Discussion of Cook and Devereux

Exchange Rate Flexibility under Zero Lower Bound: the Need for Forward Guidance

Giancarlo Corsetti
Cambridge and CEPR

ECB-IMF Conference
"International dimensions of conventional and unconventional monetary policy"
April 29 and 30, 2014

April 29, 2014

Question and main findings

- OCA: countries with an independent monetary policy are "better off", relative to countries in a monetary union.
- Is this true also when recessionary shocks cause policy rate to hit the ZLB constraint?
- Cook and Devereux provide an analytically rich and rigorous answer:
  - yes under discretion;
  - no under commitment.
- The reason: long-run PPP constrains the dynamics of relative inflation in a currency union: a fall of **inflation below union average in the short run** requires inflation to be **above average in the future**.
- The commitment to a fixed exchange rate transpires into a **'commitment' to long-run relative prices**, that moderates the costs of policy discretion.

A theoretical perspective

- OCA is a corollary of the general proposition "*the set of allocations under flexible exchange rates contain the set of allocations attainable under fixed exchange rates*"
  - monetary policy under flex can always mimic m.p. under fixed.
- The Cook-Devereux paper show that the proposition fails in a two country model, if, at the ZLB, policy-making is discretionary — whether or not one or both countries are constrained.

Outline

1. The question from a small-open-economy perspective
2. The contribution of the model to the literature
3. Comments and suggestions

Focus on the core transmission mechanism

1. In new Keynesian model (with staggered price setting)

$$c_t = \overbrace{\xi_t}^{\substack{\text{taste shock = exogenous} \\ \textbf{demand shifter}}} - \frac{1}{\sigma} \overbrace{E_t \sum_{\kappa=0}^{\infty} (r_{t+\kappa} - \pi_{t+1+\kappa})}^{\substack{\text{“endogenous” policy response} \\ = \textbf{monetary stance}}}$$

   where c is interest-sensitive spending and, for simplicity, preferences are assumed to be separable C and leisure.

2. Under complete markets, the exchange rate SP/P^* is the **ratio of foreign to domestic monetary stances** augmented with relative demand shifters.
   - Holding ξ_t fixed, a rise in long term rates brings about a fall in c **and** an *exchange rate appreciation*.

A key result

Proposition: *in a small open economy in a fixed exchange rates, with nominal rates exogenous to domestic shocks by the Uncovered Interest Parity condition (set be constant for simplicity), the* **long-term PPP** *implies*

$$
\begin{aligned}
c_t &= \xi_t - \frac{1}{\sigma}\left[\overbrace{E_t \sum_{\kappa=0}^{\infty}\left(-\pi_{t+1+\kappa}\right) + \pi_0}^{=0} - \pi_0\right] = \\
&= \xi_t + \frac{1}{\sigma}\cdot\pi_0
\end{aligned}
$$

The endogenous impact of shocks on demand is proportional to the initial (endogenous) bout of inflation. (Corsetti, Kuester and Mueller (CKM) 2010)

- Used by Nakamura & Steinsson, Fahri & Werner among others.

The CKM result: intuition, corollaries and theoretical contribution

- *Long-term PPP implies that any rise on relative Home-to-Foreign inflation in the short run must be reversed at some point by relative deflation.*
  - A constant interest rate under a peg is not the same as a constant rate at the zero lower bound: equilibrium is determinate even if the interest rate is not set according to the 'Taylor principle' by virtue of dynamics of relative prices ('explains' Benigno Benigno Ghironi).
  - Speed of adjustment to PPP irrelevant (from staggered pricing decisions) for this result to hold.

- A credible fixed exchange rate is akin to a commitment to a price level target (given by foreign P^*).
- ZLB dynamics cannot occur.

