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The Interactions of Strength of Governments and Alternative Exchange Rate Regimes in Avoiding Currency Crises

By

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Abstract

This paper analyzes the stability of alternative exchange rate regimes in the face of substantial capital mobility. This issue often goes under the label of the unstable middle or the two-corners hypotheses. The paper argues that both the issues of why the middle is unstable and how far toward the extremes of fixed or flexible exchange rates countries need to go in order to substantially reduce the likelihood of currency crises depends crucially on political economy as well as technical economic considerations. We under take a large N empirical study that extends the current crisis literature by taking into account the interactive effects between weak political institutions and alternative exchange rate regimes on the probability of currency crises. We find that weak political institutions - particularly characterized by unstable governments and divided governments - increase the likelihood of currency crises under any type of exchange rate regime, but as our theory suggests, this effect is strongest under adjustably pegged exchange regimes.

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1. Introduction

The rash of international currency crises has heightened the debate about appropriate exchange rate regimes. Since most of the crisis countries had some form of pegged exchange rates, much greater attention has been paid to the standard economists' critique of adjustable pegs, namely that because of the potential they provide for one way speculative gambles, adjustable-peg regimes will become highly crisis-prone under conditions of substantial capital mobility. Most economists accept this analysis, but differ over how far away from this middle of the spectrum of exchange rate regimes countries need to move to substantially reduce the likelihood of crises. This question is quite important when considered along with the fact that the theory of optimum currency areas suggests that many, if not most, countries are not good candidates for either of the extremes of hard fixes or freely flexible exchange rates (Williamson 1996, and Willett 2003, 2006a, 2006b). Thus the issue of whether the "unstable middle" hypothesis must be extended to the conclusion that only the "two corners" of the exchange rate spectrums will be stable is an issue of major importance.

Further complicating the debates over these issues is the recent argument by Jeffery Frankel (2004), who posits that we lack a good theoretical understanding of precisely why the middle is unstable. He convincingly shows that the "unholy trinity" analysis frequently involved to justify the unstable middle hypothesis is not sufficient. In a recent analysis, Willett (2006b) takes up this challenge; he agrees with Frankel that economic theory alone does not provide a satisfactory explanation, but argues that when economic theory is combined with political analysis of the incentives to delay needed adjustments, a satisfactory theory is at hand. A major conclusion of Willett's analysis is that while weak governments will increase the likelihood of crises under any type of exchange rate regime, these effects will be stronger, the stickier is the exchange rate regime. This combined political economy analysis suggests that countries do not necessarily need to go all the way to one of the corners to substantially reduce the incidence of currency crises, but the weaker the government, the further they will need to go.

Using recently developed data sets of *de facto* rather than *de jure* classifications of exchange rate regimes, we test these propositions on a set of 90 countries over the period of 1990-2003, and find fairly strong support for them.

Section 2 provides a brief summary of relevant literature and explains the hypotheses to be tested. Section 3 describes the data and methodology used to test these hypotheses. Section 4 presents our core results on the relationships among political institutions, exchange rate regimes, and currency crises. Section 5 describes the robustness checks, and Section 6 concludes.

2. Literature Review and Explanation of Hypotheses

It has been well documented that political instability contributes significantly to the likelihood of currency crises (Edwards 1996, Bernhard and Leblang 1999, Bussière and Mulder 1999, Frieden, Ghezzi and Stein 2001, Poirson 2001, Meon and Rizzo 2002). Here we go further to test the hypotheses developed by Willett (2006b) that political instability and weak governments more generally are an important part of the explanation for the crisis-proneness of adjustable-peg exchange rate regimes.

Such adjustable pegs are at the center or middle of the spectrum of flexibility of exchange rate regimes running from hard fixes on one end to free floating on the other. They were enshrined in the Bretton Woods international monetary system to avoid the perceived disadvantages of both fixed and freely flexible exchange rate regimes. This compromise system worked well so long as international capital mobility was low, but as capital controls were relaxed and capital mobility increased, this type of regime become increasingly crisis-prone. With sticky exchange rate adjustment, prolonged balance of payments imbalances developed. While the timing of adjustments was uncertain, it tended to be clear in which direction potential adjustments would be made. Surplus countries would only revalue, not devalue, while deficit countries would only do the opposite. Thus market participants were faced with one-way speculative bets, generating speculative capital outflows from deficit countries and inflows into surplus countries. The acts of prudent international businesses seeking to avoid losses from exchange rate changes added to these capital flows.

The logic of this standard economic interpretation of one of the major sources of problems with the Bretton Woods helps also to explain later crises such as those that occurred in the European Monetary System in 1992 and 1993, Mexico in 1994, Asia in 1997, Russia in 1998, and Brazil in 1999.[1] These crises generated the popularity of what became known as the “unstable middle” hypothesis that argued that with high capital mobility the adjustable peg, middle of the exchange rate spectrum, would be highly crisis-prone. Many economists went further and argued that to avoid currency crises countries need to go all the way to one end of spectrum or the other. This view became

[1] Of course each crisis also has its distinctive aspects, but adjustable or crawling pegs were a common feature of all of these crises. For further discussion see the analysis and references in Chiu et al (forthcoming).

known as the “bipolar” or “two corners” hypothesis (Eichengreen 1994, Obstfeld and Rogoff 1995, Summers 2000, Fischer 2001, and Bubula and Otker Robe 2003).

Other economists argued that it wasn’t necessary to go all the way to a corner and that crawling bands, for example, could still be an effective regime. Advocates of this view were able to offer examples where crawling bands had worked well, while critics could point to examples where they hadn’t. Thus this question has become an important topic for empirical testing using new, more accurate classifications of exchange rate regimes that have been developed in recent years. In a recent paper with Apanard Angkinand (2006), we found strong support for the unstable middle hypotheses and evidence against the strong forms of the bipolar or the two-corner hypothesis.

Recently, however, Jeffery Frankel (2004) made the important argument that we did not have a strong theoretical basis for the unstable middle hypothesis. Frequently this hypothesis had been justified by appeal to the ‘unholy trinity’ conclusion of standard international monetary theory. This shows that one cannot have all three of a fixed exchange rate, high capital mobility, and an independent monetary policy. Frankel pointed out that the unholy trinity analysis didn’t rule out the possibility of a stable middle since exchange rate and monetary policies could be mutually adjusted to each other, thus avoiding the emergence of fundamental disequilibria which are the most common cause of currency crises.

In a subsequent analysis, Willett (2006b) agreed with Frankel’s economic analysis, but argued that when political factors were also taken into consideration then the unstable middle became explainable. His argument was that various political pressures can make it difficult for governments to undertake the needed exchange rate and/or domestic macroeconomic adjustments in a prompt manner. The result of putting off such adjustments was that serious disequilibria would develop and the one-way speculative gamble would come into play. The incentives to delay would be greater, the stickier was the exchange rate regime. Thus Willett's analysis suggested a continuum with crawling regimes being less crisis-prone than adjustable pegs, but more crisis-prone than flexible rates.

His analysis also predicted that the size of the difference in the crisis propensities of the different exchange rate regimes would be a function of the political strength of governments, with the differences in crises probabilities across the regimes being greater, the weaker were governments. He focused on three types of political considerations. One focused on the distributional effects of exchange rates adjustments such as have been emphasized by Jeffrey Frieden and others. Combined with perceptions that governments will be blamed more by those who lose than rewarded by those who gain, the distributional effects of exchange rate changes can contribute to a status quo bias against prompt adjustments.

A second possible argument is that even when economic officials are able to convince the executive of the need to adjust, the executive may fear political punishment from participants in the political process who have short time horizons. This effect would be likely to be stronger, the closer are elections and the greater is the risk of the executive being thrown out of office either via elections or other means. Substantial exchange rate adjustments would tend to be less likely before elections is suggested by the political business cycle literature, and has found considerable empirical support.[2] A high degree of

[2] See for example Blomberg, Frieden and Stein (2005), Stein and Streb (1999), Frieden and Stein (2001), and Walter (2006).

political instability – in the form of large scale protests, riots, incidents of political violence, etc – would be expected to directly increase the probabilities of currency crises across any type of exchange rate regime. A lack of strong political popularity is also likely to force a government to give increased weight to short run political considerations, thereby increasing the propensity to postpone policies such as exchange rate and macro economic policy adjustments whose cost-benefit ratios are much less favorable in the short run than in the long run. Willett argued that exchange rate adjustments are subject to strong asymmetrical time effects similar to those analyzed in the literatures on political business cycles and the time inconsistencies of macro economies policies and concludes that these problems would be the strongest for adjustable-peg exchange rate regimes. Thus any factor which reduces the effective time horizons of government decision makers in deficit countries is likely to increase the probability that adjustments will be delayed too long to avoid the generation of currency crisis.

