From Fixed to Float: A Competing Risks Analysis

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Abstract: This paper examines the determinants of exchange rate regime of a country. A competing risks model (CRM) is estimated. It is found that the way a country exits a fixed exchange rate regime is affected nonlinearly by the duration of the peg. In addition, countries with a lower growth rate of reserves, more incidences of banking crises, higher trade concentration and lower degree of capital-account liberalisation are more likely to have a crisis-driven exit.

Keywords: Competing risks model; Duration dependence; Orderly exits; Crisis-driven exits; Kaplan-Meier estimators.
JEL classification: F3, C41, C54

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1. Introduction

A number of countries have abandoned the fixed exchange rate regime and adopted a relatively floating exchange rate arrangement following the collapse of the Bretton Woods system. Some of these countries (for example, Japan and Israel) managed to switch to a floating regime without triggering a currency crisis. However, for most countries, the transitions have seldom been smooth. Eichengreen (1999) argues that exits from a pegged exchange rate system have rarely occurred under favourable circumstances. For example, in the cases of Mexico, Thailand and Argentina, the exits were triggered by speculative attacks. A number of studies have developed models on the optimal timing of switching the exchange rate regime (Krugman, 1979; Flood and Garber, 1984; Rebelo and Vegh, 2008). It has been well documented that the duration of the peg plays an important role in the decision to exit the fixed exchange rate regime. For example, Klein and Marion (1997) show that the longer a peg lasts, the more likely it is to collapse. Walti (2005) finds a non-monotonic relationship between the peg duration and the probability of its collapse. Masson and Ruge-Murcia (2005) study the transition between exchange rate regimes using a Markov chain model with time-varying transition probabilities. Klein and Shambaugh (2006) also show that peg duration affects the collapse of an exchange rate regime. Tamgac (2013) finds non-monotonic duration dependence of fixed exchange rate regimes in emerging economies.

The aforementioned studies, however, rarely distinguish different modes of exits. This paper examines the relationship between the duration and the modes of leaving a fixed exchange rate system. Pertinent research in this area is rather limited. A related study conducted by Duttagupta and Otker-Robe (2003) concludes that peg duration significantly affects the modes of exits. However, their models suffer from the problem of survivorship bias. In this paper, we apply the competing risks model to assess the impact of a peg duration and different time dependent variables on the odds of different exits. The competing risks model (CRM) has wide economic applications. For example, He *et al.* (2010) apply the model to study the delisting behaviour of public firms, and D'Addio and Rosholm (2005) estimate a CRM for exits from temporary jobs in Europe. We will use the CRM model to distinguish the characteristics of successful transitions (orderly exits) from the failures (crisis-driven

exits). It is found that crisis-driven exits exhibit positive duration dependence, while orderly exits exhibit negative duration dependence. Moreover, an increase in trade concentration lowers the chance of an orderly exit. Countries with a lower growth rate of foreign currency reserves and more incidences of banking crises are more likely to have crisis-driven exits. Finally, our findings show that degrees of capital-account liberalisation are positively related to the chance of an orderly exit.

The remainder of this paper is organised as follows. Section 2 describes the data and variables used. Section 3 briefly reviews the methodology of the competing risks model. The estimation results are presented in Section 4. Section 5 concludes the paper.

2. Data

Our sample consists of monthly data for the peg duration and country-specific variables from 77 countries for the period from January 1972 to December 2001. As the actual exchange rate arrangements of countries might differ from the official announcements, we use the de facto classification method of Reinhart and Rogoff (2004), hereafter "RR", to construct the sample of peg durations.[2] In accordance with Reinhart and Rogoff (2004), we define an exit from a fixed exchange rate regime to a flexible one as a shift from any fixed categories to managed floating, freely floating or freely falling. Following Duttagupta and Otker-Robe (2003), a crisis-driven exit is identified if the end-of-month exchange rate movement is larger than two times the standard deviation of the monthly depreciation rate, i.e.,

$$\varepsilon_t \geq \bar{\varepsilon} + 2\sigma,$$

where ε_t is the average monthly depreciation rate of nominal exchange rate at the time of regime shift (units of the national currency per U.S. dollar), $\bar{\varepsilon}$ is the average of monthly depreciation rate during a given peg, σ is the standard deviation of

[2] Other de facto classifications include Shambaugh (2004).

monthly depreciation rate during the same period. The remaining exits are treated as orderly exits. The results of our crisis-driven classification are similar to those of Glick, Guo and Hutchison (2006). To provide a robustness check, we also follow the method of Detregiache *et al.* (2005) and Lin and Ye (2011) to define crisis-driven exits, and find that our results remain unchanged.

The duration of an exchange rate peg is defined as the time spent on a peg. One hundred and thirty three duration observations are obtained from the sample; 82 pegged durations end in or before December, 2001; and the remaining 51 observations are right-censored. The definitions of variables and data descriptions are given in Tables 1 and 2 respectively.

