Special Interests, Regime Choice, and Currency Collapse

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Outline

1. Introduction
   - Motivation
   - Existing Literature
   - Contribution

2. Model
   - Theoretical Model
   - Solution of Model
   - Extensions
   - Empirical Analysis

3. Conclusion
   - Summary
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Special Interests, Regime Choice, and Currency Collapse
The Political Economy of Exchange Rates

- Whither the political economy of exchange rates?
  - Economists’ view: Purely theoretical considerations
  - Political scientists’ view: Too technical for political competition

- Increasing constraints on trade policy in multilateral framework
  - Redirect their activity away from trade policy and toward exchange rate policy
  - Exchange rate policy and trade policy are close substitutes in terms of the compensation
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  - Exchange rate policy and trade policy are close substitutes in terms of the compensation
“The impact of [special interest politics] on exchange rate policy has evolved over time. In the 1990s, the availability of compensatory mechanisms declined and, in the midst of a substantial real appreciation, [special interests] became much more vocal about exchange rate policy.”

(Frieden & Stein 2001, pp. 11–16)

“Politics in Thailand exerted a powerful influence over both the onset and initial management of the crisis. In both Malaysia and Indonesia, autocratic leaders exploited their discretion to pursue policies that contributed to market uncertainty. In South Korea, these difficulties were primarily associated with the electoral cycle, but also with the apparent influence wielded by ailing chaebol.”

(Haggard 2000, p. 51, 71)
Understanding Special Interests and Managed Pegs

Objectives of this paper

- Model interaction of political actors via special interest politics in managed peg determination
- Clarify conditions under which accommodating these interests may lead to currency crisis
- Examine empirical evidence on special interest pressures on regime switches
The optimal choice of exchange rate regime has long intellectual history

- Kindleberger-Friedman fixed-versus-floating debate
- Optimal choice of regime based on real vs nominal shocks

Ultimate decision over the actual exchange rate regime may well be political

- Time inconsistency problem in response to exchange risk premia (Calvo & Reinhart 2002)
- Lack of ex post credibility to conduct countercyclical monetary policy (Caballero & Krishnamurthy 2004)
- Fixed social cost of intervention (Lahiri & Végh 2001)
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Political Economy Factors Underlying Currency Crises

1. Poor accounting of political factors driving currency crashes
   - Second-generation models (Obstfeld 1996) assume exogenous shock leading to equilibrium change
   - Models have examined relationship to political contagion (Drazen 2000), political crises (Chang 2005), election effects (Bonomo & Terra 2005; Stein & Streb 2004)

2. Empirical evidence suggests importance of political factors for:
   - Exchange rate realignments (Eichengreen, Rose & Wyplosz 1995; Klein & Marion 1997)
   - Speculative attacks (Bernhard & Leblang 2000; Leblang 2002; Leblang & Satyanath 2006)
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Theoretical and Empirical Contributions

- **Theoretical contribution**
  - Integrate open-economy macroeconomics literature with the new political economy literature
  - Explicitly take political interactions into account in modeling a managed peg

- **Empirical contribution**
  - (Somewhat) novel approach to the identification of regime switches
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Economic Environment

- 2 country, open-economy framework à la Obstfeld & Rogoff (1995)
- Countries consist of distinct groups of agents, each with a representative utility function and budget constraint
- Yeoman production is a function of heterogeneous productivity
- With sticky prices, agents’ welfare are a function of deviations in exchange rate and the world money supply
Political Environment

- Governments run balanced fiscal budgets and rebate all seignorage revenues via transfers
- Government policymakers possess objective functions comprised of welfare of all agents
- Subset of agents organized as special interests, offering lobbying contributions to monetary authority to influence devaluation choices
Sequence of Events

1. Policymakers make their announcements of exchange rate revaluation ($\varepsilon^R$) or devaluation ($\varepsilon^D$) targets
2. Special interests offer their lobbying contributions to influence the regime choice
3. Monetary authority chooses the exchange rate regime according to a preset exchange rate rule
4. Economywide exchange rate regime is realized with an ex post probability
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Jamus Jerome Lim  Special Interests, Regime Choice, and Currency Collapse
Solution of Model: Stages 3 & 4

