Foreign Currency Liabilities, Party Systems and Exchange Rate Overvaluation

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Question: *when* do developing country democracies choose overvalued exchange rates?

**Motivation for Research**

- Overvalued exchange rate (appreciated domestic currency) is costly for developing economies. Low growth, trade protection.

- Yet developing countries often maintain overvalued exchange rates (Edwards 1989; Frankel 2004; IMF 2011)

- Among developing countries, democracies in particular more prone to adopt and maintain overvalued exchange rates (Crystal 1994; Bates 1997; Eichengreen 2007)
  - Examples: Brazil, India, Philippines

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![Currency Overvaluation Chart](chart.png)
Association between democracy and exchange rate overvaluation far more complex; characterized by substantial variation

*when* do developing country democracies choose overvalued exchange rates?

Answer from open-economy monetary policy model: Interactive effect of Concentration of Net Foreign Currency Liabilities of private banks and party-system (candidate-centered vs party-centered system)
Theory: Overview of Model, Equilibrium and Comparative Static Results

- Extension of Barro-Gordon model—Strategic interaction between the following players:
  - Domestic Private Banks; non-financial firms; policymakers; central bank (inflation-averse)
  - Small-open economy, augmented Phillips Curve
  
  \[ y = \alpha(e - e^*) + u \]
  
  - Monetary Policy: Trade-off between low inflation and output expansion
  - Firms borrow foreign-currency denominated loans; banks hold foreign-currency liabilities

- Loss functions and Expected profit (utility) functions

\[
L^G = \frac{1}{2}(p_t - p_{t-1})^2 + \frac{\beta g}{2}(y - \bar{y})^2 + [\lambda_g u_b + (1 - \lambda)u_i]
\]

\[
u_i = E(\pi_i) = \theta_i \bar{y} + (1 - \theta_i)y - R\bar{f}e - c_i
\]

\[
u_b = E(\pi_b) = \int_0^1 \phi e(R\bar{f}) h(\theta) d\theta - (1 + r_f) \phi D_f
\]

\[
L^{CB} = \frac{1}{2} [(c)^2 + \gamma(y - \bar{y})^2]
\]
Derive and formally characterize Sub-game Perfect Nash equilibrium from model

Key comparative statics:

\[ \frac{\partial \pi_b}{\partial \left[D_j - L_j\right]} > 0 \text{ when } e_j^* > 0 \]

\[ \frac{\partial e_G^*}{\partial \phi k} = \frac{\partial e_G^*}{\partial k \phi} > 0 \text{ for } \lambda_g = \lambda_C \]

Causal Story and Hypothesis from Model in Three Parts

- Preference: Banks with high net foreign currency liabilities favor overvaluation…
  concentration of net foreign liabilities and institutional context matters

- High concentration of net foreign currency liabilities…
  
  - implies that few large private banks hold a large share of the liabilities
  
  - facilitates collective action between banks; “politically outmaneuver” nonfinancial firms when seeking domestic currency appreciation

- Candidate-centered system: Strong ties between policymakers and banks; policymakers weigh banks interests; less concerned about distributional costs of overvaluation

Hypothesis: Higher concentration of net foreign currency denominated liabilities held by private banks leads to exchange rate overvaluation in candidate-centered developing democracies

- Party-centered system: Policymakers more concerned about output expansion; overvaluation depresses output; resist concentrated banks’ overvaluation demands
Sample, Dependent Variable and Statistical Methodology

- 51 developing country democracies (data availability), 1988-2007

- Dependent variable: Real Exchange Rate (Level) Overvaluation from Rodrik (2008)
  - \( \text{RER} = \ln(\text{exchange rate}/\text{PPP}); \quad \text{PPP} = \text{GDP deflator} \)
  - Estimate via OLS: \( RER_{i,t} = \alpha + \beta(GDP_{\text{per capita}})_{i,t} + T_t + \varepsilon_{i,t} \)
  - RER Overvaluation: Difference between actual RER and predicted value

- Statistical Methodology
  - xtpcse with country fixed effects and lag dependent variable
  - Pooled Mean Group (PMG) Estimator [Pesaran et al 1999]; combination of:

\[
\begin{align*}
\Delta y_{it} &= \phi_i (y_{i,t-1} - \theta' X_{it}) + \sum_{j=1}^{p-1} \beta_{ij}^{*} \Delta y_{i,t-1} + \sum_{j=1}^{q-1} \delta_{ij}^{*} \Delta X_{i,t-j} + \mu_i + \varepsilon_{it} \\
ARDL(p,q)
\end{align*}
\]
Independent variables

- Interact two variables to test hypothesis: (net) foreign liability concentration × candidate-centered dummy and individual components of interaction term
  
  - Candidate-centered dummy = 1 for candidate-centered electoral systems; e.g. open-list PR
  
  - Net foreign currency liability concentration of domestic private banks 0-1 index:

\[ \sum_{i=1}^{n} f_i^2 \]

Share of each privately-owned banks’ net foreign currency denominated liabilities in the total net foreign denominated liabilities for each country-year

\[ f_i^2 \]

Square of aforementioned term

Control variables

Log GDP per capita, log reserves, terms of trade, fixed exchange rate, veto players…
# Main Results: Select variables only

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***,**,* significance, 1% ,5%, 10% level
Marginal effect of *foreign liability concentration* for candidate centered system

![Graph showing the marginal effect of foreign liability concentration on a scale from -0.4 to 1.0. The y-axis represents the marginal effect of foreign liability concentration, and the x-axis represents the foreign liability concentration ranging from 0.25 to 1.0. The graph includes a line for the marginal effect and a dashed line for the 95% confidence interval.](image-url)
Marginal Effect of *foreign liability concentration* in party-centered system
Conclusions and Future Research

- High levels of concentration in net foreign currency denominated liabilities held by domestic private banks in developing democracies leads to exchange rate overvaluation in candidate-centered (but not party-centered) democracies.

- Explains how (electoral) institutions shape banks’ influence over exchange rates, and when exchange rates will be overvalued in the developing world.

- Yields policy implications for (i) managing net foreign currency denominated liabilities held by private banks and (ii) impact of exchange rate overvaluation (e.g. candidate-centered developing democracies characterized by lower growth and more susceptible to financial crisis)