Table 1: Definition of Variables and Data Sources

Variables	Descriptions	Data Sources
OPENNESS	Total gross exports and imports, percent of GDP	IMF, International Financial Statistics
CONCENTRATION	Share of total exports to 3 largest trading partners	Ghosh, Gulde, and Wolf (2003)
INFLATION	Change in consumer prices, percent of per annum	IMF, International Financial Statistics
GDP_GROWTH	Real GDP growth rate, percent of per annum	World Economic Outlook
GDP_VOLATILITY	Deviation of real GDP from HP-filtered trend, 3-year standard deviation	Ghosh, Gulde, and Wolf (2003)
BASEINTEREST	Nominal interest rate in the base country	IMF, International Financial Statistics
CAL	Capital-account Liberalization, Total gross actual foreign direct and portfolio investment,	Lane and Milesi-Ferretti (2007)

	percent of GDP	
CBI	Turnover rate of central bank governors	Ghosh, Gulde, and Wolf (2003)
DEMOCRACY	Index of democracy	Freedom House
DEBTPOSITION	Net debt liability, percent of GDP	Lane and Milesi-Ferretti (2007)
RESERVEGROWTH	Change in foreign exchange reserves, percent per annum	IMF, International Financial Statistics
HYPERINFLATION	1 if inflation above 50%, 0 otherwise	IMF, International Financial Statistics
BANKCRISIS	1 if there is banking crisis, 0 otherwise	Ghosh, Gulde, and Wolf (2003)
COUNTRYTYPE	1 if Developed countries, 0 otherwise	World Bank

Table 2 about here

Table 3: Summary Statistics on Pegged Duration

	Full Sample	Crisis-driven Exit	Orderly Exit
Failed	82	30	52
Censored	51		
Mean	131	128	71
Median	105	110	56
Stdev	111	93	65
Min	3	11	3
Max	360	311	323

Table 3 summarises the statistics of durations for the two types of exits. The average duration of a peg is 131 months, the median duration is 105 months and the range of a peg duration is from 3 months to 360 months. A total of 82 failed pegs are identified, of which 30 are crisis-driven exits and 52 are orderly exits. Furthermore, a pegged exchange rate regime lasts significantly longer in crisis-driven exits than in orderly exits. We apply an array of country-specific variables in our analysis. The data for these covariates are taken from the International Financial Statistics (IFS) and other sources, covering most determinants suggested by the literature on currency crises and optimal currency areas. The macroeconomic variables included are openness, trade concentration, domestic inflation rate, economic growth and output volatility. Financial variables include base-country interest rate,[3] foreign debt, capital-account liberalisation, banking crises and central bank independence. Political and institutional variables include democratisation, country type and hyperinflation. Note that the traditional measures of capital-account liberalisation are based on the IMF's Annual Report on Exchange Arrangements and Exchange Restrictions. These measures might not adequately reflect the actual or *de facto* exposure of countries to international capital markets. In this paper, we use the measure of capital-account liberalisation that focuses exclusively on portfolio equity and FDI holdings (Lane and Milesi-Ferretti, 2007).

3. Methodology

We let the peg duration be a realisation of a random variable T, and the indicator of the type of exits a realisation of a random variable R. The hazard function for an exit of type r (the cause-specific hazard) is defined as

$$h^r = \lim_{dt \to 0} \frac{\Pr(t \le T < t + dt, R = r | T \ge t)}{dt} . \qquad (1)$$

[3] The base country is the one to which a country pegs its own currency (Di Giovanni and Shambaugh, 2007).

Equation (2) captures the conditional probability that a peg will terminate at time $T = t$ and type $R = r$, given that it has survived till time t. The probability that an exit of type r occurs in the interval $(t, t + dt)$ is the event-specific density function:

$$f^r(t) = \lim_{dt \to 0} \frac{\Pr(t \le T < t + dt, R = r)}{dt} = h^r(t)S(t), \tag{2}$$

where $S(t) = \Pr(T \ge t)$.

For country i, let t_i^1 be the duration of a peg before an orderly exit and t_i^2 be the duration of a peg before a crisis-driven exit. The two types of exits are mutually exclusive. We define

$t_i = Min(t_i^1, t_i^2)$.