A third type of problem is that even if the executive is convinced that the risks of future crises are so high that they should be willing to bear the short-run political costs of initiating adjustment policies, the odds of successful adoption of such policies can be substantially reduced when the government is divided or faces a large number of veto players.[3] Again the status quo bias generated by such government weakness will make good economic policy-making more difficult under any exchange rate regime, but currency crises should be less common as the degree of automatic exchange rate

[3] A divided government is defined as when the executive and legislative branches are controlled by different parties, they usually have different incentives and face different constraints in making decisions (e.g., Roubini and Sachs (1989) , Alesina and Drazen (1991), Cox and McCubbins (2000), Haggard (2000) , MacIntyre (2001), Angkinand (2004), Leblang and Satyanath (2006)).

adjustment increases. Once again, we would expect that an aspect of weak government would make the adjustable peg especially crisis-prone.

The primary purpose of the paper is to test the predictions arising from Willett's analysis. The closest empirical paper to ours of which we are aware is by David Leblang (2003), who looks at how both political instability and alternative exchange rate regimes affect the probability of currency crises. This paper goes beyond Leblang's analysis in two important ways. One is that while he made use of official classifications of exchange rate regimes, recent research has demonstrated that these *de jure* classifications are often misleading. We are able to alleviate this problem by making use of new superior classifications that have recently become available.

A second innovation is that we focus on the interactions between weak governments and alternative exchange rate regimes in influencing crisis probabilities while Leblang only investigated the roles of each as independent variables. This allows us to directly test not only the hypothesis that weak governments make currency crises more likely, but also the prediction of Willett's analysis that this effect will be stronger, the stickier is the exchange rate regime.

3. Sample, Data, and Model Specification

The data set for this paper comprises annual observations from 1990 to 2003 on 90 countries, including 21 industrial countries, 42 emerging markets economies, and 27 low-income developing countries[4]. This is the time period for which the new IMF data on exchange rate regimes is available. Our dependent variable will be currency crises as measured by exchange market pressure indices (EMP), which are computed based on the

[4] See appendix I for the sample countries.

weighted averages depreciation of the domestic currency, the loss of international reserves and the increase in interest rates.[5] A pooled precision weighting system is utilized to determine the weights of the three components based on the inverse of their respective standard deviations, i.e. precision weights. The higher the standard deviation, the lower the weight given to the corresponding variable in calculating EMP. Currency crises are identified if the EMP index exceeds the pooled mean by three standard deviations (Eichengreen, Rose, and Wyplosz (1995), Kaminsky and Reinhart (1999), and Kamin, et al. (2001)). For sensitivity tests, as suggested by Willett et al (2005), an equal weighed index is also tested, as are both two and three standard deviation thresholds.

As a proxy for measuring government stability, we use the government stability index of the *International Country Risk Guide* (ICRG, wherein government stability is defined as a government's ability to carry out its declared program, and its ability to stay in office.[6] In general, the degree of government stability is the sum of three following subcomponents, each running from zero to four points. A score of 4 points equates to "very high stability" and a score of 0 points to "very low stability." The three subcomponents are:

1. Government Unity (0-4)
2. Legislative Strength (0-4)
3. Popular Support (0-4)

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[5] Following Eichengreen, Rose and Wyplosz (1996).

[6] Socioeconomic conditions reflect pressures at work in society that could constrain government action or fuel social dissatisfaction. This is an assessment both of the government's ability to carry out its declared program(s), and its ability to stay in office. This will depend on the type of governance, the cohesion of the government and governing parties, the closeness of the next election, the government's command of the legislature, popular approval of government policies, and so on.

Therefore, the ICRG index ranges from 1 (the lowest level of government stability) to 12 (the highest level).

Following Leblang and Satyanath (2006), we use data from the World Bank's Database of Political Institutions to capture the distinction between unified and divided government (Beck et al. 2003).[7] A divided government is considered to be present when the legislature is not controlled by the party of the president in a presidential system, and whenever there is a coalition government in a parliamentary system. Specifically, we create a dummy variable to capture this distinction that takes the value of one when the chief executive's party controls the legislature (that is, a unified government), and codes zero when it does not control the legislature (that is, a divided government). Data for exchange rate regimes is taken from Bubula and Otker-Robe (2002), which introduced a new IMF *de facto* regime classification that only goes back to 1990. As suggested by Angkinand, Chiu, and Willett (2006) [8], we regroup Bubula and Otker-Robe's fine thirteen categories into a five-way classification scheme: *Hard Pegs*, *Adjustable Parities*, *Crawls*, *Managed Floats*, and *Floats* to better capture the main feature of various types of exchange rate regime.

Drawing from the literature on determinants of currency crises, we control for a standard set of macroeconomic variables (Frankel and Rose 1996; Corsetti, Pesanti and Roubini 1998; Radelet and Sachs 1998; Bordo et al. 2001; Abiad 2003; and Willett et al. 2005). These are: the ratio of M2 to international reserves, the rate of domestic credit

[7] The measure is labeled ALLHOUSE in the Database of Political Institutions. For sensitivity tests, we also use an alternative measure called "checks" from the same source Database of Political Institutions. Detailed discussions and results of this variable will be presented in the section 3.6.
[8] We presented our initial ideas at the Claremont-IIE (Institute for International Economics) workshop in Washington D.C in November 2004, and the full version of this paper was given at the ISA (International Studies Association) conference in Hawaii last March.

growth, current account deficit/surplus as a share of GDP, and real effective exchange rate appreciation.[9] Kaminsky, Lizondo, and Reinhart (1998), for example, find each of these variables to be among the strongest leading indicators of currency crises.[10] The current account surplus is expected to reduce the probability of crises. Real effective exchange rate appreciation is likely to cause currency overvaluation especially under pegged rates, which in turn increases the likelihood of currency crises. The ratio of M2 to foreign reserves and the growth rate of the ratio of domestic credit to GDP are expected to have a positive relationship with the probability of crises. These control variables are broadly representative of the existing literature on currency crises, and can be retrieved from the *International Financial Statistics* (IFS) database.

Lastly, we also include elections as a political control variable. There already exists a large literature relating elections to economic outcomes; this literature can be divided into two distinct but related strands: one focusing on uncertainty and the second examining the incentives of policymakers surrounding elections.[11] While the electoral effect is not our primary focus of this paper, we include it in our model because it helps control for the time-inconsistency problem, that is, government officials with short-time horizons (as run-up to an election) tend to bias toward generating expansionary macroeconomic polices for the short-run benefits (e.g. to increase domestic output and win the election) at the expense of the long-run costs (e.g. to increase inflation), as suggested by the classic political business cycle literature. We measure the electoral dates using data from Database of Political Institution (DPI) and create an election dummy,

[9]Data on the ratio of short-term debt over reserves is not available for most of our sample of developing countries; thus, we do not use this variable in this study.
[10] See Kaminsky et al. (1998) for an evaluation of various crises indicators.
[11] Lobo and Tufte (1998), Frieden, Ghezzi and Stein (2001), Leblang and Bernhard (2001), and Walter (2006).

which is coded as one if there is an election for either the legislature or executive branch in that year. Appendix I provides detailed definitions and sources of all variables used in the analysis.

Model Specification

In order to assess the interactions among political variables, exchange rate regimes, and the probability of currency crises, several rounds of probit regressions are undertaken by applying an interaction dummy regression model. A probit panel model is defined as:

$$y_{i,t} = \ln\left[\frac{P_{i,t}}{1-P_{i,t}}\right] = \alpha + \gamma G_{i,t-1} + \sum_{j=1}^{4} \delta_j ER_{i,t-1,j} + \sum_{m=1}^{4} \phi_m G \bullet ER_{i,t-1,m} + \sum_{k=1}^{5} \beta_k X_{k,i,t-1} + \varepsilon_{i,t}$$

$$where \;\; P_{i,t} = prob\,(CC_{i,t} = 1 \mid x_{i,t}, G_{i,t}, ER_{i,t}) = \frac{1}{1 + e^{-(\alpha + \beta_k x_{i,t} + \gamma G_{i,t-1} + \sum_{j=1}^{4} \delta_j ER_{i,t-1,j} + \sum_{m=1}^{4} \phi_m G \bullet ER_{i,t-1,m})}}$$

$CC_{i,t}$ is a currency crisis dummy variable taking a value of 1 in a crisis year for any country *i* at time *t*, and 0 if there is no currency crisis. $P_{i,t}$ is the probability that a currency crisis occurs under certain type of exchange rate regime (i.e. $CC_{i,t}$ equals to 1), leading to ln [$P_{i,t}/1-P_{i,t}$] being the odds ratio of the probit estimation. *G* is our primary political variables: government stability and divided government. *ER* represents a set of exchange rate regime dummy variables, where $ER_{i,t-1,j}$ takes a value of 1 if country *i* adopts a particular exchange rate regime *j* one year before a crisis observation, and 0 otherwise. The coefficient of adjustable parities is dropped to avoid the problem of perfect multicollinearity. Thus, the intercept α indicates the average value of the probit for the adjustable parities. δ_1, δ_2, δ_3, and δ_4 are slope coefficients, which tell by how much the means of the probit of hard pegs, crawls, managed floats, and independent floats differ from that of adjustable parities. By taking $L_{i,t}$ = antilog [$P_{i,t}$ /(1- $P_{i,t}$)], we can obtain the probability $P_{i,t}$ of currency crises under a particular exchange rate regime. The set of control variables *x* shall be a *k*-element vector of standard economic and financial variables. β_k captures the effect of the change in a control variable *k* on the change in the odd ratio, and $\varepsilon_{i,t}$ is the error term. To minimize the problem of reverse causality, all the independent variables are lagged by one year.

