Comments of "Financial Frictions and Unconventional Monetary Policy in Emerging Economies"

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"FINANCIAL FRICTIONS AND UNCONVENTIONAL MONETARY POLICY IN EMERGING ECONOMIES"

Discussion by:

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Overview

- The paper presents a model for an open economy with financial frictions to discuss how conventional and unconventional monetary policy can respond to shocks
  - Conventional Monetary Policy
    - Exchange rate peg
    - Interest rate peg
  - Unconventional Monetary Policy:
    - Direct lending to households
    - Direct lending to banks
    - Capital injections on banks
    - Sterilized Intervention

Overview

- Unconventional policies studied in the paper actively discussed in policy and academic circles the aftermath of the GFC

- Contribution of the paper is to present an elegant model to analyze those policies in the context of a small open economy

    - Particularly useful how different shocks and policies can be mapped into external constraint

Overview of the Model

- Two goods: Home and Foreign
  - Home good is a Dixit-Stiglitz aggregate of varieties
  - Foreign demand for home good is elastic
  - Domestic final consumption good is a Cobb-Douglas aggregate of Home and Foreign good.
- Banks:
  - Households have equity k_t on the banks; $k_t \leq \tilde{k}$
  - Banks borrow d_t dollars from foreigners at world interest rate ρ, subject to $d_t \leq \theta k_t$
  - Lends l_t to households at a rate ρ_t

Overview of the Model

- Households maximize:

$$\sum_{t=0}^{\infty} \beta^t U(c_t, n_t) = \sum_{t=0}^{\infty} \beta^t [\log(c_t) - \frac{\eta}{2} n^2]$$

s.t.

$$e_t^{-\alpha} b_t + k_t - l_t = (1+r_{t-1}) e_t^{-\alpha} b_{t-1} + (1+\omega_{t-1})(1+\rho) k_{t-1} - (1+\varrho_{t-1}) l_{t-1} + e_t^{-\alpha}(w_t n_t + v_t) + z - e_t^{-\alpha} c_t,$$

- Solution can be summarized by an optimal labor supply condition, Euler equation, and an arbitrage condition for r_t

Shocks

- Paper focuses on a constrained steady-state (domestic interest rate above world rate)

- Adverse shocks

  - External balance condition becomes:

$$(1 - \alpha)e^{-\alpha}c - (xe^{x-1} + z) = s$$

$$s \equiv \tilde{k}'(\theta' - \theta) + \theta(\tilde{k}' - \tilde{k}) + (z' - z) < 0$$

- Positive shocks

  - Sufficiently favorable shock causes economy to become temporarily unconstrained

External Shocks Under Exchange Rate Peg

□ Policy keeps e constant. But in the face of external shock, consumption must fall to restore external balance

$$(1 - \alpha)\bar{e}^{-\alpha}c - (z + x\bar{e}^{x-1}) = s$$

□ Output is determined by demand and falls along with consumption, and loan interest rate rises

External Shocks Under Exchange Rate Peg

- Real model

- Who is keeping the exchange rate constant?

- Could consider a government that can tax/subsidize the home and foreign good so as to keep relative price constant

  - Government just buying/selling the goods would have different implications for quantities produced, so may need taxation

External Shocks Under Interest Rate Peg

- Policy keeps *r* constant (at *1/β*).

- Since *r* does not move, consumption remains at the steady-state level (from Euler Equation)

- External adjustment achieved by depreciation and increase in output

- Needed adjustment even larger in the presence of currency mismatches

External Shocks Under Interest Rate Peg

- Real model
- Who is keeping *r* constant?
- Someone buying and selling government bonds?
  - Can raise *r* by buying bonds; lower *r* by selling bonds. But what if hits constraint that $b \geq 0$?
  - In limiting case, assume government can tax consumption at *t* and *t+1* at different rates so as to keep *r* fixed?
- Maybe consider alternative production technology that yields output *1/β*?

Unconventional Policies: Direct Lending

- Central bank has $f>0$ dollars
- Central bank can lend directly to households (at the bank loan rate)
  - Transfers profits on reserves to households
- If financial constraint does not bind, policy has no effect (banks fully offset their lending leaving total supply of loans unchanged)
- But if financial constraint binds, central bank lending allows domestic economy to borrow more (relaxes external constraint)

Unconventional Policies: Direct Lending

- In steady-state, f dollars can only relax external constraint by ρf in every period.

- But can be particularly useful in offsetting temporary shocks to z.

Unconventional Policies: Lending to Banks

☐ Banks can now lend:

$$l_t = k_t + d_t + d_t^g$$

☐ And borrow:

$$d_t \leq \theta k_t + \phi d_t^g$$

☐ Central bank lending increases amount banks can borrow (increase cost of "absconding" with d)

  ▪ Reasonable modeling assumption. Maybe in richer setting, central bank lending could also attenuate things like costly liquidation.

Unconventional Policies: Lending to Banks

☐ If financial constraints do not bind, policy has no effect

☐ If financial constraints bind, central bank lending helps relax external constraint

☐ Lending to banks more effective than lending to households since $\phi > 0$.

Unconventional Policies: Equity Injection

- Central bank can also buy equity k^g on banks
  - Increase in bank equity can relax their borrowing constraint to:

$$d_t \leq \theta k_t = \theta\left(\tilde{k} + k_t^g\right)$$

  - Households will receive their share of bank profits; central bank's share also transferred to households
- One dollar of equity injection is more effective than one dollar lent if $\theta > \phi$

Unconventional Policies: Sterilized Intervention

- Money not explicitly modeled
- Paper discusses end-result of sterilized intervention as central bank dollar holdings declining by one dollar while either l^g or d^g increase by one dollar
  - Effect of intervention can be directly mapped to one of those policies

Unconventional Policies: Sterilized Intervention

- Alternatively, why not model sterilized intervention as central bank selling dollars and buying domestic bonds?

- FX Intervention would not change household's budget constraint

- But FX Intervention would relax external constraint (effect would still map with lending to households or banks)

Additional Comments

- It would be useful to provide some illustration of past episodes of unconventional policies
- FX Intervention is fairly common
- But other unconventional policies considered typically adopted in the context of financial crises:
    - Liquidity support common during banking crises; Equity injections less common
- Since impact of all unconventional policies map into external constraint, that could facilitate comparison
    - Maybe FX Intervention suffices in most cases

Additional Comments

- Model could contrast direct lending with a policy that auctions FX credit line
  - Households would not borrow at an interest rate higher than bank loan rate
  - Banks willing to borrow at that rate if they are credit constrained (since even expensive central bank credit relaxes borrowing constraint at the cheaper world rate)
  - Auctioning FX could ensure it ends up where it is most useful (banks), but would involve banks paying a higher interest rate

Additional Comments

- Maybe FX Intervention can cope with small shocks, or when reserves are plentiful

- Other unconventional policies could be a way to leverage a limited ability to provide FX liquidity