Let r_i be an indicator variable, which equals to 0 under a pegged exchange rate system, equals to 1 if there is an orderly exit from a peg to a floating and equals to 2 if there is a crisis-driven exit. We observe an event or censoring time t_i and a categorical variable r_i indicating whether they are censored. The data are censored if $r_i = 0$ and are uncensored if r_i=1 or 2. Considering Cox PH models of the form:

$$h^r(t; x) = h_0^r(t) \exp[x(t)'\beta^r], \qquad r = 1,2 \tag{3}$$

where both the baseline hazard ratios $h_0^r(t)$ and β^r are specific to type r hazard, $x(t)$ is observed characteristics denoted by potential explanatory variables at time t and $t_1^r < \cdots < t_{k_r}^r$ denotes the k_r ordered failures of type r. The likelihood function for the Cox competing risks model is

$$L(\beta^1, \beta^2) = \prod_{r=1}^{2} \prod_{j=1}^{k_r} \frac{\exp[x_j(t_j^r)'\beta^r]}{\sum_{l \in R(t_j^r)} \exp[x_l(t_j^r)'\beta^r]}, \quad (4)$$

where the risk set $R(t_j^r)$ is the set of fixed exchange rate spells that are at risk of collapsing before the jth failure of type r. State dependence might arise due to unobserved heterogeneity. To incorporate unobserved heterogeneity into our model,[4] the Cox CRM can be extended to include a multiplicative term v, i.e.,

$$h^r(t;x) = h_0^r(t)\exp[x(t)'\beta^r]v^r, \qquad r = 1,2, \quad (5)$$

where v^r is the destination-specific and unobserved individual effect. We assume that the unobserved heterogeneity is independent of observed characteristics and follows a Gamma distribution with unit mean and variance theta. In the proportional hazard CRM, the interpretation of the parameters is analogous to the Cox PH model. The marginal effect of a certain variable x_k, on the chance of entering state *r*, is

$$\partial h^r(t|x,\beta)/\partial x_k = h_0^r(t)\exp[x(t)'\beta^r]\beta_k^r = \beta_k^r h^r(t|x,\beta). \quad (6)$$

When $\beta_k^r > 0$, an increase in x_k will increase the probability of leaving the pegged exchange rate system for a certain destination state r relative to the probability of staying with the peg. The proportional hazard competing risks model also allows us to compare the odds of each type of exits. If $\beta_k^r > \beta_k^j \ \ \forall j \neq r$ then an increase in x_k will increase the conditional probability of exiting from route r.

4. Results

To examine the general distribution of exits, we begin with a preliminary model without explanatory variables and the standard nonparametric Kaplan-Meier

[4] When unobserved heterogeneity is ignored, its impact is confounded with that of the baseline hazard, which might result in spurious regression.

estimators. Figures 1-3 present the estimated hazard functions for both types of exits from a pegged exchange rate system. The results for all exits show a mildly non-monotonic pattern of duration dependence. However, crisis-driven exits exhibit positive duration dependence in general, while orderly exits exhibit negative duration dependence. The estimated survival functions in Figure 4 show that orderly exits are more likely to occur in the early stage of a peg than those of crisis-driven exits.

Figures 1 to 4 about here

The estimation results for the standard Cox CRM are reported in Table 4. The results for Cox CRM with unobserved heterogeneity are reported in Table 5.

Table 4 about here

Table 5 about here

For both models, we control the country-specific time-varying explanatory variables. In the baseline Model (1), the selected variables include openness, trade concentration, inflation, output growth, output volatility, interest rate and capital-account liberalisation. Country-specific attributes are considered in models (2) to (5).

Note, from Table 5, that σ_v^2 is close to zero in all models, and we cannot reject the null hypothesis for $\sigma_v^2 = 0$. It is found that the main estimates are almost identical to those of the standard model. Furthermore, all the σ_v^2 except for the orderly exit in model 3 are close to zero. Therefore, the heterogeneity problem is not severe. The coefficient for the degrees of openness is negative in all cases. It is a significant consideration for orderly exits, but insignificant for crisis-driven exits. An increase in openness greatly reduces the chance of an orderly exit, implying that the benefit of trade openness outweighs the cost of vulnerability to external shocks.

For the orderly exit, the coefficient for trade concentration is strongly negative in model (2). A high concentration of trade improves the linkage between the home and base countries, which in turn reduces the probability of an orderly exit. On the other hand, it will exacerbate a given misalignment and lead to a crisis-driven exit. Therefore, the crisis-driven exit coefficient is strongly positive in most models. The coefficient for the inflation rate is significantly positive for orderly exits but slightly negative for crisis-driven exits. A higher level of inflation in home country compared with that of the base country under the peg leads to overvaluation of the real exchange rate. Thus, abandoning the peg can result in a higher chance of an orderly exit and prove beneficial for a country's sustainable development. The coefficient for the degrees of capital-account liberalisation is significantly positive for orderly exits but insignificant for the crisis-driven exits.[5] For countries with liberalised capital accounts, the floating exchange rate arrangement provides a better insulation for output against shocks to aggregate demand. It also implies that an orderly exit cannot occur when capital control is still in place.

