

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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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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Views on Political Economy of Exchange Rate Policy

“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. . . [i]n both Malaysia and Indonesia, autocratic leaders exploited their discretion to. . . pursue policies that contributed to market uncertainty. . . [i]n South Korea, these difficulties [in financial adjustments] 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



Political Economy of Exchange Rate Regime Choice

- 1 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
- 2 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 (ε^R) or devaluation (ε^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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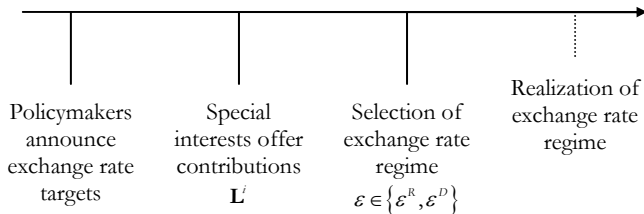
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Solution of Model: Stages 3 & 4

- Probabilistic implementation of exchange rate regime

- ▶ Details

- 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 [▶ Details](#)
 - 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 [▶ Details](#)
 - 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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Key Propositions from Theoretical Model I

Proposition (Politico-Economic Managed Peg)

The currency game of yields an exchange rate

◀ Proof

$$\varepsilon_c = \begin{cases} \varepsilon_0 + \varepsilon^D(\hat{M}^W, \Phi^J; \theta, \gamma, \kappa, \nu) & \text{if devaluation occurs,} \\ \varepsilon_0 - \varepsilon^R(\hat{M}^W, \Phi^J; \theta, \gamma, \kappa, \nu) & \text{if revaluation occurs,} \end{cases}$$

where ε_0 is the initial value of the exchange rate.

- Corollary: $\Phi^L = 0, \Phi^J > 0, \Phi^I < 0$. Then $\frac{\partial \varepsilon^D}{\partial \nu} > 0$



Currency Crisis

- Relax assumption of balanced fiscal budget, and allow both domestic and international bonds [◀ Details](#)
- Following Krugman (1979), monetary authority monetizes deficit at rate μ
 - $\mu > 0$ 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



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Key Propositions from Theoretical Model II

Proposition (Optimal Abandonment of Managed Peg)

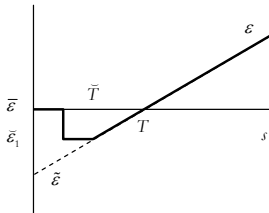
The optimal abandonment time for the political-economic managed peg is given by

◀ Proof

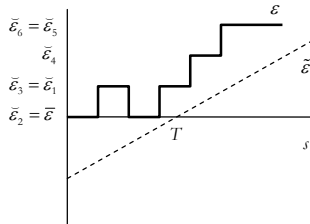
$$\check{T} = \frac{\ln\left(1 + \frac{F_0}{D_0}\right) \pm \varepsilon^D(\hat{M}^W, \Phi^J; \theta, \gamma, \kappa, \nu)}{\mu} - \frac{\gamma}{1 + \gamma} \neq T$$

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





Scenario (a)



Scenario (b)



Semi-Independent Monetary Authority

- 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

▸ Details



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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, $\frac{\partial \omega}{\partial \bar{p}} < 0 \forall s$. If the monetary authority is also concerned with suboptimality of output, then $\frac{\partial \omega}{\partial \bar{p}} < 0$ if $\varepsilon_s^D > k_s + \zeta_s$ and $\tilde{\rho} > 1$.

► Proof

- When monetary authority has fairly soft preferences concerning the suboptimality of output, central bank has weaker preferences for devaluation



Legislative Activity

- Baron (2003), Bennesen & 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

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Legislative Activity

Proposition

The currency game with legislative activity yields an exchange rate proposal

► Proof

$$\check{\varepsilon}^a = \check{\varepsilon}^l = \begin{cases} \varepsilon_0 + \varepsilon^{DI}(\hat{M}^W, \Phi^J; \theta, \gamma, \kappa, \nu) & \text{if devaluation occurs,} \\ \varepsilon_0 - \varepsilon^{RI}(\hat{M}^W, \Phi^J; \theta, \gamma, \kappa, \nu) & \text{if revaluation occurs.} \end{cases}$$

Then this policy is adopted if $\sum_{l=1}^{N/2} \frac{\hat{M}^W(\Phi^i - \frac{4}{N}\Phi^l)}{\theta\Phi^i\Phi^l} > N$.