4. Empirical Analysis

Table 1 reports results of the impact of weak political institutions on the probability of currency crises under various types of exchange rate regimes. We apply a panel probit model to a set of 90 countries over 1990-2003. Two indicators of a government's political strength are used as alternative proxies for the strength of a government. The first is the ICRG government stability index , and the second is whether the government is the unified government dummy variable. The results of these two political indicators are presented in Columns (1) and (2), respectively.

As shown in Column (1) from Table 1, the results indicate that government stability has a negative and statistically significant effect on the probability of currency crises after controlling for a set of macroeconomic variables. We then compute the probability of currency crises across different levels of government stability and alternative exchange rate regimes. Table 2a reports the probability distribution. We find, in general, that as the government becomes more politically stable (i.e., moving from scale 1 to scale 12), the probability of currency crises decreases accordingly by a considerable amount. In particular, adjustable-peg exchange rate regimes become extremely crisis-prone, and are much more so if the government is politically unstable and weak, than other types of regimes such as hard pegs, crawls, managed floats, and floats (34.24% versus 13.43%, 3.21%, 17.66%, and 0.21%). This is consistent with the "unstable middle" hypothesis cited above. Figure 1 shows the probability of crises under different types of exchange rate regimes across various degrees of government stability.

Column (2) in Table 1 reports the effects of divided governments on the probabilities of currency crises. While the differences across regimes are not as great using this measure, we find the same general pattern. The results indicate that a unified government is less vulnerable to currency crises than a divided government. This finding is consistent with the war-of-attrition argument and may reflect the greater difficulty in reaching consensus on stabilization and adjustment programs with power is relatively divided between the government executive and legislature branch. Furthermore, Table 2b and Figure 2 show the distribution of the probability of crises under different types of exchange rate regimes. We find that the combination of a divided government with adjustable peg regime displays the highest probability of currency crises compared with hard pegs, crawls, managed floats, and floats (12.27% versus 3.97%, 7.55%, 10.86%, and 4.47%).

As mentioned, our results indicate that the probability of currency crises will decline as the government becomes either more stable or more unified. This result holds across different types of exchange rate regimes, except for countries with crawling pegs/bands regime. The probability of crises increases as the government becomes more stable under crawling regimes, which is rather counterintuitive. To investigate this anomaly, we first divide crawling regimes into forward looking crawls and backward looking crawls from our exchange rate regime data by Bubula and Otker-Robe.[12] The reason for this breakdown is that forward looking crawls tend to display more stickiness than backward looking crawls. The former reflects more pre-commitment to limit the future rate of depreciations, while the backward looking crawls tend to be more flexible, adjusting for post differentials in inflation. Forward looking crawls tend to be associated with efforts at exchange rate based stabilization and while counting some successes, also tend to be quite crisis-prone.[13] We suspect that this anomaly of stronger governments associated with higher probability of crises is mainly due to the nature of forward looking crawls.

As shown in both Table 2c and 2d, we find that for countries with backward-looking crawls, our general findings continue to hold; that is to say, more stable governments are less vulnerable to currency crises. However, for countries with forward-looking crawling regimes, we find that the stronger or more unified the government is, the higher the probability of currency crises. A possible explanation comes from the nature of Exchange Rate Based Stabilization (ERBS) programs, which are designed to

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[12] In the original dataset, Bubula and Otker-Robe classify exchange rate regimes into thirteen fine categories. Under the category of crawling regimes, they have four sub-categories: forward looking crawling peg, backward looking crawling peg, forward looking crawling band, and backward looking crawling band. The crawling peg is viewed as “forward looking” when exchange rate is adjusted at a preannounced fixed rate and/or set below projected inflation differentials, typically when the exchange rate is envisaged to have an anchor role. The crawl is viewed as “backward looking” when the crawl is set to generate inflation adjusted changes in the currency (i.e., when it aims to passively accommodate past inflation differentials under a real exchange rate rule). Maintaining a credible crawling peg imposes similar constraints on monetary policy as a fixed peg system, particularly in a forward looking crawl, as the authorities are expected to intervene to ensure the targeted fixed depreciation path. The degree of intervention in a backward looking crawl is expected to be less given the lack of commitment to a fixed depreciation path and the absence of a need to anchor expectations (Bubula and Otker-Robe, 2002).

[13] On the debate about exchange rate stabilization and the use of exchange rates as nominal anchors, see the analysis and references in Martin, Westbrook and Willett (1999) and Willett (1998).

fight against high inflation. In contrast to the recession typically induced by traditional stabilization problems, ERBS tends to initiate a consumption boom, rapid output growth, and a decline of unemployment. This type of program was especially popular for most of Latin America in countries which have had long histories of high inflation. The problem of ERBS arises when the currency does not depreciate rapid enough after the fall of inflation and cause currency overvaluation. This in turn hurts the country's export competitiveness and currency crises ensued.

During the 1980s and 1990s there was a tendency in the economics profession that was mirrored by the advice of the IMF to put excessive faith in the efficiency of ERBS and that as a consequence many governments overestimated their likelihood of success. It was generally understood, however, that extremely weak and unstable government would have little chances of successfully stabilizing. Thus it seems likely that the stronger governments of high inflation countries would be more likely to attempt ERBS. If there is a higher tendency for such programs to end in crises (such as the ones which occurred in Mexico in 1994 and Brazil in 1999) than is generally expected, it could help explain the positive correlation between strength of government and the probability of crises under forward looking crawls. This is clearly an issue worthy of further investigation.[14]

5. Robustness Checks

5.1. Alternative Definitions of Crisis Indices

[14] Another aspect which deserves further study is Bubula and Otker-Robe (BOR)'s classifications of forward-looking crawling bands. In several cases such as Brazil for 1991-1993 and Turkey 1990-93 and 1995-97, they have classified as crawling bands rapidly depreciating currencies that Reinhart and Rogoff classify as freely falling.

In the benchmark regression, we test our hypotheses using pooled precision weighting system in constructing a crisis index. The use of precision weights, however, is arguably inappropriate since the precision measures reflect government intervention rather than the excess demand in foreign exchange markets (see Angkinand et al 2006, Willett et al 2005, and Li, Rajan and Willett 2006). Under a pure fixed exchange rate, for example, the precision index would assign weights only to changes in exchange rate and zero weight to changes in foreign reserves. Thus, precision weights will substantially underestimate the severity of unsuccessful speculative attacks under fixed exchange rates. In the following test, we apply an alternative crisis index constructed based on an equal weighting system to check the robustness of our results.[15] Tables 3 and 4a-4d report the re-estimation results and the probability of crises. Consistent with our previous findings with pooled precision weights, in general, we find that both government instability and divided government increase the likelihood of currency crises, although the latter is not statistically significant. Additionally, when we turn to the estimated probability of currency crises in table 4a-4d, we find a similar pattern to our benchmark model, that is, the more unstable and divided government is, the higher is the probability of crises under any type of exchange rate regime. In particular, adjustable parities register at the highest probability of crises when the government is very unstable or highly divided. This suggests our political variables are fairly robust across different measures of crises indices.

5.2. Alternative Measures of Political Institutions

[15] The EMP index is a weighted average of the depreciation rate of nominal exchange rates (vis-à-vis US$, the percentage changes in international reserves, and the percentage changes in interest rates. A currency crisis is identified if the EMP index exceeds the mean plus three standard deviations.

So far we have used data from the World Bank's Database of Political Institutions as our measure of how divided or unified the government is. We check for the robustness of our results to alternative measures of divided government in Tables 5 and 6a-6d. This alternative measure from DPI, which is called "checks", is the number of veto players, adjusting for whether these players are independent of each other.[16,17] It counts the number of veto players, actors whose approval is necessary for a shift in policy from the status quo. The higher the score, the greater is the policy constraints (i.e. more divided the government is).

