

Reverse Speculative Attacks

by Amador, Bianchi, Bocola and Perri

Alberto Martin

CREI, UPF, Barcelona GSE

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- **Standard speculative attacks**

- ▶ agents bet on depreciation
- ▶ eventually, Central Bank (CB) forced to abandon peg

- **This paper: reverse speculative attacks**

- ▶ agents bet on appreciation
- ▶ can the CB maintain the peg indefinitely?
 - ★ intuitively: YES!, just print as much money as required
 - ★ here: YES!, but.....

- **Simple model and application to Switzerland**

The model: mechanics

- Small-open economy, one good
- CB sets monetary/exchange rate policy (M_t, E_t) : two regimes
- **Normal regime:** up to T , maximize

$$V(s^t) = u(E, s) + \beta \sum_{s^{t+1}} \pi(s^{t+1} | s^t) \cdot V(s^{t+1}) \quad \text{subject to}$$

- ▶ *budget constraint:* letting $F_t =$ foreign reserves

$$E_t \cdot (F_t - F_{t-1}) = F_{t-1} \cdot i_{t-1}^* \cdot E_t + M_t - M_{t-1} - T_t$$

- ▶ *institutional constraint:* CB profits

$$\Pi_t = [E_t - E_{t-1}] \cdot F_{t-1} + i_{t-1}^* \cdot E_t \cdot F_{t-1}$$

must satisfy

$$T_t = \Pi_t \quad \text{and} \quad \Pi_t > -\bar{\Pi}$$

- ▶ Note: $u(E, s)$ maximized at $E = 1$

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- **Ad hoc regime:** from period $T + 1$ (possibly stochastic) onwards
 - ▶ set $E_t = \bar{E} < 1$

Money market

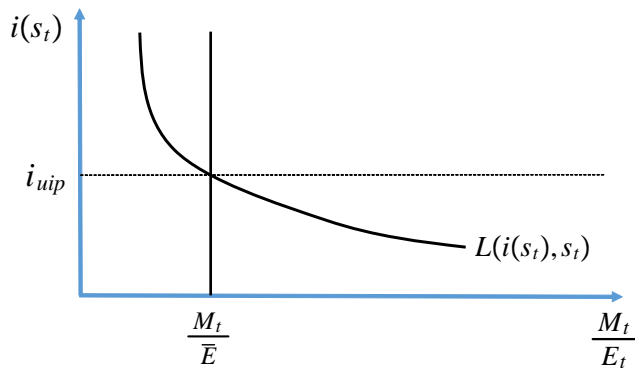
- Equilibrium condition:

$$\frac{M_t}{E_t} = L(i(s_t), s_t)$$

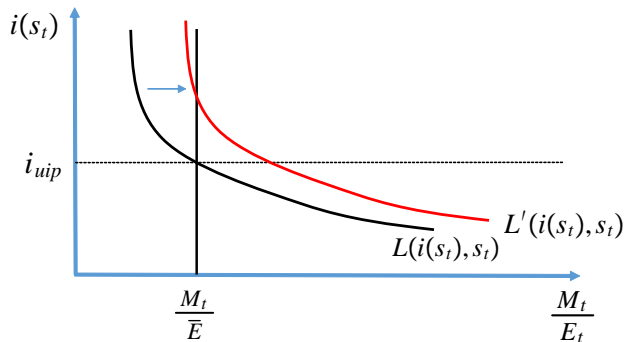
where $i(s_t)$ satisfies UIP

$$1 + i(s_t) = E \left[(1 + i^*(s_t)) \cdot \frac{E(s_{t+1}, s_t)}{E(s^t)} \middle| s^t \right]$$

