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

By

Eric M.P. Chiu[*] and Thomas D. Willett[**]

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-corner hypothesis. 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 effect 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. More specifically, we find weak political institutions combined with adjustable pegged exchange rate system represent the highest probability of currency crises, as compared with other types of exchange rate regimes.

[*] Assistant Professor of Graduate Institute of National Policy and Public Affairs at National Chung-Hsing University. Email: eric.chiu@cgu.edu

[**] Horton Professor of Economics at Claremont Graduate University and Claremont McKenna College. Email: thomas.willett@cgu.edu TEL: (909) 621-8787 Address: 160 East 10th St, Claremont, CA 91711

1.1. Introduction

Currency crises can entail significant costs – not only for the target country, but also for the entire global economy.[1] Recent emerging market financial crises and the general increase in international capital mobility have led to a reexamination of the role of exchange rate arrangements in reducing vulnerability to economic crises.[2] While each crisis has had its own individual aspects, many crisis countries have shared a common trait of having various forms of adjustably pegged exchange rate regimes. A basic tenet of international monetary economies is that in a world of substantial international capital mobility such "sticky" exchange rate regimes will become highly prone to speculative crises.[3] The evidence of the past decade has borne out this prediction. This is widely referred to as the "unstable middle" hypothesis and has led some economists to argue that to avoid crises in today's world, countries must move to one of the extremes of either genuine fixed or highly flexible exchange rates. This is known as the popular "bipolar" or "two corners" hypothesis (Eichengreen 1994, Obstfeld and Rogoff 1995, Summers 2000, Fischer 2001, and Bubula and Otker Robe 2003).

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[1] For example, the currency turmoil that struck Asia in 1997 and 1998 caused Indonesia's gross domestic product to decline by 15% in a single year. Likewise, both Thailand and Malaysia suffered losses in a approximately amount of 10% of GDP.

[2] In approximate chronological order Mexico, Thailand, Indonesia, Malaysia, the Philippines, Taiwan, Hong Kong, Korea, Russia, Turkey, Argentina, Brazil, and Ecuador were all hit by major crises that generated financial instability and in many cases devastating economic hardship.

[3] This is largely due to the problem of a "one-way speculative option". With a pegged rate, speculators know that if exchange rate changed, they will be only downward for deficit countries and upward for surplus ones. This makes adjustable pegged exchange rate extremely vulnerable to speculative attacks.

However, another branch of international monetary economics based on the theory of Optimum Currency Area (OCA) suggests that most countries do not fit well the criteria for either corner of fixed or highly flexible exchange rates to be desirable exchange rate regimes (Williamson 1996, and Willett 2003, 2004). If these countries with intermediate OCA characteristics adopted corner regimes, they could bear a substantial cost in terms of reduced economic growth through suffering recessions to defend their fixed exchange rate and/or resource misallocation through the high volatility of a flexible rate. We have lots of evidence that the "dead center" of the narrow band adjustable peg will be highly crisis prone, at least in the absence of effective capital controls or low capital mobility. However, there are other intermediate options with greater but not complete exchange rate flexibility that may be workable, such as crawling bands and managed floating. What are the conditions necessary for intermediate exchange rate regimes to be operated stably?

At present we do not have a clear theoretical basis for predicting how far away from the middle countries should need to move to sharply reduce the frequency of crises. Indeed, Frankel (2004) has recently argued that we do not have a good economic theory for why the middle itself is unstable. Willett (2005) agrees with Frankel's analysis but argues that we can understand the instability of the middle if we also take political economy considerations into account.[4] In

[4] Willett's analysis focuses particularly on the role of time asymmetry effects due to the tendency of the bad effects of currency depreciation to show up more quickly than the good effects combined with short time horizons in the political process that contribute to a tendency for

this paper, we propose that the keys for success in operating exchange rate regimes are likely to be a function of both political as well as economic conditions. Given that a major source of currency crises is disequilibrium generated by inconsistencies between exchange rates and domestic monetary policies, this paper argues that weak governments (i.e., governments that are difficult to control government spending and to secure a coalition) are more likely both to generate inconsistent policies and less capable to take action to remove inconsistencies in a timely fashion especially when facing domestic political pressures (e.g. an impending election). This will tend to make currency crises more likely to occur under any type of exchange rate regime, and especially under narrow band adjustable peg exchange rate regime.