As shown in Table 5, the estimated coefficients on the variable "checks" are all positive and statistically significant across two different crisis indices, as reported in Columns (1) and (2) for pooled precision weights and Columns (3) and (4) for equal weights, respectively. This suggests that a larger number of veto players increases the likelihood of currency crises due to their tendency to delay any necessary adjustments. Furthermore, when we look at the probability distribution across different types of exchange rate regimes, we find that adjustable parities become extremely vulnerable to speculative attacks if there is a large number of veto players involved in the decision making process. This result holds up across our different measures of crises indices.

[16] The number of checks is counted based on the Legislative Index of Electoral Competitiveness (LIEC) or Executive Index of Electoral Competitiveness (EIEC), which ranged from 1-to-7 in the same dataset. The minimum score of checks is assigned to be equal to 1 when LIEC or EIEC is less than 5, which indicates the absences of competitive elections of legislatures, and the executive counts as one check. In presidential systems, the additional veto points stand for a chief executive, each chamber of the legislature, and each party coded as allied with the president's party. In parliamentary systems, the augmented points of veto players include a chief executive and every party in the government coalition (if that party is needed to maintain a majority or that party has a position on economic issues closer to the largest opposition party than to the party of the executive). Thus, these additional veto points are linearly increased by the numbers of veto players in the political system and by taking into account the policy preferences among these veto players.

[17] We also plan to use Political Constraints constructed by Henisz (2000) as another measure of veto player. However, the estimated coefficients on this variable are too small to give a meaningful explanation to our results. Thus we do not report the results in this paper.

5.3. Alternative Measures of Exchange Rate Regimes

In addition to BOR's classification of exchange rate regime, we also check the robustness of our results against an alternative exchange rate regime classification constructed by Reinhart and Rogoff (2004). We regroup their fine fourteen categories into a six-way classification scheme: *Hard Pegs*, *Adjustable Parities*, *Crawls*, *Moving Bands*, *Managed Floats*, and *Floats* to better capture the main feature of various type of exchange rate regime and make a direct comparison with BOR's classification.[18] Tables 7 and 8a-8c present the empirical results. We exclude the category of freely falling regimes since by construction they will display a high frequency of crises.[19]

In Columns (1)-(3) in Table 7, only government instability has a positive and statistically significant effect on the probability of currency crises. The other two variables, divided government and checks, have the correct sign but are not statistically significant. When these variables are interacted with exchange rate regimes, we find that government instability tends to make crises more likely under any type of exchange rate regime. As shown in Table 8a, this situation is strongest with adjustable parities for hard pegs, crawls, moving bands, managed floats, and freely floats, respectively. The crisis probability is 27.5% compared with 16.3%, 6.5%, 7.4%, 8.6%, and 12.1%. Note that we do not observe the same pattern of anomaly for crawling regimes as was found when

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[18] Hard pegs include the most rigidly peg or currency board. Adjustable parities include a pre-announced narrow horizontal band and a *de facto* peg. Crawls include *de facto* and pre announced crawling pegs or bands as well as pre announced crawling band that is wide than or equal to +/- 2%. Moving bands, Managed floating, and Freely floating are treated as three individual categories.

[19] For the purpose of robustness check, we also test the probability of crises with freely falling regime. The empirical results are shown in table 9 and table 10a-10c. Not surprisingly, weak governments with freely falling regimes are associated with the highest probability of crises followed by the ones with adjustable parities. However, we put less weight on" freely falling" regime in this paper since in reality few countries would choose to have, nor they could implement a "freely falling" exchange rate. Thus, the results of using R-R regimes are consistent with using BOR's classifications.

using BOR's classification. Stronger government tends to make crises less likely under crawling regimes, even though the difference of the probability between the most and the least stable government is fairly small (less than 1%).

Tables 8b and 8c report the results of using divided government and checks (veto players), respectively. In general, a divided government tends to make countries more vulnerable to crises under any exchange rate regime and is particularly crisis-prone under adjustable parities as shown in Table 8b. Similarly, countries with both a large number of veto players and adjustable parities will be more likely to suffer from currency crises as shown in Table 8c.

Our sensitivity tests suggest that, by and large, our empirical model is robust. The general results are reasonably stable across different specifications of crisis indices, exchange rate regimes and veto player measures.

6. Concluding Remarks

This paper has investigated the interactive effects between weak political institutions and alternative exchange rate regimes on the likelihood of currency crises. One important conclusion of our analysis is that weak political institutions significantly increase the probability of currency crises across all types of exchange rate regimes. Furthermore, we find that both unstable and divided governments increase the likelihood of currency crises, particularly under Bretton Wood-style narrow band adjustable peg regimes. This finding has significant policy implications. It suggests that the best exchange rate regime for a particular country may depend not just on the economic factors considered in the theory of optimum currency areas, but also on political considerations. The weaker is the government, the further from the center of the exchange rate spectrum it should move. In some cases a hard fix for such countries may be justified if they do not deviate too far from the economic criteria for optimum currency areas. For most politically weak countries a move toward greater flexibility is likely to be in order if capital mobility is substantial. On the other hand, countries with strong political institutions have more scope to effectively manage intermediate exchange rate regimes in a stable manner.

Since pegging can generate short run political benefits, however, it may be some of the weakest governments who feel the strongest need to peg in order to help cope with short-run political pressures. For such countries, exchange rate pegs are more likely to be a source of future crises than of discipline. For longer-term stability, focusing on domestic institutional reforms is a much better strategy for many countries. In this regard even for fairly stable governments turning over exchange rate policy to an independent central bank as part of an inflation targeting strategy is likely to prove an effective strategy for many countries.

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Table 1. Probit Panel Estimation of Currency Crisis Models for All Countries

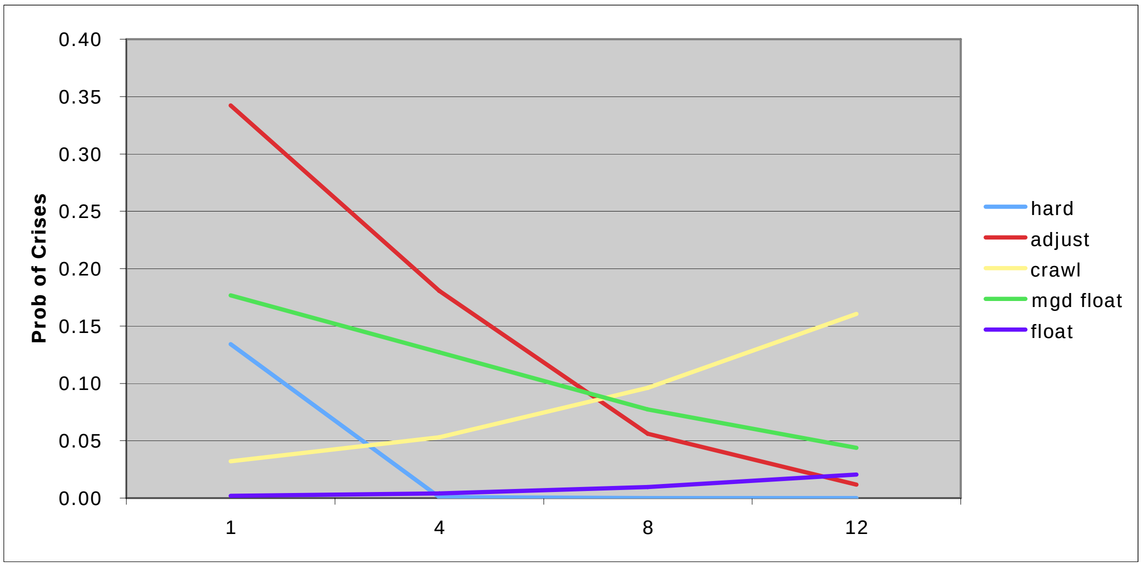
(***, **, * indicates the significance level of 1%,5%, and 10%. The numbers in parentheses are the standard errors)