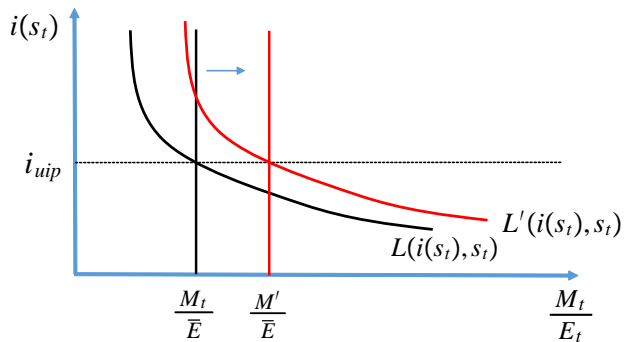
Money demand shock



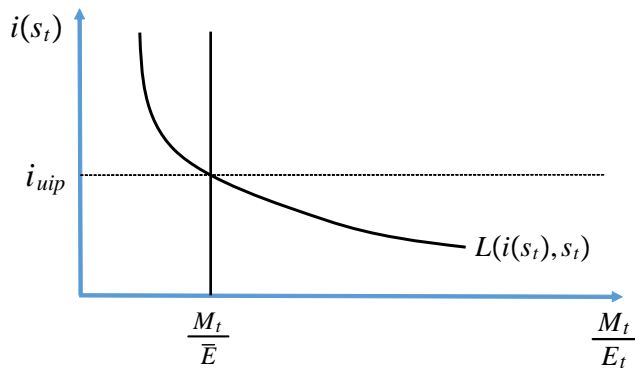
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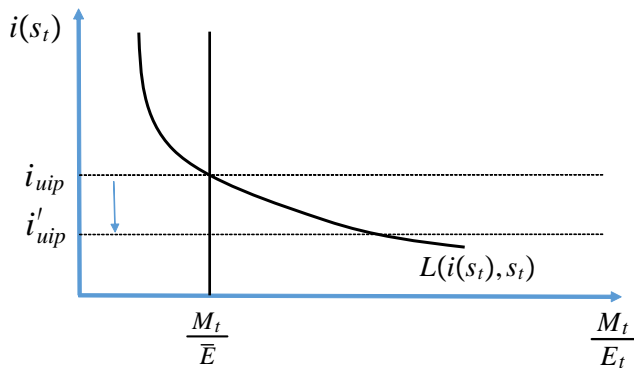
Money demand shock



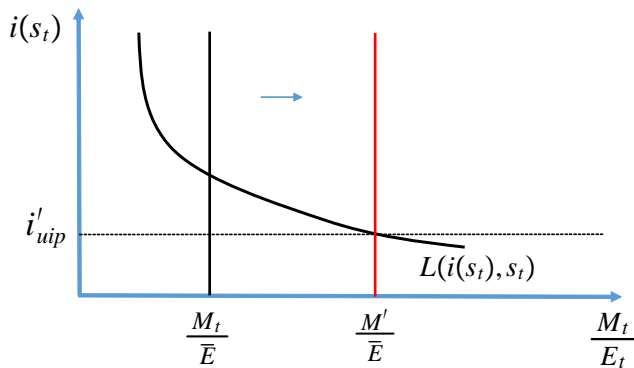
Interest rate shock



Interest rate shock



Interest rate shock



Main results

- If normal regime were extended indefinitely
 - ▶ CB could preserve $E_t = 1$ forever
 - ▶ conventional intuition is correct
- Once ad hoc regime is likely
 - ▶ CB might be forced to abandon peg **within normal regime**
 - ▶ intuition: during normal regime, CB accumulates F
 - ★ in paper: demand and interest rate shocks
 - ★ even with deterministic T : speculative attack at T
 - ▶ accumulation of F before appreciation exposes CB to losses

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 - ▶ accumulation of F before appreciation exposes CB to losses
 - ▶ without institutional constraint: no effect
 - ▶ with institutional constraint: appreciate before $T + 1$
- CB could keep peg indefinitely if it chose to, BUT....
 - ▶ if it wants to abandon it eventually, it may be forced to do it sooner than it would like
 - ▶ in this sense, \neq from traditional speculative attack literature