Note that the effect of economic growth (GDP_GROWTH) is negative but insignificant in all models. The coefficients for the volatility of output (GDP_VOLATILITY) and the interest rate of the base country are strongly positive for both exits in most models. High volatility in output might lead a country to adopt a flexible exchange rate system to avoid economic shocks, thereby reducing the probability of the peg's survival. Increased interest rates of the base country accelerate capital outflows from the home country, forcing the abandonment of the peg. It is noteworthy that the estimated coefficient is larger for crisis-driven exits, suggesting that an increased interest rate in the base country will heighten the chance of a crisis-driven exit. Consequently, the peg requires the home country to follow the monetary policy of the base country. Such a policy might not be optimal[6] and could potentially make the home economy more vulnerable to speculative attacks.[7]

[5] Glick et al. (2006) suggest that countries with liberalised capital accounts might also have better economic fundamentals, which make them less vulnerable to currency crises.
[6] Miniane and Rogers (2007) find that local interest rates are more likely to follow base interest rates for pegs.
[7] Di Giovanni and Shambaugh (2007) find evidence that a high base-country interest rate has a contractionary effect on domestic economy, especially for the country with a fixed exchange rate.

Our findings are robust across models, except for model (2), where controlling the degree of central bank independence (CBI) generates a negative coefficient for the volatility of output in the orderly-exit case. Some important results are obtained. First, a high turnover of central bank governors (less central bank independence) induces a higher likelihood of an orderly exit. Second, we find that the conditional probability of an exit is not affected by the degree of democracy, hyperinflation or whether the country is developed or developing. Note that hyperinflation reduces the probability of leaving the pegged exchange system. The peg provides a potential nominal anchor for a central bank to achieve its inflation target. Third, rapid growth in foreign currency reserves can defend the peg and reduce the probability of crisis-driven exits (Chong et al., 2008). Also, note that the coefficient for the net debt position variable is strongly negative for orderly exits. Calvo and Reinhart (2002) point out that foreign debt is the main contributing factor for a country to peg its currency in order to avoid exchange rate volatility. Thus, a high level of foreign liabilities reduces the tendency towards adopting a floating regime. Finally, the incidence of banking crises significantly increases the chance of crisis-driven exits, whereas it has no apparent effect on orderly exits.

After controlling the country-specific time-varying factors and unobserved heterogeneity (in model (1)), we retrieve the baseline hazard functions for both types of exits by Cox CRM. The smoothed versions of these functions are shown in Figures 5 and 6. Note that the hazard functions remain relatively unaffected; in addition, crisis-driven exits exhibit positive duration dependence, while orderly exits are more likely to occur at an early stage of the peg.

Figures 5 to 6 about here

5. Conclusion

For many developing countries, the fixed exchange rate regime serves as a temporary policy measure to stabilise domestic inflation and provide an environment for steady economic growth. However, pegs might also constrain the choice of domestic monetary policies and make the domestic financial system vulnerable to speculative

attacks. This paper employs the competing risks model to investigate how a country's attributes affect its choice of the exchange rate regime. Two types of exits from the pegged exchange rate regime, namely, the crisis-driven exit and the orderly exit, are investigated. The two types of exits are very different in nature and in policy implications. A crisis-driven exit often results in economic turbulence, while an orderly exit is relatively tranquil. A competing risks model with time-varying explanatory variables is estimated to uncover the way that the peg duration affects the likelihoods of crisis-driven and orderly exits. The baseline hazard ratio estimated by Cox CRM reveals that crisis-driven exits exhibit positive duration dependence, while orderly exits exhibit negative duration dependence after controlling country-specific time-varying factors and unobserved heterogeneity. Second, it is found that countries with higher degrees of openness and trade concentration have a lower chance of orderly exits. Third, it is shown that capital-account liberalisation increases the chance of orderly exits, while it has no apparent effect on the likelihood of crisis-driven exits. Last but not least, it is found that the likelihood of crisis-driven exits increases with the incidences of banking crises.

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Figure 1: Estimated hazard function for all types of exits