	(1)	(2)	(3)	(4)
	Stability	Unified	Stability	Unified
$STAB_{t-1}$	-0.1690*** (0.0678)	-	-0.1582** (0.0696)	-
$Unified_{t-1}$	-	-0.5710** (0.3003)	-	-0.5506** (0.2862)
$ELEC_{t-1}$	-0.0974 (0.1924)	-0.2858 (0.2139)	-0.1379 (0.1924)	-0.2887 (0.2146)
Adjustable parities (constant)	-1.5443** (0.7647)	-2.4424*** (0.4803)	-1.7312** (0.7907)	-2.6124*** (0.4727)
Hard pegs $_{t-1}$	-1.1916 (1.5831)	-0.5914 (0.3949)	-0.2984 (1.5650)	-0.5902 (0.3928)
Crawls $_{t-1}$	-1.6916* (0.9937)	-0.2740 (0.1953)	-	-
Forward Crawls $_{t-1}$	-	-	-2.2662** (0.9734)	-0.2345 (0.2147)
Backward Crawls $_{t-1}$	-	-	0.9220 (1.9718)	-0.3128 (0.3254)
Managed Floats $_{t-1}$	-0.6206 (0.6317)	-0.4555** (0.2215)	-0.5208 (0.6608)	-0.4542** (0.2201)
Independent Floats $_{t-1}$	-2.6936*** (0.6484)	-0.5360* (0.3250)	-2.5955*** (0.6687)	-0.5328* (0.3252)
S1	-0.5089* (0.2775)	-	-0.5038* (0.2699)	-
S3	0.2471** (0.1248)	0.4763 (0.4231)	0.3393** (0.1185)	0.8392* (0.4971)
S4	0.0982 (0.0885)	1.0556** (0.4326)	-0.1338 (0.2789)	0.1793 (0.5088)
S5	0.2429*** (0.0784)	0.0943 (0.5796)	0.0883 (0.0906)	1.0374** (0.4174)
S6	-	-	0.2332*** (0.0806)	0.0712 (0.5710)
M2/Reserve $_{t-1}$	0.0239*** (0.0075)	-0.0026 (0.0008)	0.0250*** (0.0075)	-0.0025 (0.0075)
Lending boom $_{t-1}$	0.0032** (0.0017)	0.0007*** (0.0001)	0.0031* (0.0017)	0.0007*** (0.0002)
CA (% of GDP) $_{t-1}$	-0.0021*** (0.0005)	-0.0025** (0.0001)	-0.0021*** (0.0005)	-0.0003** (0.0001)
REER $_{t-1}$	0.0115*** (0.0041)	0.0154*** (0.0044)	0.0122*** (0.0041)	0.0171*** (0.0043)
No. of obs.	710	582	710	582
Wald Chi-Square Test	285.11	66.97	439.19	78.43
Prob > Chi-Square	0.0000	0.0000	0.0000	0.0000
Pseudo R2	0.1349	0.0760	0.1523	0.0795
Log-Likelihood	-151.9669	-195.7708	-148.9002	-195.0301

Table 2a. Probability of Crises for Stable Governments (1)

	Hard pegs	*Adjustable*	*Crawls*	*Managed Floats*	*Independent Floats*
STAB = 1	0.1343	0.3424	0.0321	0.1766	0.0021
STAB = 2	0.0317	0.2590	0.0326	0.1422	0.0022
STAB = 3	0.0056	0.2074	0.0387	0.1269	0.0027
STAB = 4	0.0008	0.1806	0.0530	0.1270	0.0042
STAB = 5	0.0001	0.1243	0.0537	0.0998	0.0042
STAB = 6	0.0000	0.0930	0.0628	0.0879	0.0053
STAB = 7	0.0000	0.0679	0.0730	0.0772	0.0065
STAB = 8	0.0000	0.0560	0.0961	0.0773	0.0097
STAB = 9	0.0000	0.0336	0.0972	0.0587	0.0097
STAB = 10	0.0000	0.0228	0.1113	0.0508	0.0118
STAB = 11	0.0000	0.0151	0.1269	0.0489	0.0143
STAB = 12	0.0000	0.0117	0.1606	0.0439	0.0205

Figure 1.



Note: there are total 185 observations for crawling peg/band regimes, but only 14 observations ended up with currency crises. These include Brazil (1999), Chile (1999), Colombia (1995), Ecuador (1999), Indonesia (1997), Israel (1998), Mexico (1994), Portugal (1991), Russia (1998), Sri Lanka (1994), Turkey (1994, 2001), Uruguay (2002), and Venezuela (1994).

Table 2b. Probability of Crises for Divided Governments (2)

	Hard pegs	*Adjustable*	*Crawls*	*Managed Floats*	*Independent Floats*
Unified = 1	0.0101	0.0416	0.0629	0.0529	0.0148
Divided = 0	0.0397	0.1227	0.0755	0.1086	0.0447

Figure 2.

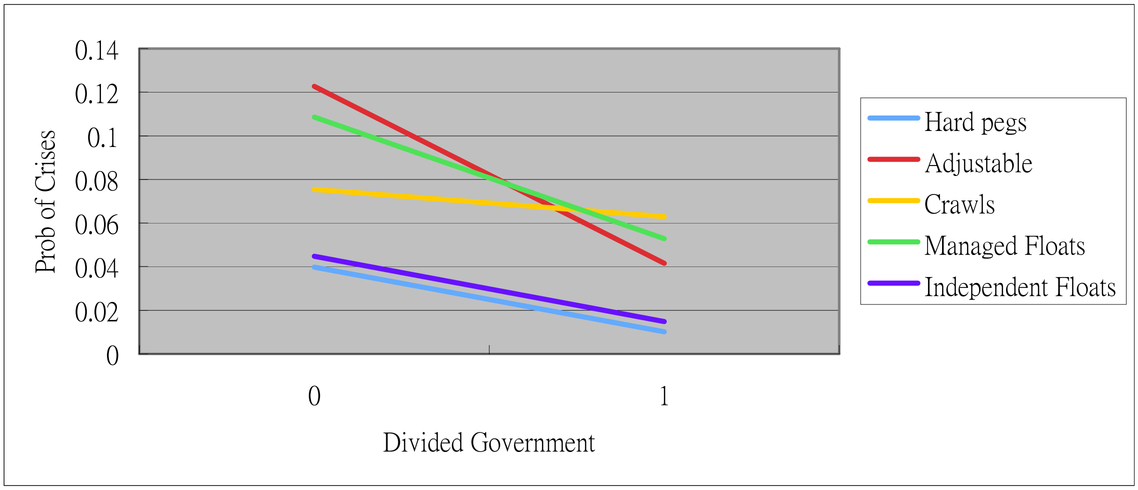
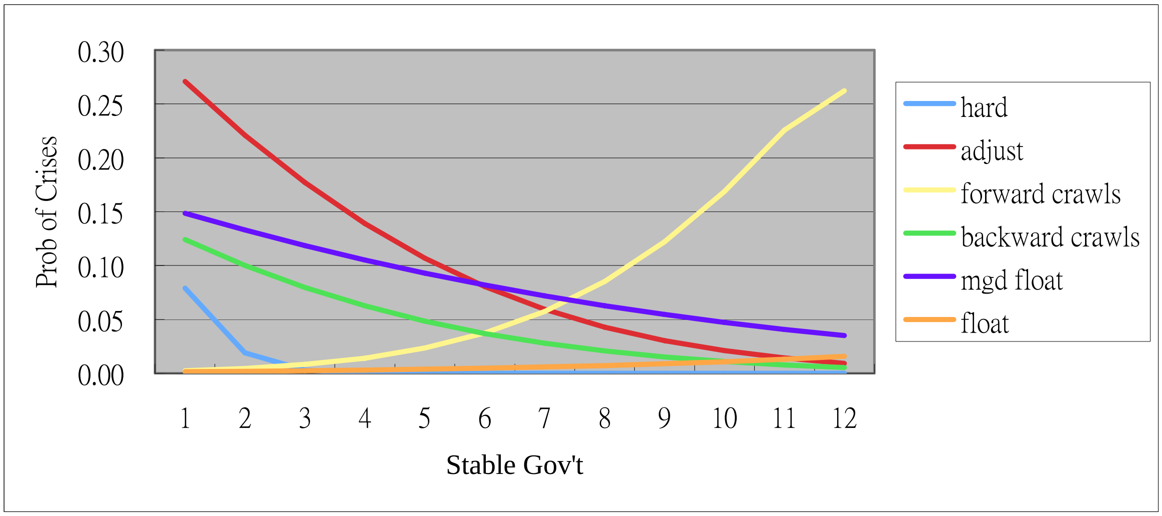


Table 2c. Probability of Crises for Stable Government (3)

	Hard pegs	*Adjustable*	*Forward Crawls*	*Backward Crawls*	*Managed Floats*	*Independent Floats*
STAB = 1	0.0789	0.2709	0.0025	0.1242	0.1485	0.0015
STAB = 2	0.0190	0.2211	0.0046	0.1001	0.1330	0.0019
STAB = 3	0.0031	0.1770	0.0082	0.0797	0.1185	0.0024
STAB = 4	0.0003	0.1390	0.0141	0.0625	0.1052	0.0030
STAB = 5	0.0000	0.1069	0.0233	0.0484	0.0931	0.0038
STAB = 6	0.0000	0.0805	0.0373	0.0370	0.0820	0.0047
STAB = 7	0.0000	0.0594	0.0574	0.0278	0.0719	0.0058
STAB = 8	0.0000	0.0429	0.0852	0.0207	0.0628	0.0072
STAB = 9	0.0000	0.0303	0.1220	0.0151	0.0546	0.0088
STAB = 10	0.0000	0.0209	0.1688	0.0109	0.0473	0.0108
STAB = 11	0.0000	0.0142	0.2257	0.0078	0.0408	0.0131
STAB = 12	0.0000	0.0094	0.2622	0.0054	0.0350	0.0159

Figure 3.



