Sudden Stop with Local Currency Debt

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Motivation
- Emerging market economies (EMEs) have more external liabilities denominated in foreign currencies.
- Vulnerable to sudden stop crises!
- Policy recommendations based on this fact: limit debt volume to improve financial stability.
- But EMEs are issuing more local currency debts now.

Faces an extra LCD issuance cost: \((\delta/2)(b_{t+1}\delta_{t+1})^2\), which captures the difficulties that EMEs face when issuing LCD on the international financial market.

\(b_{t+1}\): total amount of debt issued.
\(\delta_{t+1}\): fraction of debt denominated in LCD.

Faces standard collateral constraint in the literature: 
\[ q_t^\delta + \delta_{t+1} + q_t^\beta b_{t+1}(1 - \delta_{t+1}) \leq \kappa (y_{t+1} + p_t^\beta y_t) \]

International Lenders:
- Deep-pocketed, competitive, with pricing kernel \(M_{t+1}\)
  - Bond prices:
    \[ q_t^\beta = E_t\left[M_{t+1}\right] \]
    \[ q_t^\delta = E_t[M_{t+1}P_t^\delta] = E_t[M_{t+1}E_t[p_{t+1}^\beta + Cov(M_{t+1},P_t^\delta)] \]
  - In equilibrium, our assumption on \(M_{t+1}\) ensures the covariance term is negative.
  - \( \Rightarrow \) Lenders charge a premium on LCD.

Tradeoff of local currency debt in equilibrium:
1. Hedging benefit: Unfavorable shock \( y_{t+1} \Rightarrow p_{t+1}^\beta \Rightarrow \) debt burden from LCD \( p_{t+1}^\beta \delta_{t+1} \)
2. Costs: (1) premium paid on LCD, and (2) additional quadratic issuance cost.

Key Inefficiencies
- The decentralized agents fail to recognize how their choice of \(c_{t+1}\) influences:
  1. \(p_t^\beta\) and thus the collateral value \(y_{t+1} + p_t^\beta y_t\).

\(p_t^\beta\) and thus the:
1. \(p_t^\beta\) and thus the real debt burden \(p_t^\beta h_{t+1}\delta_{t+1}\).
2. Previous bond price \(q_{t-1}^\beta = E_{t-1}[M_{t-1}P_{t-1}^\delta]\).

Since the inefficiencies influence bond price in the previous period, fully addressing this inefficiency requires commitment.

To understand the optimal policies in this environment, we characterize two social planners’ allocations, one without commitment (discretionary planner, or “DP”) and the other with commitment (commitment planner, or “CP”). Both internalize the two inefficiencies mentioned above.

Research Questions
- How does the rising local currency share of a country affect its economic resilience during a financial crisis?
- Are the existing policies still effective in today’s environment?
- What are the optimal capital control policies under the presence of local currency debt?

Model Environment
- We embed the choice of debt denomination into an otherwise standard sudden stop model à la Bianchi (2011).

Representative agent:
- Receives stochastic tradable endowment \(y_{t+1}\) and constant nontradable endowment \(\nu_{t+1}\).
- The consumption good \(c_{t+1}\) is combined with tradable \(c_{t+1}\) and nontradable consumption good \(c_{N_{t+1}}\).
- Maximizes lifetime utility \(E_t\sum_{s=0}^\infty e^{-\rho s}u(c_{s+1})\).
- Endogenous prices of \(c_{N_{t+1}}\) \(p_{t+1}^\beta\) and \(c_{N_{t}}\) \(p_t^\beta\) are increasing in \(c_{t+1}\).
- Issues foreign currency debt (FCD) and local currency debt (LCD):
  - FCD payoff \(s^0\) (noncontingent).
  - LCD payoff \(s^0\) = real exchange rate \(p_{t+1}^\beta\) (contingent).

Results

A discretionary planner (DP):
1. Disourages issuing LCD. A discretionary planner always has an incentive to lower \(c_{t+1}\) to reduce debt burden.
2. Loses less than the competitive equilibrium. Being unable to enjoy the hedging benefits from LCD, the optimal discretionary policy reduces debt volume to improve financial stability.

A commitment planner (CP):
1. Encourages issuing LCD. A commitment planner commits higher \(c_{t+1}\) to improve bond price and lowers the debt cost to issue LCD. Therefore, she issues more LCD to better utilize its hedging benefits.
2. Borrow more than the discretionary planner. Being able to enjoy the hedging benefits from LCD, the commitment planners borrows more than the discretionary planner.

The difference in the portfolio choices and the associated welfare results are shown in the simulation results below.

CE: Central Bank
DP: Federal Reserve
CP: DBFS

Policy Takeaways
- The optimal financial regulation should consider currency denominations.
- With LCD, the optimal financial regulation requires commitment.
- Financial integration could be a substitute for financial regulations in a dollar-debt economy.

Important Result 1
- The planners’ allocations can be decentralized by using two macroprudential taxes, one on FCD and the other on LCD.
- The optimal discretionary policies always tax both LCD and FCD in order to reduce borrowing.
- The optimal policies under commitment sometimes subsidize borrowing in order to boost consumption and support bond price. In addition, the optimal policies under commitment also tax FCD more heavily than LCD to encourage using more LCD. The differences are shown in the ergodic distribution of tax rates below.

Important Result 2
- Despite the new inefficiencies, introducing LCD alone can deliver significant welfare gains (0.116%) that are comparable to the optimal prudential regulations (0.12%) in an FCD-only economy.
- This result suggests that financial integration could be a substitute for financial regulations in a dollar-debt economy.

Important Result 4
- The optimal financial regulation should consider currency denominations.
- With LCD, the optimal financial regulation requires commitment.
- Financial integration could be a substitute for financial regulations in a dollar-debt economy.