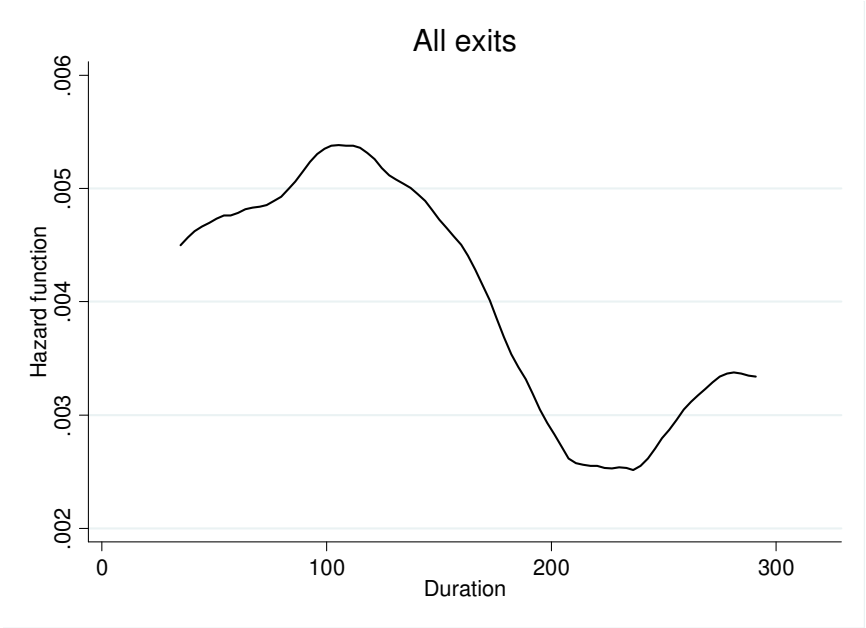

Figure 2: Estimated hazard function for crisis-driven exits

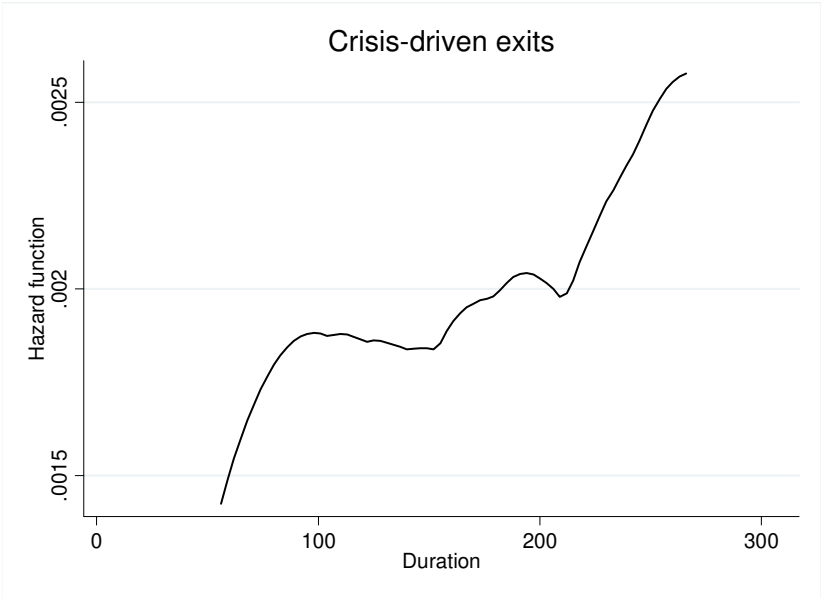

Figure 3: Estimated hazard function for orderly exits

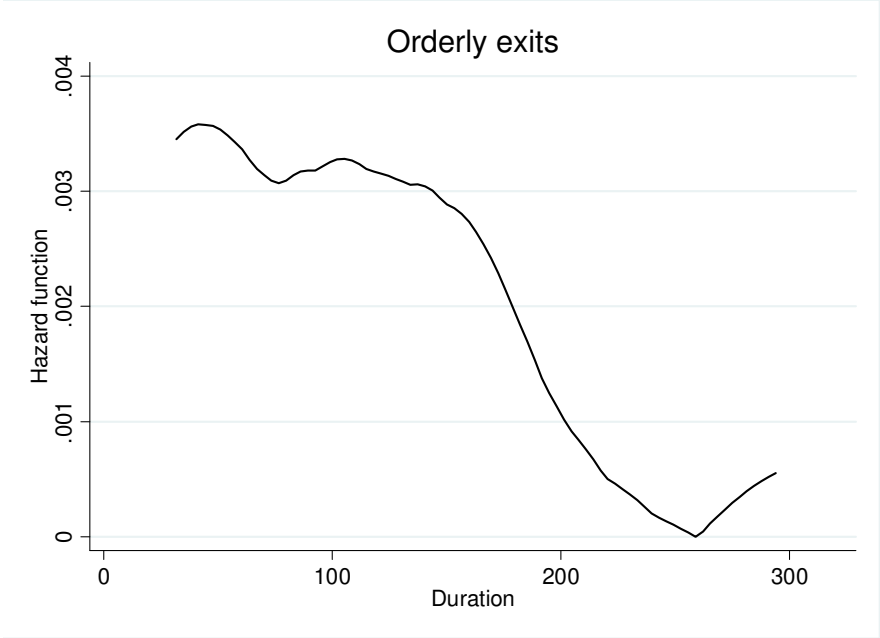

Figure 4: Estimated survival functions

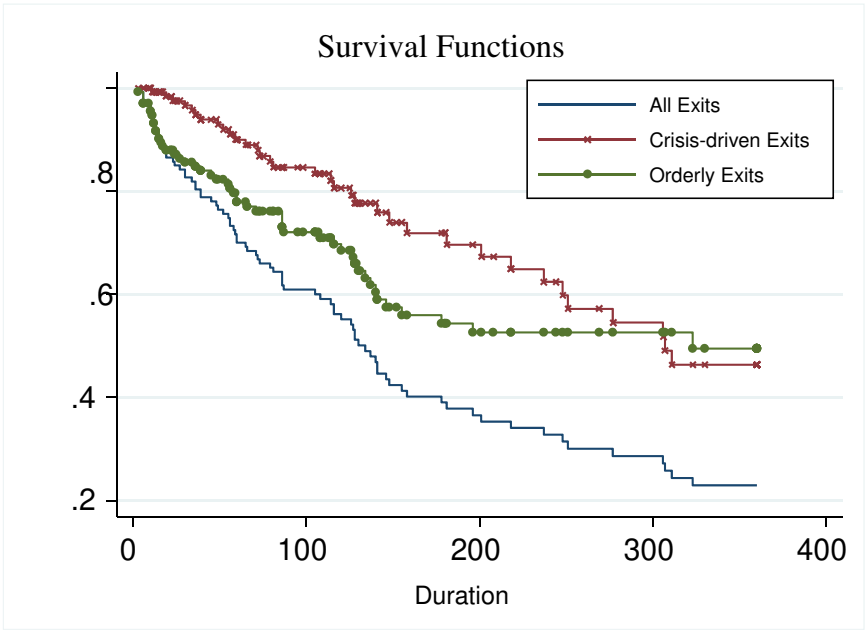

Figure 5 Estimated Cox hazard function for Crisis-driven exits

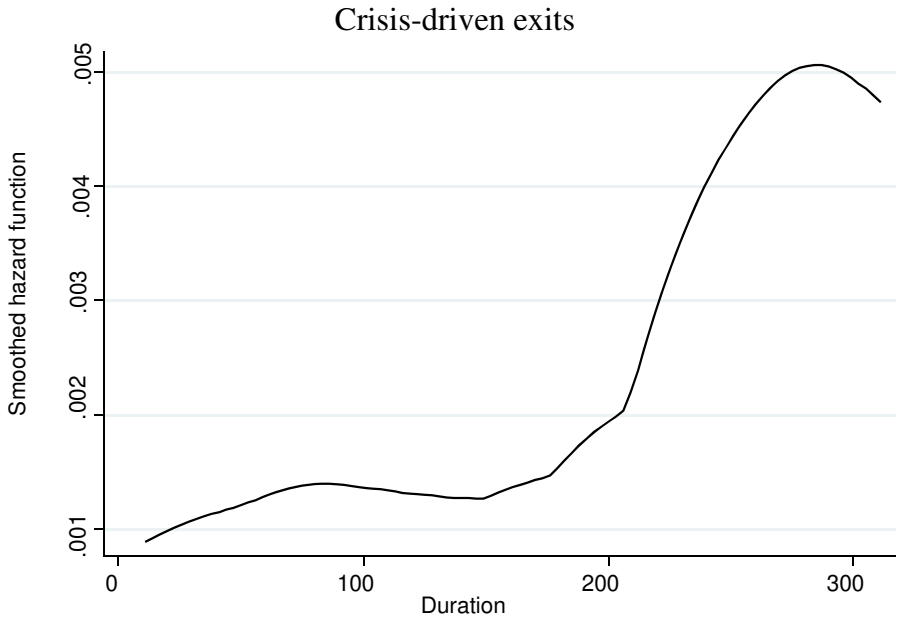

Figure 6 Estimated Cox hazard function for Orderly exits

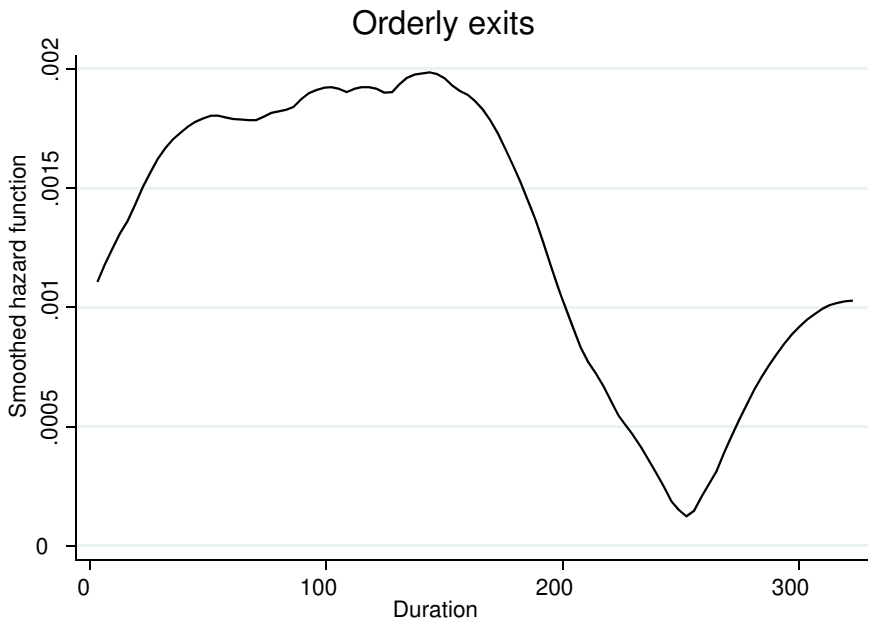

Table 2: Nature of Exits

Country	Period of Exits	Duration of Pegged Regime	Nature of Exits
Argentina	1981:03	36	Orderly exit
	1986:04	10	Orderly exit
	2001:12	128	Crisis-driven exit
Armenia		73	Non-exit
Australia	1982:11	130	Orderly exit
Austria		360	Non-exit
Belgium		360	Non-exit
Bolivia		180	Non-exit
Brazil	1975:04	39	Orderly exit
	1986:09	6	Orderly exit
	1989:04	3	Orderly exit
	1999:02	55	Orderly exit
Bulgaria		60	Non-exit
Canada		360	Non-exit
Chile	1982:06	52	Crisis-driven exit
	1999:09	140	Orderly exit
China	1981:03	86	Orderly exit
		113	Non-exit
Colombia	1983:10	141	Orderly exit
	1999:10	178	Orderly exit
Costa Rica	1980:10	105	Crisis-driven exit
		218	Non-exit
Cyprus		360	Non-exit
Czech Rep	1997:06	81	Crisis-driven exit
Denmark		360	Non-exit