Note: Crawling Pegs: the currency is adjusted periodically vis-à-vis a single currency or a basket in small amounts at a fixed rate or in response to changes in selective quantitative indicators (past inflation differentials with major trading partners, differentials between the targeted or projected inflation with major trading partners, etc). Crawling Bands: the currency is maintained within fluctuation of at least ± 1 percent around a formal or a de facto central rate, which is adjusted periodically in small amounts at a fixed rate.

Table 2d. Probability of Crises for Divided Government (4)

	Hard pegs	*Adjustable*	*Forward Crawls*	*Backward Crawls*	*Managed Floats*	*Independent Floats*
Unified = 1	0.0104	0.0424	0.1317	0.0317	0.0519	0.0145
Divided = 0	0.0390	0.1505	0.0797	0.0687	0.1272	0.0441

Figure 4.

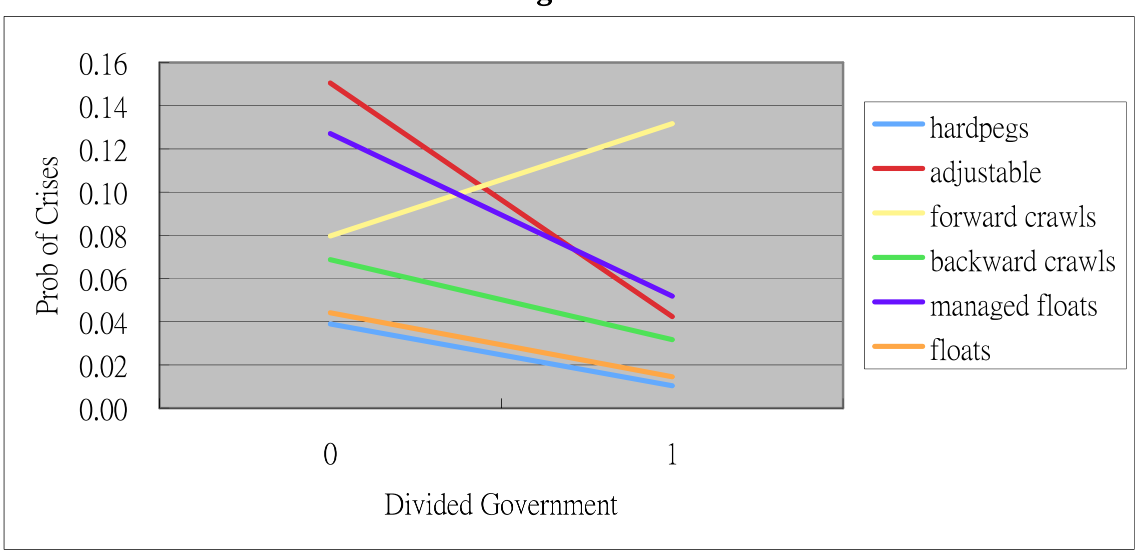


Table 3. Sensitivity Analysis: Using Equal Weights for Crisis Measures

(***, **, * indicates the significance level of 1%,5%, and 10%. The numbers in parentheses are the standard errors)

	(1)	(2)	(3)	(4)
	Stability	Unified	Stability	Unified
$STAB_{t-1}$	-0.1492*** (0.0562)	-	-0.1497** (0.0563)	-
$Unified_{t-1}$	-	-0.0917 (0.3646)	-	-0.0918 (0.3646)
$ELEC_{t-1}$	-0.0294 (0.1746)	-0.0118 (0.1757)	-0.0483 (0.1924)	-0.0028 (0.1761)
Adjustable parities (constant)	-1.4614** (0.7175)	-2.2474*** (0.6684)	-1.4577** (0.7211)	-2.2969*** (0.7755)
Hard pegs $_{t-1}$	0.3555 (1.3827)	-0.2420 (0.4427)	0.2706 (1.4029)	-0.2306 (0.4269)
Crawls $_{t-1}$	-2.3177*** (0.8426)	-0.0487 (0.2320)	-	-
Forward Crawls $_{t-1}$	-	-	-2.6318** (1.0281)	0.2365 (0.2556)
Backward Crawls $_{t-1}$	-	-	-0.6403 (0.5994)	-0.5685 (0.4254)
Managed Floats $_{t-1}$	-0.9826* (0.6263)	-0.5610 (0.4072)	-0.9801 (0.6608)	-0.5612 (0.4072)
Independent Floats $_{t-1}$	-3.8414** (1.7573)	-0.7090** (0.3001)	-3.8471*** (1.7599)	-0.7075** (0.3003)
S1	-0.2075 (0.1604)	-	-0.1903* (0.1492)	-
S3	0.2966*** (0.1014)	-0.1489 (0.5465)	0.3557** (0.1201)	-0.0914 (0.6465)
S4	0.1102 (0.0807)	0.6533** (0.5748)	0.0231 (0.0775)	0.1949** (0.7748)
S5	0.4003** (0.1836)	0.1396 (0.6294)	0.1103 (0.0808)	0.6552 (0.5694)
S6	-	-	0.4014*** (0.1840)	0.1406 (0.6210)
M2/Reserve $_{t-1}$	0.0004 (0.0068)	0.0087 (0.0098)	0.0003 (0.0068)	0.0088 (0.0089)
Lending boom $_{t-1}$	0.0023*** (0.0008)	0.0025* (0.0001)	0.0023*** (0.0008)	0.0025* (0.0013)
CA (% of GDP) $_{t-1}$	-0.0007 (0.0004)	-0.0002 (0.0003)	-0.0006 (0.0004)	-0.0002 (0.0003)
REER $_{t-1}$	0.0112*** (0.0041)	0.0086 (0.0059)	0.0112*** (0.0041)	0.0091 (0.0070)
No. of obs.	710	582	710	582
Wald Chi-Square Test	179.90	251.97	198.25	285.16
Prob > Chi-Square	0.0000	0.0000	0.0000	0.0000
Pseudo R2	0.0853	0.0530	0.0988	0.0628
Log-Likelihood	-145.8872	-135.4895	-143.7260	-195.0301

Table 4a. Probability of Crises for Stable Governments Using Equal Weights for Crisis Measures

	Hard pegs	*Adjustable*	*Crawls*	*Managed Floats*	*Independent Floats*
STAB = 1	0.3001	0.3534	0.0054	0.0813	0.0000
STAB = 2	0.2318	0.2503	0.0082	0.0755	0.0001
STAB = 3	0.1379	0.2053	0.0122	0.0701	0.0002
STAB = 4	0.0740	0.1655	0.0177	0.0650	0.0006
STAB = 5	0.0356	0.1311	0.0252	0.0602	0.0015
STAB = 6	0.0153	0.1019	0.0353	0.0557	0.0033
STAB = 7	0.0059	0.0778	0.0484	0.0515	0.0069
STAB = 8	0.0020	0.0583	0.0651	0.0475	0.0136
STAB = 9	0.0006	0.0428	0.0860	0.0437	0.0252
STAB = 10	0.0001	0.0309	0.1115	0.0402	0.0441
STAB = 11	0.0000	0.0218	0.1421	0.0370	0.0730
STAB = 12	0.0000	0.0151	0.1779	0.0339	0.1146

Table 4b. Probability of Crises for Divided Government Using Equal Weights for Crisis Measures

	Hard pegs	*Adjustable*	*Crawls*	*Managed Floats*	*Independent Floats*
Unified = 1	0.0474	0.0906	0.0519	0.0288	0.0228
Divided = 0	0.0572	0.1766	0.0829	0.0907	0.0204

Table 4c. Probability of Crises for Stable Government with Two Crawls Using Equal Weights for Crisis Measures

	Hard pegs	*Adjustable*	*Forward Crawls*	*Backward Crawls*	*Managed Floats*	*Independent Floats*
STAB = 1	0.3239	0.2956	0.0024	0.1242	0.0797	0.0000
STAB = 2	0.2128	0.2461	0.0045	0.1001	0.0740	0.0000
STAB = 3	0.1278	0.2014	0.0081	0.0796	0.0686	0.0002
STAB = 4	0.0698	0.1620	0.0140	0.0625	0.0636	0.0006
STAB = 5	0.0346	0.1279	0.0233	0.0484	0.0588	0.0014
STAB = 6	0.0155	0.0992	0.0372	0.0369	0.0543	0.0032
STAB = 7	0.0062	0.0755	0.0573	0.0278	0.0501	0.0067
STAB = 8	0.0022	0.0564	0.0851	0.0206	0.0461	0.0131
STAB = 9	0.0007	0.0413	0.1220	0.0151	0.0424	0.0244
STAB = 10	0.0002	0.0297	0.1687	0.0109	0.0390	0.0429
STAB = 11	0.0001	0.0209	0.2057	0.0077	0.0358	0.0713
STAB = 12	0.0000	0.0144	0.2421	0.0054	0.0328	0.1124