- 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

▸ Details

- 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



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Regression Results

	(B1)	(B2)	(B3)	(B4)	(B5)	(B6)	(B7)	(B8)
Political risk	-1.033 (0.30)***	-1.036 (0.30)***	-0.526 (0.28)*	-0.488 (0.28)*	-0.977 (1.05)	-2.904 (1.13)***	-3.098 (1.06)***	
1-period lagged political risk						2.508 (1.25)**	1.260 (1.80)	
2-period lagged political risk							1.461 (1.58)	
Δ Political risk								-2.710 (1.26)**

- Political risk negative and significant determinant of regime switches in almost all specifications
 - ▶ [More details](#)
 - 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 I

-  Frieden, Jeffrey A. & Ernesto H. Stein (editors) (2001). *The Currency Game: Exchange Rate Politics in Latin America*. Washington, DC: Inter-American Development Bank
-  Haggard, Stephan (2000). *The Political Economy of the Asian Financial Crisis*. Washington, DC: Institute for International Economics
-  Engel, Charles A. & James D. Hamilton (1990). "Long Swings in the Dollar: Are They in the Data and Do Markets Know It?" *American Economic Review* 80(3) (September): 689–713
-  Flood, Robert P. & Peter M. Garber (1984). "Collapsing Exchange Rate Regimes: Some Linear Examples". *Journal of International Economics* 17(1) (August): 1–13
-  Helpman, Elhanan & Torsten Persson (2001). "Lobbying and Legislative Bargaining". *Advances in Economic Analysis and Policy* 1(1): Article 3
-  Lohmann, Susanne (1992). "Optimal Commitment in Monetary Policy: Credibility versus Flexibility". *American Economic Review* 82(1) (March): 273–286
-  Obstfeld, Maurice & Kenneth S. Rogoff (1995). "Exchange Rate Dynamics Redux". *Journal of Political Economy* 103(3) (June): 624–60



Selected References II



Probabilistic Implementation of Exchange Rate Regime

- Monetary authority preferences for devaluation

$$\rho = \tilde{\rho} + \nu (L^D - L^R)$$

- Exchange rate rule

$$U^l(\varepsilon^D) = U^l(\varepsilon^R) + \rho$$

- Probability of devaluation regime being chosen

$$\psi^D = \frac{1}{2} + \eta [U^l(\varepsilon^D) - U^l(\varepsilon^R) - \nu (L^D - L^R)]$$

[Return](#)

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

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

$$L^{iD} = -\min \{0, \eta\nu [U^i (\varepsilon^D) - U^i (\varepsilon^R)]\}$$

[Return](#)

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

$$B_{s+1}^i + \varepsilon_s B_{s+1}^{i*} + \frac{M_s^i}{P_s} = (1 + i_s) B_s^i + E_s \varepsilon_{s+1} (1 + i_s^*) + \frac{M_{t-1}^i}{P_s} \\ + \frac{p_s(i)}{P_s} y_s(i) - C_s^i - \tau_s$$

- System of debt and exchange rate dynamics

$$\Delta d_s \approx \mu + \xi_{s+1} \\ \Delta \varepsilon_s = \frac{1 + \gamma}{\gamma} \varepsilon_s - \frac{1 + \gamma}{\gamma} (f_s + d_s) + Z$$

Return



Semi-Independent Monetary Authority

- Monetary authority loss function

$$\begin{aligned}\mathcal{L}_s &= \tilde{\rho} (\hat{\varepsilon}_s - \varepsilon_s^D)^2 + (y_s - \tilde{y})^2 + \omega \pi_s^2 \\ &= \tilde{\rho} (\pi_s - \varepsilon_s^D)^2 + (\pi_s - \pi_s^e - \zeta_s - k)^2 + \omega \pi_s^2\end{aligned}$$

- Aggregate supply

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

- First order condition

$$\pi_s = \frac{k_s + \varepsilon_s^D \tilde{\rho}}{\omega + \tilde{\rho}} + \frac{\zeta_s}{1 + \omega + \tilde{\rho}}$$



Detailed Regression Specifications

- Econometric model
 - 1 Markov switching objective function

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

- 2 Panel Probit regression

$$\hat{e}_{nt}^* = \alpha_n + \mathbf{X}_{nt} \mathbf{\Gamma} + v_{nt}$$

$$\hat{e}_{nt} = \mathbf{1}(\hat{e}_{nt}^* > 0)$$



Return

Detailed Regression Results

- 1 p-values for η
 - 0.001, 0.001, 0.059, 0.085, 0.353, 0.010, 0.003, 0.032
- 2 Coefficients for Δ **money supply** negative and insignificant
- 3 Coefficients for Δ **home interest** positive and insignificant
- 4 Coefficients for Δ **foreign interest** negative and insignificant
- 5 Coefficients for Δ **reserves** negative and insignificant
- 6 Coefficients for Δ **domestic credit** negative and insignificant
- 7 Coefficients for Δ **output** negative and significant

[Return](#)

Proof of Propositions 1 and 2 (Sketch)

• Proof of Proposition 1

- 1 Assume functional form given by $U_s^i = \Phi^i \hat{\varepsilon}_s + \frac{1}{\theta} \hat{M}_s^W$
- 2 Substitute functional form and simplify, noting that symmetry implies $U^{iR} = -U^{iD}$

[◀ Return](#)

• 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 $\check{T} - T$

[◀ Return](#)

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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

[◀ Return](#)

- 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 $\frac{N}{4}$)

[◀ Return](#)



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