The traditional debate in the economic literature has been about how well different types of regimes will work. Political economy analysis suggests, however, that posing the issue in this way misses an important dimension (Willett 2005). As Jeffrey Frankel (2003) has argued, the impossible unholy trinity analysis does not imply that intermediate regimes must be unstable. Rather it says that between the corners monetary and exchange rate policy must be mutually adjusted to each other in a consistent manner. Political economy analysis suggests, however, that this required mutual consistency will be more

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governments to delay needed policy adjustments for too long. His analysis also suggests that within a range the political and institutional characteristics of countries that affect their ability to cope with time inconsistency problems is more important than the specific form of exchange rate regime that is adopted (once one has moved away from the dead center of the Bretton Woods type adjustable pegs).

difficult to manage politically, the more sticky is the exchange rate regime, and the one way speculative option analysis suggests that the requirements to maintain mutual consistency become more stringent the higher is the degree of capital mobility. Thus the desirability or workability of different types of intermediate regimes becomes a function of both the degree of capital mobility and the capability of political management. While the first dimension has been heavily stressed in the literature, the second has received much less attention. Its consideration suggests the hypothesis that the management of intermediate regimes becomes more difficult the greater their degree of stickiness. Thus the less technically capable are officials and, likely more important, the less is their scope for standing up to short-term political pressures, the more difficult it is to manage intermediate regimes in ways that avoid crises. From this perspective, therefore, an important element of successful currency management is the political strength of the government. We would expect political weakness to make crises more likely under any type of exchange rate regime, but that the effect would be greatest for intermediate regimes, and within the broad intermediate category, the effects to be greater the stickier in the regime.[5]

The anecdotal evidence on the performance of different types of exchange rate regimes is mixed, with some efforts working well and others failing. It is

[5] The degree of effective institutional independent of officials making exchange rate policy should also be important and case studies suggest that where exchange rate policy is made by independent central banks, crawling bands are less crisis prone (see Williamson (2000)). Unfortunately, however, the measures of central bank independent for developing countries are much less meaningful for developing countries than for industrial countries. Thus we do not include such measures in our statistical analysis.

therefore important to develop a better understanding of the conditions, which have contributed to success or failure. In this paper we extend recent empirical research undertaken with Apanard Angkinand (2005) by adding political considerations into account and testing Willett's hypotheses.[6]

We empirically test these propositions using a probit panel model for a set of 90 countries over the period of 1990 to 2003.[7] 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. More specifically, we find weak political institutions combined with adjustable pegged exchange rate system represent the highest probability of currency crises, as compared with other types of exchange rate regimes. Another important finding is that, in the case of countries with very poor political institutions, the two extremes of the polar regimes are more vulnerable to speculative attacks than certain forms of intermediate regimes such as crawling pegs/bands and managed floats. This suggests that countries do not need to move to one of the two corner regimes in order to reduce the probability of crises. Our findings in general are consistent with the prediction of the

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[6] Angkinand, Chiu, and Willett (2006) examined the relationship between exchange rate regimes and the probability of currency crises from a pure economic standpoint and found that the probability of currency crises varies considerably across different types of intermediate regimes. In particular, their six-way regrouping of Bubula and Otker-Robe's classifications provides support for the conventional view that crawling band regimes are substantially less crisis prone than adjustable pegs. This provides a more optimistic view for countries that do not fit well the OCA criteria for either fixed or flexible rates.

[7] The new IMF data we use on exchange rate regimes is only available back to 1990.

"unstable middle" hypothesis, but we do not find support for the stronger "bipolar" hypothesis.

The rest of the paper proceeds as follows. Section 1.2 briefly reviews both theoretical and empirical literature on the determinants of currency crises. Section 1.3 provides theoretical linkages of weak political institutions on the likelihood of currency crises, taking different types of exchange rate regimes into account. Several testable hypotheses will also be developed in this section. Section 1.4 describes the data and methodology used to test these hypotheses. In section 1.5, we present our core results and the implied causal relationships between political institutions, exchange rate regimes, and currency crises. Section 1.6 describes the robustness checks, and Section 1.7 concludes.