Table 4d. Probability of Crises for Divided Government with Two Crawls Using Equal Weights for Crisis Measures

	Hard pegs	*Adjustable*	*Forward Crawls*	*Backward Crawls*	*Managed Floats*	*Independent Floats*
Unified = 1	0.0472	0.0885	0.0813	0.0347	0.0280	0.0223
Divided = 0	0.0570	0.1547	0.1125	0.0275	0.0889	0.0198

Table 5. Sensitivity Analysis: Using Checks (Veto Player)

(***, **, * indicates the significance level of 1%,5%, and 10%. The numbers in parentheses are the standard errors)

	(1)	(2)	(3)	(4)
Checks $_{t-1}$	0.0824** (0.0385)	0.0676* (0.0402)	0.1055** (0.0472)	0.1021** (0.0463)
ELEC $_{t-1}$	-0.0636 (0.1574)	-0.0597 (0.1610)	-0.1116 (0.2171)	-0.1238 (0.2205)
Adjustable parities (constant)	-2.9618*** (0.4254)	-3.0467*** (0.4472)	-3.1374*** (0.5839)	-3.2797*** (0.5771)
Hard pegs $_{t-1}$	-2.2490** (1.2015)	-2.4548** (1.2312)	-1.9432 (1.3418)	-2.1054 (1.4786)
Crawls $_{t-1}$	-0.2231 (0.3863)	-	1.2551** (0.5065)	-
Forward Crawls $_{t-1}$	-	0.8113* (0.5079)	-	1.8772** (0.8827)
Backward Crawls $_{t-1}$	-	-0.7902** (0.3856)	-	0.9136*** (0.3589)
Managed Floats $_{t-1}$	0.3889 (0.4453)	0.2981 (0.4538)	0.8372** (0.3741)	0.8039** (0.3741)
Independent Floats $_{t-1}$	0.3104 (0.6192)	0.2202 (0 6228)	0.7819* (0.4467)	-0.8025* (0.4481)
S1	0.3445 (0.3265)	0.3868 (0.3328)	0.3888 (0.2788)	0.4271 (0.2996)
S3	0.0008 (0.0936)	-1.1217 (0.1444)	-0.3449** (0.1732)	-0.4725* (0.2982)
S4	-0.1146 (0.1011)	0. 1667* (0.1007)	-0.2144** (0.0919)	-0.3547*** (0.1378)
S5	-0.2019 (0.1384)	-0.1004 (0.1021)	-0.0781 (0. 0611)	-0.2082** (0.0923)
S6	-	-0.1865*** (0.1396)	-	-0.0749 (0.0613)
M2/Reserve $_{t-1}$	0.0146** (0.0063)	0.0147** (0.0063)	0.0020 (0.0072)	0.0025 (0.0074)
Lending boom $_{t-1}$	0.0004** (0.002)	0.0004** (0.002)	0.0013* (0.0007)	0.0013* (0.0007)
CA (% of GDP) $_{t-1}$	-0.0002* (0.0001)	-0.0003** (0.0001)	-0.0016*** (0.0003)	-0.0017*** (0.0003)
REER $_{t-1}$	0.0140 *** (0.0037)	0.0157 *** (0.0039)	0.0110** (0.0052)	0.0125** (0.0051)
No. of obs.	649	649	649	649
Wald Chi-Square Test	156.13	278.25	594.84	688.80
Prob > Chi-Square	0.0000	0.0000	0.0000	0.0000
Pseudo R2	0.0762	0.0871	0.1285	0.1390
Log-Likelihood	-229.2448	-226.5282	-113.6916	-112.3195

Table 6a. Probability of Crises for Checks Using Pooled Precision Weights for Crisis Measures

	Hard pegs	*Adjustable*	*Crawls*	*Managed Floats*	*Independent Floats*
Checks = 1	0.0005	0.1250	0.0846	0.098	0.0236
Checks = 2	0.0021	0.1430	0.0982	0.1036	0.0312
Checks = 3	0.0076	0.1626	0.1132	0.1096	0.0405
Checks = 4	0.0228	0.1840	0.1299	0.1157	0.0521
Checks = 5	0.0581	0.2070	0.1481	0.1221	0.0661
Checks = 6	0.1263	0.2316	0.1680	0.1288	0.0829
Checks = 7	0.2367	0.2578	0.1896	0.1356	0.1028

Table 6b. Probability of Crises for Checks with Two Crawls Using Pooled Precision Weights for Crisis Measures

	Hard pegs	*Adjustable*	*Forward Crawls*	*Backward Crawls*	*Managed Floats*	*Independent Floats*
Checks = 1	0.0003	0.0967	0.2706	0.0271	0.0968	0.0238
Checks = 2	0.0017	0.1088	0.2530	0.0455	0.1026	0.0313
Checks = 3	0.0069	0.1220	0.2360	0.0728	0.1086	0.0407
Checks = 4	0.0224	0.1362	0.2197	0.1111	0.1148	0.0522
Checks = 5	0.0605	0.1515	0.2040	0.1619	0.1213	0.0662
Checks = 6	0.1365	0.1680	0.1890	0.2260	0.128	0.0829
Checks = 7	0.1855	0.2605	0.1747	0.3024	0.135	0.1026

Table 6c. Probability of Crises for Checks Using Equal Weights for Crisis Measures

	Hard pegs	*Adjustable*	*Crawls*	*Managed Floats*	*Independent Floats*
Checks = 1	0.0216	0.0001	0.1334	0.0201	0.0033
Checks = 2	0.0277	0.0010	0.0885	0.0261	0.003
Checks = 3	0.0352	0.0048	0.0560	0.0333	0.0027
Checks = 4	0.0442	0.0182	0.0337	0.0423	0.0025
Checks = 5	0.0549	0.0551	0.0193	0.0531	0.0023
Checks = 6	0.0677	0.1350	0.0105	0.0659	0.0021
Checks = 7	0.0826	0.2714	0.0054	0.0811	0.0019

Table 6d. Probability of Crises for Checks with Two Crawls Using Equal Weights for Crisis Measures

	Hard pegs	*Adjustable*	*Forward Crawls*	*Backward Crawls*	*Managed Floats*	*Independent Floats*
Checks = 1	0.0216	0.0001	0.2692	0.0720	0.0196	0.0031
Checks = 2	0.0275	0.0007	0.1621	0.0433	0.0253	0.0028
Checks = 3	0.0347	0.0041	0.0875	0.0246	0.0322	0.0026
Checks = 4	0.0433	0.0174	0.0421	0.0132	0.0407	0.0024
Checks = 5	0.0535	0.0569	0.0180	0.0067	0.0508	0.0022
Checks = 6	0.0656	0.1465	0.0068	0.0032	0.0629	0.002
Checks = 7	0.0797	0.3008	0.0022	0.0014	0.0772	0.0018

Table 7. Sensitivity Analysis: Using R-R Regimes

(***, **, * indicates the significance level of 1%,5%, and 10%. The numbers in parentheses are the standard errors)

	(1)	(2)	(3)
	Stability	Unified	Checks
$STAB_{t-1}$	-0.1786*** (0.0710)	-	-
$Unified_{t-1}$	-	-0.4153 (0.3216)	-
$Checks_{t-1}$	-	-	0.0331 (0.0563)
$ELEC_{t-1}$	-0.2323 (0.2006)	-0.3646* (0.2202)	-0.1600 (0.2199)
Adjustable parities (constant)	-1.4993** (0.7594)	-2.0052*** (0.4315)	-2.3529*** (0.5490)
Hard pegs $_{t-1}$	0.0089 (1.3676)	0.0088 (0.2501)	-2.1491* (1.1620)
Crawls $_{t-1}$	-1.1607* (0.6558)	-0.1778 (0.2114)	0.6981* (0.4287)
Moving Bands $_{t-1}$	-1.4685** (0.7728)	0.3148* (0.1862)	-0.2346 (0.5019)
Managed Floats $_{t-1}$	-0.8614 (1.0535)	-0.7360** (0.3336)	-1.1414** (0.5766)
Floats $_{t-1}$	-0.7012 (0.6177)	-0.1213 (0.3453)	-1.1241** (0.5220)
S1	-0.3693 (0.2710)	-	0.4549* (0.2590)
S3	0.1833** (0.0887)	0.3362 (0.3678)	-0.2230** (0.1174)
S4	0.2108** (0.1022)	0.0983 (0.4311)	0.1205 (0.1014)
S5	0.0629 (0.1384)	1.0662** (0.5120)	-0.5404** (0.2722)
S6	0.1292** (0.0556)	0.5328 (0.4919)	-0.3932*** (0.1540)
M2/Reserve $_{t-1}$	0.0175*** (0.0064)	0.0165* (0 0095)	0.0026 (0.0062)
Lending boom $_{t-1}$	0.0024** (0.0010)	0.0006*** (0.0002)	0.0005 (0.0006)
CA (% of GDP) $_{t-1}$	-0.0040*** (0.0006)	-0.0005*** (0.0001)	0.0012*** (0.0002)
$REER_{t-1}$	0.0117*** (0.0038)	0.0118*** (0.0037)	0.0066 (0.0044)
No. of obs.	641	527	627
Wald Chi-Square Test	169.90	151.97	148.25
Prob > Chi-Square	0.0000	0.0000	0.0000
Pseudo R2	0.1024	0.0756	0.0934
Log-Likelihood	-153.1022	-196.3370	-119.8105