- Probabilistic implementation of exchange rate regime

  - Monetary authority possesses preference for exchange rate devaluation
  - Lobbying groups offer contributions that affect monetary authority preferences
  - Regime chosen by exchange rate rule that equates welfare of marginal agent for either regime, adjusted by monetary authority preferences
Solution of Model: Stages 2 & 1

- Lobbying groups maximize expected welfare under each regime
  - Any given group will never contribute toward seeking both a revaluation and a devaluation
  - Contribution schedules are locally truthful
- Policymaker maximizes expected general welfare under each regime
  - Optimal choices for a revaluation or devaluation target will involve a deviation of exactly the same degree
  - With specific functional form, obtain devaluation target dependent on inter alia, the preferences of the monetary authority, productivity distributions, and lobbying contributions
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Proposition (Politico-Economic Managed Peg)

The currency game of yields an exchange rate

\[ \epsilon_c = \begin{cases} 
\epsilon_0 + \epsilon^D (\hat{M}^W, \Phi^J; \theta, \gamma, \kappa, \nu) & \text{if devaluation occurs,} \\
\epsilon_0 - \epsilon^R (\hat{M}^W, \Phi^I; \theta, \gamma, \kappa, \nu) & \text{if revaluation occurs,} 
\end{cases} \]

where \( \epsilon_0 \) is the initial value of the exchange rate.

- Corollary: \( \Phi^\iota = 0, \Phi^J > 0, \Phi^I < 0 \). Then \( \frac{\partial \epsilon^D}{\partial \nu} > 0 \)
Relax assumption of balanced fiscal budget, and allow both domestic and international bonds

Following Krugman (1979), monetary authority monetizes deficit at rate \( \mu \)

- \( \mu > 0 \) is incompatible with the indefinite maintenance of a fixed exchange rate
- Speculative attack occurs at time \( T < \tilde{T} \) before full exhaustion of reserves

Obtain system of difference equations governing debt and exchange rate dynamics
Currency Crisis

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Proposition (Optimal Abandonment of Managed Peg)

The optimal abandonment time for the political-economic managed peg is given by

\[ T = \mu \pm \varepsilon D \left( \hat{M}^W, \Phi^J, \theta, \gamma, \kappa, \nu \right) - \frac{\gamma}{1 + \gamma} \neq T \]

- If the resulting exchange rate path follows one of revaluation due to special interest pressure, the crisis occurs earlier.
Scenario (a)

Scenario (b)
Lohmann (1992) was the first to consider possibility of a semi-independent monetary authority.

Allow monetary authority to possess quadratic loss function over exchange rate deviations, output gap, and inflation.

- Short-run price stickiness implies aggregate supply relationship dependent on trend output and real wages.
Semi-Independent Monetary Authority

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- Allow monetary authority to possess quadratic loss function over exchange rate deviations, output gap, and inflation.
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Semi-Independent Monetary Authority

Proposition

For a monetary authority that is only concerned with price stability and the exchange rate regime, \( \frac{\partial \omega}{\partial \tilde{\rho}} < 0 \ \forall s \). If the monetary authority is also concerned with suboptimality of output, then \( \frac{\partial \omega}{\partial \tilde{\rho}} < 0 \) if \( \varepsilon_s^D > k_s + \zeta_s \) and \( \tilde{\rho} > 1 \).

- When monetary authority has fairly soft preferences concerning the suboptimality of output, central bank has weaker preferences for devaluation.
Baron (2003), Bennedsen & Feldmann (2001), Helpman & Persson (2001) have all modeled interaction between lobbying groups and legislature.

Lawmaker who represents each agent in the exchange rate policy decision.

- Legislative bargaining process involving selection of agenda setter by nature, who makes devaluation/revaluation proposal, that is voted on.
- Policy adopted if majority, general welfare-maximizing policy otherwise.
Legislative Activity

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Proposition

*The currency game with legislative activity yields an exchange rate proposal*

\[ \bar{\varepsilon}^a = \bar{\varepsilon}^l = \begin{cases} 
\varepsilon_0 + \varepsilon^D_l(M, \Phi^J; \theta, \gamma, \kappa, \nu) & \text{if devaluation occurs,} \\
\varepsilon_0 - \varepsilon^R_l(M, \Phi^J; \theta, \gamma, \kappa, \nu) & \text{if revaluation occurs.}
\end{cases} \]

