Discussion of "Regulating Capital Flows to Emerging Markets: an Externality View " (by Anton Korinek)

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The Questions

- Why do firms in emerging markets use so much dollar-denominated external debt and so little FDI?
- Should governments worry about this?
- Which policies should be adopted to reduce this risk exposure?
The Answers (in brief)

- Firms do not internalize the balance sheet effect of exchange rate depreciations, hence do not properly evaluate the riskiness of their borrowing strategy.

- Governments, taking into account the balance sheet externality, do (should) worry.

- First best policies (e.g. improve financial institutions, Xrate peg) not always viable.

- Second best policies:
  - tax capital inflows by type of liability according to their riskiness
  - set higher reserve requirements
The model behind: Assumptions

- Small Open Economy with Representative Agent
- Tradable (T, numeraire) and Non-tradable (N) Homogeneous Goods
- Agents borrow and lend in T goods
- Elasticity of substitution (T,N) = 1
- $\omega \in \Omega$ states of the world affecting only supply of T
- Procyclical Real Exchange Rate: $\uparrow$ TFP ($\omega$) $\rightarrow$ $\uparrow$ RER ($p_N^\omega$)
The model behind: Timing and financing decisions

\[ t = 0 \]
- Issue Arrow-Debreu securities \( B_0^\omega \) at price \( M_0^\omega \)

\[ t = 1 \]
- State of the world \( \omega \in \Omega \) realized \( \rightarrow Y_{T,1} = Y_T^\omega \)
- Repay \( B_0^\omega \)
- Intertemporal allocation \( (C_{T,1}^\omega, C_{T,2}^\omega, C_{N,1}^\omega, C_{N,1}^\omega) \) of resources \( (Y_T^\omega, Y_{T,2}, 2Y_N, W_1, \frac{B_i^\omega}{R}) \)
- Borrowing Constraint (BC): \( B_1^\omega \leq K = \kappa (Y_T^\omega, 1 + p_N^\omega Y_N) \)
- \( p_N^\omega = p_N (C_{T,1}^\omega) \)

\[ t = 2 \]
- No uncertainty, No borrowing
- Consume and repay \( B_1^\omega \)
- End of the world
The model behind: Externality at $t=1$

**Intertemporal optimization at $t = 1$**

If BC not binding ($Y_{T,1}^\omega \geq \Gamma Y_T$) $\rightarrow$ perfect consumption smoothing

If BC is binding ($Y_{T,1}^\omega < \Gamma Y_T$) $\rightarrow$ no consumption smoothing

- **Decentralized Equilibrium**
  - agents consider $\Delta Y_{T,1}^\omega \rightarrow \Delta C_{T,1}^\omega \rightarrow \Delta u'_T \left( C_{T,1}^\omega \right)$ ONLY
  - value of a marginal $\Delta Y_{T,1}^\omega$: $\mu_{DE}^\omega = u'_T \left( C_{T,1}^\omega \right)$

- **Social Planner**
  - SP considers $\Delta Y_{T,1}^\omega \rightarrow \Delta C_{T,1}^\omega \rightarrow \Delta u'_T \left( C_{T,1}^\omega \right)$
    AND $\Delta C_{T,1}^\omega \rightarrow \Delta p_{N,1}^\omega \rightarrow \Delta K$
  - value of a marginal $\Delta Y_{T,1}^\omega$: $\mu_{SP}^\omega = u'_T \left( C_{T,1}^\omega \right) + \frac{1-\sigma}{\sigma} \lambda^\omega$
The model behind: Externality and (risky) financing at $t=0$

Issuing Arrow-Debreu securities at $t=0$

- Objective: insure against $Y_{T,1}^\omega < \Gamma Y_T$ through $B_0^\omega$

- Risk Neutral International investors $\rightarrow$ Perfect Insurance, BC never binds

- Risk Averse International investors $\rightarrow$ Partial Insurance
  - SP values $\left(Y_{T,1}^\omega - B_0^\omega\right) \rightarrow \Gamma Y_T$ more than agents do
  - SP would "buy" more insurance
Policy prescription(s)

- Tax every Arrow-Debreu security $\omega$ so to make up for the externality
  \[ \tau^\omega = \mu^\omega_{SP} - \mu^\omega_{DE} \]

- Set reserve requirements so that banks can provide liquidity if needed at $t = 1$
What if the real exchange rate is countercyclical? (e.g. Cole and Obstfeld, 1991 or Corsetti and Pesenti, 2001)

- Assume only tradable goods + Armington assumption
  productivity $\omega \downarrow \rightarrow$ supply $\downarrow \rightarrow p \uparrow \rightarrow$ collateral $K \uparrow$

$\implies$ reverse the sign of the externality

- The gov’t may have incentives to manipulate the exchange rate
  (terms of trade externality)
  Non price-taking behavior may lead to inefficiency
Comments: Robustness and Results

- Political economy of sovereign debt and contract enforcement (see Broner and Ventura, 2007 and Broner et al., 2007)

- How do you reconcile a SOE with risk-averse international investors? If the SOE’s country risk is diversifiable, the externality is harmless

- How do you identify different financial instruments (dollar-denominated debt, FDI, GDP-indexed debt...) within the set of A-D securities of the model?
How does your model relate to Caballero and Krishnamurthy (JoF, 2003)?

- Same externality through balance sheet effect of real depreciations
- Similar setting
- Same results: over-borrowing in dollars (under-insurance)
- Same policy recommendations: tax capital inflows and accumulate reserves

In the next draft, you may want to stress the differences...
... and go beyond:

For instance: quantify the optimal tax rates on capital inflows, using estimates/calibrations of the pricing kernels and the other parameters