Dominica		360	Non-exit
Dominican Rep	1982:09	128	Orderly exit
	1987:07	19	Crisis-driven exit
		110	Non-exit
Ecuador	1982:03	108	Orderly exit
	1997:10	48	Orderly exit
		22	Non-exit
Egypt		360	Non-exit
El Salvador	1982:08	127	Orderly exit
		141	Non-exit
Estonia		114	Non-exit
Finland	1992:09	248	Crisis-driven exit
		107	Non-exit
France	1974:04	27	Orderly exit
		330	Non-exit
Germany	1973:01	12	Orderly exit
		36	Non-exit
Greece	1981:07	114	Crisis-driven exit
		208	Non-exit
Guatemala	1984:12	155	Orderly-exit
	1989:06	11	Crisis-driven exit
		128	Non-exit
Guyana	1987:02	181	Crisis-driven exit
		84	Non-exit
Haiti	1991:10	237	Crisis-driven exit
	1993:05	13	Orderly-exit
Honduras	1990:03	218	Crisis-driven exit
		129	Non-exit
Hong Kong		360	Non-exit
Hungary		360	Non-exit
Iceland	1973:05	16	Orderly-exit
	1977:05	15	Orderly-exit
	2000:10	196	Orderly-exit
India	1979:03	86	Orderly-exit
		269	Non-exit
Indonesia	1972:07	6	Orderly-exit
	1997:08	277	Crisis-driven exit
Iran	1977:01	60	Orderly-exit
Iraq	1982:01	120	Orderly-exit
Ireland		360	Non-exit
Israel	1986:09	11	Orderly-exit
		180	Non-exit
Italy	1975:10	45	Orderly-exit
	1992:09	116	Crisis-driven exit
		105	Non-exit
Jamaica	1978:01	72	Crisis-driven exit
	1990:10	137	Orderly-exit
		108	Non-exit

Japan	1977:12	71	Orderly-exit
Jordan	1988:10	201	Crisis-driven exit
