontraded goods prices, flexible traded goods prices, **nominal bonds** are traded.

- All borrowing from or lending to foreigners is intermediated through an **"arbitrageur"**, and the arbitrageur is especially averse to exchange-rate risk.

- There are **noise traders** that create exchange rate shocks.

- Foreign exchange market intervention allows the government to trade home bonds for foreign bonds directly.

- Monetary policy sets the nominal wage directly.

Outline of my comments

(I have only seen the first 15 pages of the paper, and even those are very rich! So, my discussion is focused on only some aspects.)

1. Summarize some of the main results
2. Discuss about the **intermediaries' objective**
3. Discussion of alternatives and implications
4. **Exchange rate volatility** and policy
5. **Costs** of stabilizing exchange rates
6. Conclusions and suggestions for future work

Two distortions in the model:

Real exchange rates should equal $\tilde{Q}_t = \left(\frac{\gamma}{1-\gamma} \frac{A_t}{C_{Tt}} \right)^{1-\gamma}$. But the sticky price distortion leads to $Q_t = \mathcal{E}_t^{1-\gamma} = \left(\frac{\gamma}{1-\gamma} \frac{W_t}{C_{Tt}} \right)^{1-\gamma}$.

Risk-adjusted UIP condition should have $E_t \left(\beta \frac{C_{Tt}}{C_{Tt+1}} \left(R_t^* - R_t \frac{\mathcal{E}_t}{\mathcal{E}_{t+1}} \right) \right) = 0.$

But the intermediation distortion gives us

$$E_t \left(\beta \frac{C_{Tt}}{C_{Tt+1}} \left(R_t^* - R_t \frac{\mathcal{E}_t}{\mathcal{E}_{t+1}} \right) \right) = Z_t / \beta,$$

where Z_t increases in exchange rate volatility, σ_t^2.

1. Optimal policy when **monetary policy** and **foreign exchange intervention** are **both available**:

Monetary policy: Set $W_t = A_t$, so that the nominal exchange rate adjusts to give the optimal real exchange rate: $\mathcal{E}_t = \tilde{Q}_t^{1-\gamma} X_t$ where X_t is the output gap.
Foreign exchange intervention: Take over for the intermediary and do their job completely.

2. Optimal policy when **only monetary policy is available**, but $\tilde{Q}_t$ is very stable:

   Use monetary policy to stabilize the nominal exchange rate, which sets $\sigma_t^2 = 0$ and gives us the correct risk-adjusted UIP condition.

One Note about Policymaker Objective

The paper implicitly assumes it is desirable to achieve the allocations that would occur with free capital flows.

But there is **already market incompleteness** in the set-up. Only nominal bonds are traded.

Potentially in this situation, **policymakers could improve** on risk-sharing by doing better than the unrestricted market does.

Odd Assumption about Intermediaries

Intermediaries are held by Home households. The intermediary takes a zero net position, trading home bonds for foreign bonds.

If the intermediary were maximizing utility of its owners:

$$\underset{D^*}{Max}\, E_t\left[D_t^*\left\{\beta\frac{C_{Tt}}{C_{Tt+1}}\left(R_t^*-R_t\frac{\mathcal{E}_t}{\mathcal{E}_{t+1}}\right)\right\}\right], \text{ or, equivalently,}$$

$$\underset{D^*}{Max}\, E_t\left[D_t^*\left\{E_t\left(\beta\frac{C_{Tt}}{C_{Tt+1}}\right)E_t\left(R_t^*-R_t\frac{\mathcal{E}_t}{\mathcal{E}_{t+1}}\right)-Cov_t\left(\beta\frac{C_{Tt}}{C_{Tt+1}},R_t^*-R_t\frac{\mathcal{E}_t}{\mathcal{E}_{t+1}}\right)\right\}\right]$$

That is, the intermediary would be risk averse, it would care about **covariance risk**, and the risk-adjusted UIP would be the f.o.c.:

$$E_t\left(\beta\frac{C_{Tt}}{C_{Tt+1}}\left(R_t^*-R_t\frac{\mathcal{E}_t}{\mathcal{E}_{t+1}}\right)\right)=0$$

What this paper assumes

To the standard objective, this paper adds another term:

$$\underset{D^*}{Max}\, E_t\left[D_t^*\left\{\beta\frac{C_{Tt}}{C_{Tt+1}}\left(R_t^* - R_t\frac{\mathcal{E}_t}{\mathcal{E}_{t+1}}\right)\right\}\right] - aD_t^{*2}\,\mathrm{var}_t\left(\mathcal{E}_{t+1}\right)$$

In other words, the model assumes that firms not only care about **systematic risk** (covariance with the s.d.f.) as is standard, but also about **unsystematic volatility** in the exchange rate.