Table 8a. Probability of Crises for Stable Government Using R-R Regimes

	Hard pegs	*Adjustable*	*Crawls*	*Moving Bands*	*Managed Floats*	*Floats*
STAB = 1	0.1632	0.2754	0.0652	0.0741	0.0862	0.1213
STAB = 2	0.0607	0.2191	0.0645	0.0684	0.0692	0.1116
STAB = 3	0.0170	0.1701	0.0638	0.0631	0.0548	0.1025
STAB = 4	0.0035	0.1287	0.0632	0.0581	0.0430	0.0940
STAB = 5	0.0004	0.0949	0.0625	0.0534	0.0333	0.0860
STAB = 6	0.0000	0.0681	0.0619	0.0490	0.0254	0.0785
STAB = 7	0.0000	0.0463	0.0612	0.0449	0.0192	0.0716
STAB = 8	0.0000	0.0295	0.0606	0.0411	0.0143	0.0650
STAB = 9	0.0000	0.0182	0.0600	0.0375	0.0106	0.0590
STAB = 10	0.0000	0.0107	0.0593	0.0342	0.0074	0.0534
STAB = 11	0.0000	0.0061	0.0587	0.0312	0.0055	0.0482
STAB = 12	0.0000	0.0033	0.0581	0.0283	0.0039	0.0435

Table 8b. Probability of Crises for Divided Government Using R-R Regimes

	Hard pegs	*Adjustable*	*Crawls*	*Moving Bands*	*Managed Floats*	*Floats*
Unified = 1	0.0469	0.1019	0.0636	0.0461	0.0225	0.0823
Divided = 0	0.1039	0.1702	0.0740	0.1023	0.0879	0.1016

Table 8c. Probability of Crises for Checks Using R-R Regimes

	Hard pegs	*Adjustable*	*Crawls*	*Moving Bands*	*Managed Floats*	*Floats*
Checks = 1	0.0002	0.0372	0.0954	0.0289	0.0001	0.0006
Checks = 2	0.0013	0.0400	0.0670	0.0406	0.0002	0.0021
Checks = 3	0.0061	0.0430	0.0457	0.0559	0.0006	0.0063
Checks = 4	0.0220	0.0461	0.0302	0.0755	0.0034	0.0164
Checks = 5	0.0494	0.0636	0.0193	0.0998	0.014	0.0381
Checks = 6	0.0528	0.1498	0.0119	0.1295	0.0455	0.0789
Checks = 7	0.0565	0.2915	0.0071	0.1648	0.1185	0.1463

Table 9. Sensitivity Analysis: Using R-R Regimes with Freely Falling

(***, **, * indicates the significance level of 1%,5%, and 10%. The numbers in parentheses are the standard errors)

	(1)	(2)	(3)
	Stability	Unified	Checks
STAB $_{t-1}$	-0.1181 (0.1006)	-	-
Unified $_{t-1}$	-	-0.0913 (0.3857)	-
Checks $_{t-1}$	-	-	0.0249 (0.0725)
ELEC $_{t-1}$	-0.2221 (0.1954)	-0.3775* (0.2152)	-0.1477 (0.2124)
Adjustable parities (constant)	-2.0939** (0.9525)	-2.3553 (0.4033)	-2.5234** (0.5348)
Hard pegs $_{t-1}$	0.8739 (1.4357)	-0.1776 (0.3783)	-2.2661* (1.3805)
Crawls $_{t-1}$	-0.7824 (0.8724)	0.0545 (0.1896)	0.8039 (0.5299)
Moving Bands $_{t-1}$	-1.1272 (1.0606)	0.4881** (0.1861)	-0.1245 (0.5901)
Managed Floats $_{t-1}$	-0.2997 (1.1681)	-0.6153** (0.3267)	-1.2306* (0.6968)
Floats $_{t-1}$	-0.2385 (0.8110)	-0.0459 (0.3665)	-1.2221** (0.6359)
Freely Falling $_{t-1}$	1.3367 (1.3422)	0.5100** (0.2056)	-0.1654 (0.6603)
S1	-0.6017** (0.2281)	-	0.5163* (0.2914)
S3	0.1346 (0.1144)	0.0455 (0.4188)	-0.2140* (0.1232)
S4	0.1667 (0.1387)	-0.1886 (0.5100)	0.1267 (0.1108)
S5	-0.0166 (0.1531)	0.7919 (0.5743)	-0.5279** (0.2521)
S6	0.0556 (0.1146)	0.0373 (0.5350)	-0.3872** (0.1652)
S7	-0.2003 (0.1999)	-0.7438 (0.6603)	0.1429 (0.1387)
No. of obs.	690	570	627
Wald Chi-Square	142.90	182.51	140.25
Prob > Chi-Square	0.0000	0.0000	0.0000
Pseudo R2	0.1055	0.0651	0.1002
Log-Likelihood	-158.1651	-203.3370	-118.8105

Table 10a. Probability of Crises for Stable Government Using R-R Regimes

	Hard pegs	*Adjustable*	*Crawls*	*Moving Bands*	*Managed Floats*	*Floats*	*Freely Falling*
STAB = 1	0.1617	0.2372	0.0510	0.0257	0.0961	0.1209	0.5592
STAB = 2	0.0756	0.1345	0.0527	0.0287	0.0751	0.1088	0.4327
STAB = 3	0.0155	0.1105	0.0545	0.0321	0.0578	0.0976	0.3128
STAB = 4	0.0020	0.0898	0.0564	0.0357	0.0438	0.0872	0.2101
STAB = 5	0.0002	0.0721	0.0582	0.0397	0.0326	0.0777	0.1303
STAB = 6	0.0000	0.0573	0.0602	0.0440	0.0240	0.0691	0.0742
STAB = 7	0.0000	0.0449	0.0622	0.0488	0.0173	0.0611	0.0391
STAB = 8	0.0000	0.0348	0.0642	0.0539	0.0123	0.0539	0.0187
STAB = 9	0.0000	0.0266	0.0660	0.0594	0.0086	0.0473	0.0081
STAB = 10	0.0000	0.0201	0.0685	0.0654	0.0059	0.0431	0.0033
STAB = 11	0.0000	0.0151	0.0707	0.0718	0.0040	0.0363	0.0012
STAB = 12	0.0000	0.0111	0.0729	0.0787	0.0026	0.0316	0.0004

Table 10b. Probability of Crises for Divided Government Using R-R Regimes

	Hard pegs	*Adjustable*	*Crawls*	*Moving Bands*	*Managed Floats*	*Floats*	*Freely Falling*
Unified = 1	0.0390	0.0565	0.0688	0.0717	0.0795	0.0555	0.0345
Divided = 0	0.0473	0.1573	0.0751	0.0676	0.0174	0.0618	0.1627

Table 10c. Probability of Crises for Checks Using R-R Regimes

	Hard pegs	*Adjustable*	*Crawls*	*Moving Bands*	*Managed Floats*	*Floats*	*Freely Falling*
Checks = 1	0.0111	0.0002	0.0692	0.0079	0.0001	0.0006	0.0071
Checks = 2	0.0313	0.0012	0.0688	0.0416	0.0003	0.0021	0.0409
Checks = 3	0.0332	0.0053	0.0471	0.0557	0.0006	0.0062	0.0579
Checks = 4	0.0350	0.0221	0.0312	0.0765	0.0035	0.0162	0.0801
Checks = 5	0.0370	0.0707	0.0200	0.1008	0.0143	0.0379	0.1081
Checks = 6	0.0391	0.1764	0.0125	0.1302	0.0459	0.0788	0.1425
Checks = 7	0.0412	0.2491	0.0075	0.1651	0.1457	0.1437	0.1837