Discussion of “Currency Choice in Contracts” by Drenik, Kirpalani, and Perez

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Summary

This paper studies interaction between

- Denomination of nominal contracts
- Monetary policy

Two main results

- If inflation volatile more contracts in foreign currency
  - As in data
- Equilibrium potentially constrained inefficient
  - Too little use of domestic currency
  - Rationale for policies that discourage use of foreign currencies

My discussion

- Review mechanism for inefficiency
- Comments
  - Efficiency (too little use of domestic currency): How robust?
    - Sketch out example where opposite true
  - Is evidence on dollar-deposit relevant for mechanism?

Environment

- Two periods, state of the economy in second period $s \in S$
- Buyer, producer, and monetary authority
- Buyer has preferences

$$(1+\lambda)\, x + \sum_s \Pr(s)\, \theta_b(s)\, c_b(s) - \sum_s \Pr(s)\, \psi \left(\frac{1}{\phi(s)} - \frac{1}{\phi^*(s)} \right)^2$$

  and endowment y of numeraire good in second period
- Producer has preferences

$$-x + \sum_s \Pr(s)\, \theta_p(s)\, c_p(s) - \sum_s \Pr(s)\, \psi \left(\frac{1}{\phi(s)} - \frac{1}{\phi^*(s)} \right)^2$$

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- No inflation-bias: $\sum_s \Pr(s)\,\theta_b(s) = \sum_s \Pr(s)\,\theta_p(s)$

Optimal private contract with state contingent transfer

$$\max_{x, t(s)} (1+\lambda)\, x + \sum_s \Pr(s)\, \theta_b(s)\, [y - t(s)]$$

subject to participation constraint

$$-x + \sum_s \Pr(s)\, \theta_p(s)\, t(s) \geqslant 0$$

feasibility constraint for all s:

$$t(s) \leqslant y$$

Want:

- High $t(s)$ if $\theta_p(s) > \theta_b(s)$
- Low $t(s)$ if $\theta_p(s) > \theta_b(s)$

Market incompleteness

- Payments cannot depend on s
- Payments indexed in two currencies
  - Domestic currency: t_d
  - Foreign currency: t_f
- Value of currency (in terms of numeraire good)
  - domestic currency: $\phi_d(T, s)$
  - foreign currency: $\phi_f(s)$ (exogenous)

Optimal private contract with non-contingent transfers

Given $T = (T_d, T_f)$ and strategy $\phi_d(\cdot)$ solve

$$\max_{x, t_d, t_f} (1+\lambda) x + \sum_s \Pr(s)\, \theta_b(s) \left[y - t_d \phi_d(T, s) - t_f \phi_f(s)\right]$$

subject to participation constraint

$$-x + \sum_s \Pr(s)\, \theta_b(s) \left[t_d \phi_d(T, s) + t_f \phi_f(s)\right] \geqslant 0$$

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Desirable to have payments denominated in currency with

- $\phi_i(s)$ high if $\theta_p(s) > \theta_b(s)$
- $\phi_i(s)$ low if $\theta_p(s) > \theta_b(s)$

so it can replicate state contingencies

Optimal private contract with non-contingent transfers

Given $T = (T_d, T_f)$ and strategy $\phi_d(\cdot)$ solve

$$\max_{x,t_d,t_f} (1+\lambda)\,x + \sum_s \Pr(s)\,\theta_b(s)\,[y - t_d\phi_d(T,s) - t_f\phi_f(s)]$$

subject to participation constraint

$$-x + \sum_s \Pr(s)\,\theta_b(s)\,[t_d\phi_d(T,s) + t_f\phi_f(s)] \geqslant 0$$

feasibility constraint for all s:

$$t_d\phi_d(T,s) + t_f\phi_f(s) \leqslant y$$

Desirable to have payments denominated in currency with

- Low volatility not correlated with $\theta_p(s) - \theta_b(s)$
  - Because feasibility constraint
  - Same result dropping feasibility but curvature in consumption numeraire good

Monetary policy

Monetary authority given (T_d, T_f) and s chooses ϕ_d to solve

$$\max_{\phi_d} \theta_b(s)\left[y - T_d\phi_d - T_f\phi_f(s)\right] + \theta_p(s)\left[T_d\phi_d + T_f\phi_f(s)\right]$$
$$- 2\psi\left(\frac{1}{\phi_d} - \frac{1}{\phi^*(s)}\right)^2$$

Monetary policy

Monetary authority given (T_d, T_f) and s chooses ϕ_d to solve

$$\max_{\phi_d} (\theta_s(s) - \theta_b(s)) T_d \phi_d - 2\psi \left(\frac{1}{\phi_d} - \frac{1}{\phi^*(s)} \right)^2 + \text{t.i.p}$$

- Trade off two motives
  - Mimic state contingent payments
  - Other motives: ϕ^*

- Higher $T_d \Rightarrow$ higher incentives to create state contingencies

Equilibrium can be constrained inefficient

- Higher value by solving

$$\max_{x, T_d, T_f} (1+\lambda)\, x + \sum_s \Pr(s)\, \theta_b(s) \left[y - T_d \phi_d(T, s) - T_f \phi_f(s)\right]$$
$$- \sum_s \Pr(s)\, \psi \left(\frac{1}{\phi_d(T, s)} - \frac{1}{\phi^*(s)} \right)^2$$

subject to

$$-x + \sum_s \Pr(s)\, \theta_b(s) \left[T_d \phi_d(T, s) + T_f \phi_f(s)\right] \geqslant 0$$

$$T_d \phi_d(T, s) + T_f \phi_f(s) \leqslant y$$

given monetary authority strategy $\phi_d(\cdot)$

- Too little contracts indexed in domestic currency

How robust is this result?

- Consider a world with $\mathbb{E}(\theta_b) > \mathbb{E}(\theta_s)$ (inflation bias)
    - Ex-post monetary authority wants more inflation to redistribute from producer to buyer

- Private equilibrium can be inefficient

- Too little contracts indexed in foreign currency if
    - $\mathbb{E}(\theta_b) > \mathbb{E}(\theta_s)$
    - $\text{Var}(\theta_b - \theta_s)$ not too large

- Mechanism
    - Private agents take inflation as given
    - Prefer domestic currency because it provides insurance so $t_d > 0$
    - Inflation inefficiently high: $\phi_d < \phi^*$ because incentive to redistribute to buyer
    - Can commit to low inflation by setting $T_d = 0$

Rationale for observed polices

- We observe policies to increase use of domestic currency
- Thus forces in model more prevalent
- But other explanations
  - Force domestic currency to maximize seignorage revenues
- Does evidence on deposit in dollars speak to mechanism in model?
  - Unit of accounts or means of payments?

Conclusions

- Nice paper on relevant topic
- Interaction between
  - Denomination of nominal contracts
  - Monetary policy
- More work to understand dominant forces