		152	Non-exit
Korea	1997:12	311	Crisis-driven exit
Lao	1973:04	15	Orderly-exit
	1997:01	79	Crisis-driven exit
Latvia		95	Non-exit
Lebanon	1984:03	146	Orderly-exit
		125	Non-exit
Lithuania		81	Non-exit
Malaysia	1997:08	307	Crisis-driven exit
		39	Non-exit
Mexico	1976:09	56	Crisis-driven exit
	1982:02	59	Crisis-driven exit
	1995:01	73	Crisis-driven exit
Moldova	1998:06	39	Crisis-driven exit
		22	Non-exit
Myanmar	1974:07	30	Orderly-exit
	1983:05	86	Orderly-exit
	1988:04	24	Orderly-exit
	1993:01	19	Orderly-exit
	1996:08	30	Orderly-exit
Netherlands		360	Non-exit
New Zealand	1985:03	158	Crisis-driven exit
Nicaragua	1974:04	87	Non-exit
		128	Orderly-exit
Norway	1982:07	126	Crisis-driven exit
	1992:12	65	Crisis-driven exit
Pakistan		360	Non-exit
Panama		360	Non-exit
Paraguay	1981:09	116	Orderly-exit
	1989:03	34	Crisis-driven exit
		131	Non-exit
Peru		98	Non-exit
Philippines	1983:10	141	Crisis-driven exit
	1997:07	128	Crisis-driven exit
Poland	1991:06	17	Orderly-exit
	2000:04	58	Orderly-exit
Portugal		360	Non-exit
Romania		9	Non-exit
Russia		25	Non-exit
Singapore	1998:12	323	Orderly-exit
Slovak Rep	1998:10	66	Orderly-exit
Slovenia		105	Non-exit
South Africa	1972:11	10	Orderly-exit
Spain		360	Non-exit
Sweden	1992:12	251	Crisis-driven exit
Switzerland	1973:12	13	Orderly-exit