Comment I

- How do we think about ad-hoc regime?
 - ▶ CB is *forced* to set $E = \bar{E} < 1$
- More natural assumption: optimal E changes at $T + 1$
 - ▶ $u(E, s)$ maximized at \bar{E}
 - ▶ but CB can set E freely
- Smooth E appreciation, but trade-off
 - ▶ if peg abandoned before $T + 1$: welfare loss from $E < 1$
 - ▶ if peg abandoned after T : welfare loss from $E > \bar{E}$
- Broader question: optimal design of monetary/exchange rate policy under balance sheet considerations
 - ▶ take optimal path of E for “macroeconomic” reasons
 - ▶ minimize deviations from this path s.t. institutional constraint

Comment II

- Institutional constraint
 - ▶ upper bound on per-period losses
 - ▶ no intertemporal smoothing for the CB
 - ▶ from an economic perspective, more sense to constrain net worth
 - ★ if CB net worth wiped out, no ability to control value of currency
- What does institutional constraint look like in reality? (Reis (2013a,b))
 - ▶ it is true that most CB's rebate profits to treasury
 - ▶ to what extent can they use past profits to cover losses?
 - ★ interesting aspect of CB design (e.g. FED deferred account)
 - ▶ some more discussion of this is lacking
- In this model, moreover, not clear why CB should care about balance sheet effects of appreciation
 - ▶ CB cares only about E
 - ▶ assets and liabilities unchanged by appreciation
 - ▶ CB's ability to set a specific E unchanged by appreciation
- Alternatively, institutional constraints reflect political/career concerns

Comment III

- Money demand estimation

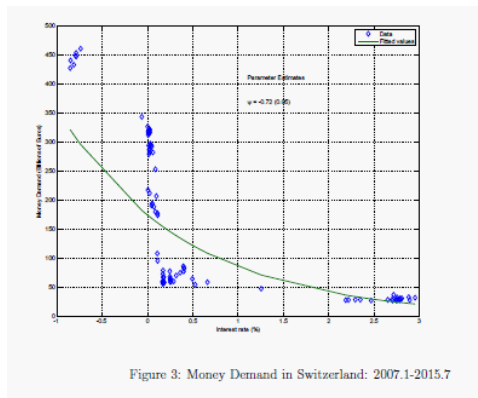
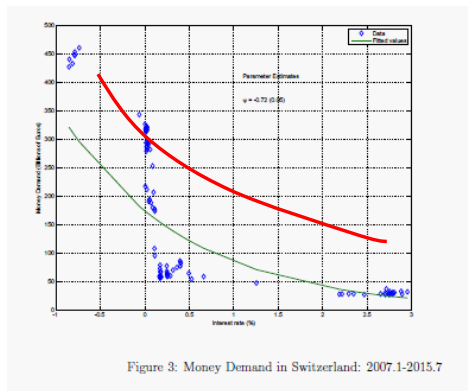


Figure 3: Money Demand in Switzerland: 2007.1-2015.7

Comment III

- Money demand estimation



Comment IV

- Objective/instruments of the central bank
- Objectives: in model, E enters utility directly
 - ▶ presumably, CB cares about real exchange rate
 - ▶ in richer model (i.e., T/NT), CB could
 - ★ $t \leq T$: prevent nominal and real appreciation through sterilized intervention
 - ★ $t > T$: keep $E = 1$ but allow for real appreciation
 - ★ conflict with inflation mandate?
- Instruments: capital controls
 - ▶ used in normal period to prevent balance sheet expansion
 - ▶ contain loss of appreciation at $T + 1$
 - ▶ costs? disruptions to financial system?
- In the presence of balance sheet considerations
 - ▶ optimal combination of monetary/exchange rate/capital control policies

Conclusion

- Interesting, timely paper
 - ▶ nice depiction of potentially important mechanism
 - ★ implications for other central banks? (China, FED...)
 - ▶ main shortcoming: ad hoc regime too ad hoc
- Final question: does it really reflect the Swiss experience?
 - ▶ was the peg abandoned because of balance sheet concerns?
 - ▶ or did optimal E fall because T materialized?
 - ★ ECB QE and Euro depreciation
 - ▶ difficult to distinguish between these views