Then this policy is adopted if

\[ \sum_{l=1}^{N/2} \frac{M_l (\Phi^i_l - \frac{4}{N} \Phi^I)}{\theta \Phi^i_l \Phi^I} > N. \]

- Adoption of proposal depends *only* on the productivity distribution of the population and the agent represented by the agenda setter.
Econometric Methodology and Data

- Two-step estimation procedure
  1. Identify the between the regime switches using Markov switching model
  2. Use estimated breaks as binary dependent variable for panel Probit regression

- Dataset
  - IMF IFS for international macroeconomic and financial data
  - PRS ICRG political risk as proxy for special interest pressures
Econometric Methodology and Data

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**Regression Results**

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- Political risk negative and significant determinant of regime switches in almost all specifications
  - A 1% increase in special interest pressures raises the probability of a regime switch by 1.6%
  - Adding lagged risk strengthens the impact of contemporaneous political risk
- Other controls yield intuitively-appealing results, but not significant
- Findings robust to subsamples
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Main Findings

- Special interest pressures manifest themselves in the currency game involving the determination of a managed peg.
- These pressures may influence the possibility and timing of a currency crisis.
- Findings of importance of political risk are consistent with empirical evidence.


Selected References II

Appendix

Bibliography
Detailed Model Solution
Detailed Regression Procedures
Proofs

Jamus Jerome Lim
Special Interests, Regime Choice, and Currency Collapse
Probabilistic Implementation of Exchange Rate Regime

- Monetary authority preferences for devaluation
  \[ \rho = \tilde{\rho} + \nu (L^D - L^R) \]

- Exchange rate rule
  \[ U^t (\varepsilon^D) = U^t (\varepsilon^R) + \rho \]

- Probability of devaluation regime being chosen
  \[ \psi^D = \frac{1}{2} + \eta \left[ U^t (\varepsilon^D) - U^t (\varepsilon^R) - \nu (L^D - L^R) \right] \]
Grossman-Helpman Menu Auction

- Choose contributions to maximize expected lobby welfare

\[ EV^i = \psi^D U^i (\varepsilon^D) + \psi^R U^i (\varepsilon^R) - \frac{1}{2} \left( (L^iD)^2 + (L^iR)^2 \right) \]

- First order conditions

\[ L^iR = \max \{ 0, \eta \nu \left[ U^i (\varepsilon^D) - U^i (\varepsilon^R) \right] \} \]

\[ L^iD = - \min \{ 0, \eta \nu \left[ U^i (\varepsilon^D) - U^i (\varepsilon^R) \right] \} \]
Choose revaluation/devaluation targets to maximize expected general welfare

\[ U^G = \psi^D \int_{i \in I} U^i (\varepsilon^D) + \psi^R \int_{i \in I} U^i (\varepsilon^R) \]

First order conditions

\[ \frac{\partial \psi^D}{\partial \varepsilon^D} \int_{i \in I} \left[ U^i (\varepsilon^D) - U^i (\varepsilon^R) \right] \, di + \psi^D \int_{i \in I} \frac{\partial U^i (\varepsilon^D)}{\partial \varepsilon^D} \, di = 0 \]

\[ \frac{\partial \psi^D}{\partial \varepsilon^R} \int_{i \in I} \left[ U^i (\varepsilon^D) - U^i (\varepsilon^R) \right] \, di + \psi^D \int_{i \in I} \frac{\partial U^i (\varepsilon^R)}{\partial \varepsilon^R} \, di = 0 \]
Crisis with Politico-Economic Managed Peg

- Government fiscal budget with expansion of money supply
  \[ \tau_s + \frac{M_{s+1} - (1 + \mu) M_s}{P_s} = G_s, \]
  where \( M_s = F_s + D_s \)

- Agent budget constraint with international bonds
  \[
  B_{s+1}^i + \varepsilon_s B_{s+1}^{i*} + \frac{M_s^i}{P_s} = (1 + i_s) B_s^i + E_s \varepsilon_{s+1} (1 + i^{*}) + \frac{M_{t-1}^i}{P_s} \\
  + \frac{p_s}{P_s} y_s (i) - C_s^i - \tau_s
  \]