		244	Non-exit
Thailand	1997:07	306	Crisis-driven exit
Turkey	1976:09	56	Orderly-exit
	2001:02	36	Crisis-driven exit
UK	1972:07	6	Orderly-exit
	1992:09	23	Crisis-driven exit
US	1978:02	60	Orderly-exit
Ukraine		39	Non-exit
Uruguay	1982:12	49	Crisis-driven exit
	1991:12	12	Orderly-exit
		75	Non-exit
Venezuela	1983:03	134	Orderly-exit
		66	Non-exit

Table 4: Estimation Results for Cox Model

	Model 1		Model 2		Model 3		Model 4		Model 5	
	Risk 1	Risk 2	Risk 1	Risk 2	Risk 1	Risk 2	Risk 1	Risk 2	Risk 1	Risk 2
Risk Coefficient	40	29	34	26	36	28	36	29	37	29
OPENNESS	-2.767***	-0.411	-1.372*	-0.321	-1.792**	-0.251	-3.203***	-0.25	-3.343***	-0.459
CONCENTRATION	-0.014	0.021*	-0.019*	0.018	-0.012	0.021*	-0.012	0.020*	-0.009	0.024*
INFLATION	0.431***	-1.131	0.481***	-4.821	0.454***	-3.093	0.565***	-1.182	0.475***	-1.922
GDP_GROWTH	-1.397	-1.323	-0.155	-1.792	-1.056	-1.162	0.711	-0.993	-0.109	-1.343
GDP_VOLATILITY	11.293*	12.725**	-0.208	13.558**	9.58	13.448**	15.601**	12.950**	15.678**	9.724*
BASEINTEREST	15.643***	22.927***	14.254**	33.794***	18.273***	32.244***	13.375**	21.416***	14.399**	21.141***
CAL	1.381***	-0.619	1.201**	-0.597	1.460**	-0.681	1.288**	-0.653	1.383**	-0.646
CBI			1.624***	0.755						
COUNTRYTYPE			0.235	-0.146						
DEMOCRACY					-0.133	-0.019				
DEBTPOSITION					-0.811*	-0.117				
RESERVEGROWTH							-0.850*	-1.009**		
HYPERINFLATION							-1.267	-0.392	-1.279	-0.629
BANKCRISIS									-0.056	0.989**
ln L	-240.82		-194.32		-213.71		-215.38		-217.97	

* significant at 10%; ** significant at 5%; *** significant at 1%, Risk 1 for orderly exits, Risk 2 for crisis-driven exits.

Table 5: Estimation Results for Cox Model With Gamma Heterogeneity

	Model 1		Model 2		Model 3		Model 4		Model 5	
	Risk 1	Risk 2	Risk 1	Risk 2	Risk 1	Risk 2	Risk 1	Risk 2	Risk 1	Risk 2
Risk Coefficient	40	29	34	26	36	28	36	29	37	29
OPENNESS	-2.780***	-0.411	-1.381*	-0.321	-1.586**	-0.251	-3.120***	-0.25	-3.265***	-0.459
CONCENTRATION	-0.014	0.021*	-0.019*	0.018	-0.018	0.021*	-0.016	0.020*	-0.013	0.024*
INFLATION	0.430***	-1.131	0.478***	-4.821	0.421***	-3.093	0.553***	-1.182	0.460***	-1.922
GDP_GROWTH	-1.359	-1.323	-0.119	-1.792	-1.533	-1.162	0.597	-0.993	-0.347	-1.343
GDP_VOLATILITY	11.374*	12.725**	-0.019	13.558**	9.251	13.448**	15.260**	12.950**	15.293**	9.724*
BASEINTEREST	15.860***	22.93***	14.270**	33.794***	18.856***	32.244***	13.477**	21.416***	14.595**	21.141***
CAL	1.369***	-0.619	1.200**	-0.597	1.376**	-0.681	1.283**	-0.653	1.393**	-0.646
CBI			1.635***	0.755						
COUNTRYTYPE			0.236	-0.146						
DEMOCRACY					-0.189	-0.019				
DEBTPOSITION					-0.803*	-0.117				
RESERVEGROWTH							-0.863*	-1.009**		
HYPERINFLATION							-1.396	-0.392	-1.426	-0.629
BANKCRISIS									-0.062	0.989**
σ_v^2	1.36e-15	2.11e-16	1.27e-14	7.00e-19	0.152	2.11e-16	0.061	2.08e-18	0.071	1.27e-14
ln L	-240.57		-194.20		-213.21		-214.97		-217.58	

* significant at 10%; ** significant at 5%; *** significant at 1%, Risk 1 for orderly exits, Risk 2 for crisis-driven exits.