This extra ad hoc term is crucially the source of the "risk sharing" distortion in the model

Comment

Do intermediaries have a **special aversion** to unsystematic exchange rate volatility?

It seems plausible to me, but I would like to understand **why**. It should be more than just an assumption.

Would it come from a model in which there are **balance sheet constraints** on the financial intermediary? Cost of buying **hedges**?

Or maybe it has something to do with **liquidity**, as in the deviation from UIP in my paper with Bianchi and Bigio.

The optimal policy **might be simpler, or different**, than what we get with the ad hoc aversion to exchange rate volatility.

More generally:

1. It makes sense to me that **limits of intermediation** lead to imperfect international risk sharing. It would be nice to see direct empirical evidence of this.
    a. How does the **volume of international borrowing**/lending and the extent of consumption risk sharing depend on the **degree of financial development**?
    b. Actually, to what extent even **intra-nationally** does asset trade facilitate risk sharing?
    c. How does the **size and volatility of deviations from UIP** depend on the degree of financial development?

2. Is exchange rate volatility **per se** the culprit behind insufficient intermediation?
    a. Here we need both a more micro-founded model, and some data to back it up.

Exchange rate volatility distortions and relative prices

I think when prices are sticky, a lot of **nominal exchange rate fluctuations are distortionary**. In this model, optimal exchange rate movements should lead to changes in the relative price of tradable to nontradables. (As noted above, optimally $\mathcal{E}_t = \tilde{Q}_t^{1-\gamma} X_t$)

If there is volatility coming from say, **news about the future**, even absent noise traders, this volatility could lead to inefficient relative price changes. In this model, that might be true even when both monetary policy and forex intervention tools are available, but future policy is not fully credible.

Risk premium shocks are similar – lead to inefficient real exchange rate changes under sticky prices/wages.

If there is **DCP or LCP**, almost any source of exchange rate volatility leads to inefficient relative prices.

So, there is generally a case for stabilizing exchange rates even **without noise traders**, but at what cost?

Summarize my comments so far

In the model, exchange rate volatility leads to "risk sharing" distortions.

- What are the micro foundations?
- How important is exchange rate volatility for risk sharing distortions?

When policy is not perfect, exchange rate volatility will lead to relative price distortions.

Should policy stabilize exchange rates?

Reasons to be cautious

- The model has **no cost to inflation** per se – it does not distort relative prices as in Calvo pricing, nor lead to wasteful price adjustment costs as in Rotemberg pricing, nor lead to shoe leather costs, or whatever.

- Moreover, the baseline optimal policy is **time consistent**.

- Experience in emerging markets suggests something deeper: **Credibiilty, or commitment** matters, and inflation targeting has proven to do a lot more for cementing credibility than fixing exchange rates. **"Inflation bias"** under discretionary policy is important.

- Fixed exchange rate regimes have often led to **overvaluation** and eventual **catastrophic devaluations**. Under fixed or controlled exchange rate regimes, **"original sin"** prevailed. Since 2000 when many central banks adopted inflation targeting (and gained independence) these problems have been greatly **ameliorated**.

More generally

- In general, if there are fewer instruments than targets, the optimal **targeting rule trades off different objectives**.

- But if monetary policy has **too many targets**, it risks losing credibility: inflation, output gap, the exchange rate, income distribution, climate change. These are all, now, supposedly objectives of monetary policy.

- These become targets of monetary policy when government policymaking becomes ineffective, so this broader mandate is understandable.

- We need to understand better **what it takes to maintain credibility** – to convince the public that the central bank is committed to a "flexible targeting rule."

Conclusions

This is a nice paper with many neat insights that I have not even had time to discuss.

The paper emphasizes a point that is present but perhaps not as prominently discussed in many papers: that **asset market segmentation** introduces another distortion, but also **breaks the trilemma** and gives the policymaker another tool, **sterilized intervention**.

Of course, we can ask whether sterilized intervention is **effective**. Another empirical venture would be to relate its effectiveness to the degree of imperfect intermediation.

The paper then both **succeeds** in giving us many new insights and to suggesting interesting future work!