- System of debt and exchange rate dynamics
  \[
  \Delta d_s \approx \mu + \xi_{s+1} \\
  \Delta \varepsilon_s = \frac{1 + \gamma}{\gamma} \varepsilon_s - \frac{1 + \gamma}{\gamma} (f_s + d_s) + Z
  \]
Semi-Independent Monetary Authority

- **Monetary authority loss function**

\[
\mathcal{L}_s = \tilde{\rho} \left( \hat{\varepsilon}_s - \varepsilon^D_s \right)^2 + (y_s - \bar{y})^2 + \omega \pi_s^2 \\
= \tilde{\rho} \left( \pi_s - \varepsilon^D_s \right)^2 + (\pi_s - \pi_s^e - \zeta_s - k)^2 + \omega \pi_s^2
\]

- **Aggregate supply**

\[
y_s = \bar{y} - (w_s - p_s) - \zeta_s
\]

- **First order condition**

\[
\pi_s = \frac{k_s + \varepsilon^D_s \tilde{\rho}}{\omega + \tilde{\rho}} + \frac{\zeta_s}{1 + \omega + \tilde{\rho}}
\]
Legislative Activity

- Legislator utility
  \[ E_s U^l_s = E_s V^i_s \]

- Equilibrium exchange rate proposal
  \[ \tilde{\varepsilon}^a = \tilde{\varepsilon}^l = \begin{cases} 
  \varepsilon_0 + \varepsilon^{Dl}(\hat{M}^W, \Phi^J; \theta, \gamma, \kappa, \nu) & \text{if devaluation occurs,} \\
  \varepsilon_0 - \varepsilon^{Rl}(\hat{M}^W, \Phi^J; \theta, \gamma, \kappa, \nu) & \text{if revaluation occurs.} 
\end{cases} \]
Detailed Regression Specifications

1. Econometric model
   - Markov switching objective function

   \[
g (\hat{e}_t, \ldots, \hat{e}_T; \Theta) = \ln \psi (\hat{e}_t, \ldots, \hat{e}_T; \Theta) - \sum_{k=D,R} \frac{\tilde{\delta} \lambda_k^2}{2 \sigma_k^2} \\
   - \sum_{k=D,R} \tilde{\alpha} \ln \sigma_k^2 - \sum_{k=R,D} \frac{\tilde{\beta}}{\sigma_k^2}
\]

2. Panel Probit regression

   \[
   \hat{e}^*_nt = \alpha_n + X_{nt} \Gamma + \nu_{nt} \\
   \hat{e}_{nt} = 1 (\hat{e}^*_nt > 0)
   \]
Detailed Regression Results

1. p-values for $\eta$
   - 0.001, 0.001, 0.059, 0.085, 0.353, 0.010, 0.003, 0.032

2. Coefficients for $\Delta$money supply negative and insignificant

3. Coefficients for $\Delta$home interest positive and insignificant

4. Coefficients for $\Delta$foreign interest negative and insignificant

5. Coefficients for $\Delta$reserves negative and insignificant

6. Coefficients for $\Delta$domestic credit negative and insignificant

7. Coefficients for $\Delta$output negative and significant
Proof of Proposition 1

1. Assume functional form given by \( U_i^s = \Phi_i \hat{\epsilon}_s + \frac{1}{\theta} \hat{M}_s^W \)
2. Substitute functional form and simplify, noting that symmetry implies \( U_{iR} = -U_{iD} \)

Proof of Proposition 2

1. Establish Flood-Garber (1984) lemma of optimal timing for abandonment
2. Substitute optimal regime from currency game into lemma
3. Establish nonzero difference of \( \tilde{T} - T \)
Proof of Propositions 1 and 2 (Sketch)

Proof of Proposition 1
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Proof of Proposition 2
1. Establish Flood-Garber (1984) lemma of optimal timing for abandonment
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3. Establish nonzero difference of \( \tilde{T} - T \)
Proof of Propositions 3 and 4 (Sketch)

**Proof of Proposition 3**
1. Use implicit function theorem to differentiate FOC for monetary authority
2. Set $k_s = \zeta_s = 0$ for first part, and check condition for second

**Proof of Proposition 4**
1. Solve for legislator's FOC
2. Substitute condition $\varepsilon^{kl} - \varepsilon^k \geq 0 \quad \forall k = D, R$ into FOC
3. Impose majority condition for all legislators in Home (must exceed $\frac{N}{4}$)
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