Contrast with Taylor rule under flexible rates and ZLB

- **Flexible rates**. With the economy expected to be at the ZLB for T periods, letting the response to inflation very aggressive from $T+1$ on

$$
\begin{aligned}
c_t - \xi_t &= \frac{1}{\sigma}\left[E_t \sum_{\kappa=0}^{T} \left(0 - \pi_{t+1+\kappa}\right) + E_t \sum_{\kappa=T}^{\infty} \left(\left(\phi_\pi - 1\right)\pi_{t+1+\kappa}\right)\right] \\
&\simeq \frac{1}{\sigma}\left[E_t \sum_{\kappa=0}^{T} \left(\begin{array}{c}\text{this is less than zero} \\ \pi_{t+1+\kappa}\end{array}\right)\right] \quad \text{versus} \quad \frac{1}{\sigma}\cdot\pi_0
\end{aligned}
$$

  After a sufficiently low ξ_t, the economy is dragged down by very large deflation for T period. The corresponding hike in long-term rates appreciates the home currency.

- **Fixed exchange rates**. π_0 is lower: with Calvo pricing, firms respond to the contractionary shock moderately, as they anticipate future positive inflation rates.

The role of a 'price level commitment': an illustration

- I borrow from Gali and Monacelli a modified Taylor rule assuming

$$i = \phi_\pi \overbrace{\pi}^{\textbf{rate of change} \text{ in prices}} + \frac{\phi_s}{1-\phi_s} \overbrace{s_t}^{\textbf{level} \text{ of exchange rate} \neq 1}$$

thus combining short-run active stabilization with long-run commitment to exchange rate=price level.

GM meets CKM: the trade-off between output and ER stabilization

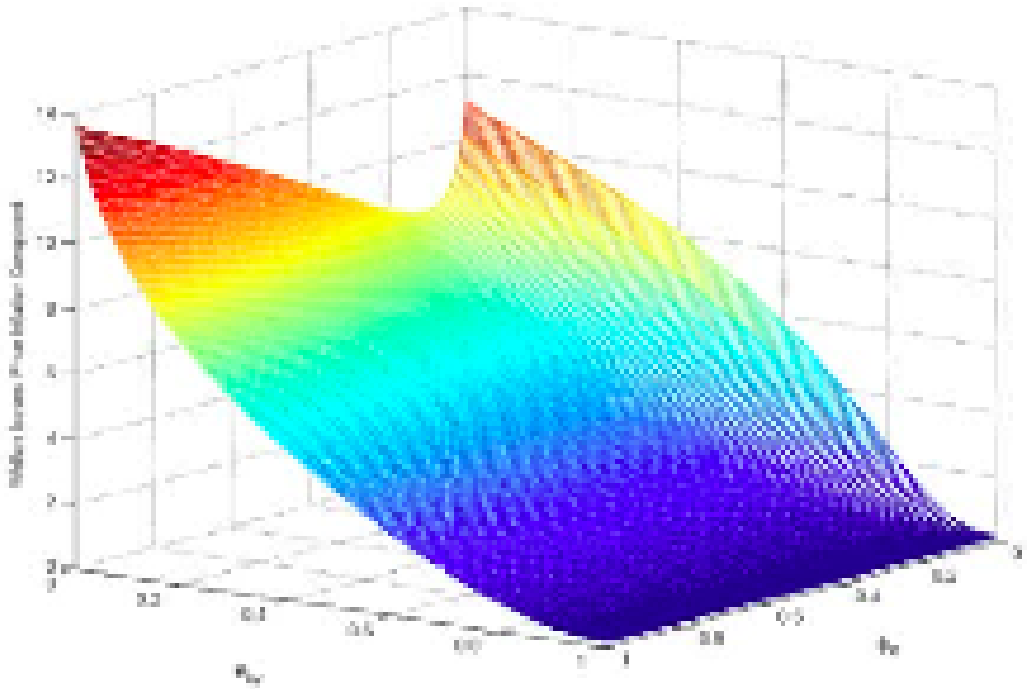
- As long as $\phi_e > 0$,

$$c_t = -\frac{\phi_\pi - 1}{\sigma} \cdot \pi_0 - \frac{1}{\sigma} \frac{\phi_s}{1-\phi_s} E_t \sum_{\kappa=0}^{\infty} s_{t+\kappa}$$

- For a standard value of $\phi_\pi (= 1.5)$, a moderate ϕ_s improves welfare, as a price level targeting harnesses inflation expectations, and inflation dispersion.
- The two terms pull in different direction: as $\phi_s \rightarrow 1$, however, monetary policy "stabilizes" less and less. The OCA result dominates.

Moderate exchange rate targeting contains losses from inflation dispersion

- GM: a Taylor rule with a (moderate) feedback on price level improves welfare (same reasoning as with optimal targeting policy under commitment), for many combinations of wage and price rigidities.



(b) Price inflation component

The contribution by Cook and Devereux

- The analysis above takes P^* as given. What if the shock generates deflation at union level, inducing a drift for the average price level? Does the intuition above still apply?
- Fascinating question: the answer is "**yes**."
- Great reading — delivered in an analytically rich and rigorous way. Great for teaching: authors leave a number of lingering open issues for students to work on.
- Outline:
  1. Taylor rule, both countries at ZLB
  2. Optimal monetary policy (discretion and commitment); one or both countries at the ZLB.

1. Taylor rule analysis

- Main advantage of specification: union-level aggregate independent of exchange rate arrangement, just focus on relative (home to foreign) variables.
- As in Benigno Benigno Ghironi (another missing references), terms of trade obeys

$$\tau_t = \tau_{t-1} - \pi_t^{\text{relative}}$$

  which is the root of the "*proxy commitment* aspect of a single currency" (page 15).
- Suggestion: be explicit. Credible exchange rates requires full commitment. This translates into an implicit commitment to offset relative deflation with future relative inflation.
  - Because firms anticipate future price offset, the initial response to shocks is moderate.
  - A fixed exchange rate constrained the equilibrium response of relative long-term rates. Without adjustment in S, Home deflation coincides with terms of trade improvement.

2. Optimal (cooperative) policy analysis

- This is where value added is higher: aggregate dynamics changes across exchange rate arrangement.
  - consider countries sufficiently open to trade, and an asymmetric shock to Home country, that would make the optimal policy rate negative in both countries.
- Cooperation **under discretion**.
  - **Multiple currencies**, at the ZLB, Foreign may nonetheless raise interest rate: cooperation require foreign to contain deflation at Home, leaning against Home depreciation.
  - **Single currency:** with relative price constraining inflation path, no need for Foreign rate hikes. Overall real rates are lower, demand falls by less, higher welfare.
- Contrast with **Commitment** (forward guidance) obviously reverses the result. Policymakers can credibly pursue the optimal path/price level target.

Comments

- The analysis assumes complete markets. With incomplete market (condition (3) does not hold), the exchange rate may move in different ways.
  - a conjecture: the intuition above goes through in relative inflation, putting the role of the endogenous adjustment in exchange rates in perspective.
- Nature of the shock and nature of transmission mechanism. There are model stressing alternative channels (see Pontus Rendahl work).
- Bringing the model to the euro crisis: does it fit the bill?
  - cheap shot: would the new French franc (let alone the new drachma) appreciate after break up? Sovereign (break up) risk crisis at the ZLB may suggest a different answer.
- Internal tension: monetary policymakers are not credible in pursuing forward guidance, they are perfectly credible in exchange rate commitment.

Suggestions

- Holding PPP (same consumption basket), single and multiple currencies deliver the same welfare. The reader may expect some explanation.
- Useful to clarify the Markov structure of the ZLB state, as in Christiano et al (2011) and Woodford (2011)

To conclude

- Paper calls attention on another key reason why results and policy prescriptions by the **New**-keynesian challenge **Old**-Keynesian wisdom.
  - not many pieces of conventional wisdom survive.
  - Difference comes from a more structured analysis of dynamics and expectations.
- Dynamic new body of literature rethinking the implications of flex versus float regimes on monetary regimes.
  - *Benigno Benigno Ghironi* "Interest Rate Rules for Fixed Exchange Rate Regimes," Journal of Economic Dynamics and Control 31 (July 2007): 2196-2211.
  - *Corsetti Kuester Mueller* "Floats, Pegs and the Transmission of Fiscal Policy" joint with K Kuester and G Mueller, in Luis Felipe Cespedes and Jordi Gali (eds.) Fiscal Policy and Macroeconomic Performance, Santiago, Chile: Central Bank of Chile, 2011.