1.2. Review of Theoretical and Empirical Literature on Currency Crises

Recent theoretical literature on currency crises has generated two "generations" of models to explain and predict currency crises.[8] The early work, now called "first-generation" model, was in response to currency crises in developing countries such as Mexico (1973-82) and Argentina (1978-81). In his influential study, Krugman (1979) explicitly showed how a government uses its money-printing machine to finance a budget deficit while also trying to maintain fixed exchange rates by using stock of exchange reserves. Foresighted

[8] Flood and Marion (1998) provide an excellent overview of theoretical developments on crisis models.

speculators, recognizing these unsustainable conflicting policies, launch a speculative attack, which quickly exhaust the country's reserves and force an abandonment of the fixed exchange rate. Later various additions have been made to it due to the simplicity of Krugman's model, including additional assumptions and characteristics of currency crises, in order to bring the model closer to a real situation.[9] All the first generation models share one common and obvious flaw. The assumption regarding the passive stance of the government, i.e. that a government will not defend the peg in spite of the fact that it knows the central bank has been losing international reserves and will therefore have to abandon the peg, is not a realistic one.

Newer models, the second generation, are designed to capture features of speculative attacks in Europe and in Mexico in the 1990s. Models by Obstfeld (1994), for instance, argued that currency crisis arises with self-fulfilling expectations from the fact that speculators have strategic incentives against a government's defending strategy. This brings in an important innovation of second-generation model: the government reaction function. In other words, the government would choose to defend a pegged exchange rate, but crises would arise when the markets believed that the government would not have the political capability to sustain it. In this model, a vulnerability zone of fundamentals can generate a currency crisis even though these weak

[9] For a detailed overview of additions to the first generation models, see Garber and Svensson (1994).

fundamentals are not so bad as always to be justified as being consistent with financial crisis. This leads us to one of the main characteristics of the second-generation models as opposed to the first generation models – since the crisis depends largely on expectations, the time of attack and the onset of a currency crisis are impossible to determine. The question is, it is not clear why policymakers in the second-generation model would not adjust their behavior to affect these expectations. Both models obviously oversimplify politics.

Empirically, studies on the economic determinants of currency crises have been extensively reviewed elsewhere (e.g. Frankel and Rose 1996; Corsetti, Pesanti and Roubini 1998; Radelet and Sachs 1998; Bordo et al. 2001; Abiad 2003; and Willett et al. 2005)[10]. However, there has been relatively little empirical work looking at the relationships among exchange rate regimes and currency crises in terms of interactions with political considerations.[11] Eichengreen, Rose, and Wyplosz (1995), for example, were among the first to directly address the question of how political variables, holding relevant macroeconomic variables constant, affect a range of exchange rate events and the probability of currency crises.[12] Using a sample of 20 industrial countries between 1959-1993, they failed

[10] A comprehensive overview of the empirical literature up to 1997 is to be found in G. L. Kaminsky, S. Lizondo and C. M. Reinhart (1997). For an overview of empirical studies in the period from 1997 to 2003, see Abiad (2003).

[11] A few exceptions are studies by Bussiere and Mulder (2000), Frieden, Ghezzi, and Stein (2001), Haggard (2000), Leblang (2002, 2003b), Leblang and Bernhard (2001), Shambaugh (2004), and Satyanath and Subramanian (2004). They focus explicitly on political variables as main factors leading to macroeconomic instability.

[12] The exchange rate events include: tranquility, failed attacks, devaluations, revaluations, flotations, and fixes. The political variables used in their study include: elections, changes in

to find close links between political indicators and exchange rate episodes, with the exception of that past government defeat being positively related with the occurrence of exchange rate episodes. In general, this study shows that political variables influence the exchange rate regime, but not necessarily explain currency crises.

Bussière and Mulder (1999) explicitly concentrated on the effects of political instability on economic vulnerability and currency crises. They examined a broader range of political conditions and find that political instability and elections had a significant impact on economic vulnerability for countries with weak economic fundamentals and low reserves. However, they limited the time frame to two five-month periods starting respectively in November 1994 and May 1997 – periods associated with the "Tequila" and Asian crises. This raises the questions of sample selection bias and makes it difficult to generalize the results beyond those two particular periods.

Blomberg, Frieden, and Stein (2001, 2005) also considered political variables in relation to the duration of exchange rate pegs in a sample of Latin America countries. They concluded that political factors including both interest group pressures and election concerns were crucial determinants in sustaining a commitment to an unsustainable pegged exchange rate. Specifically, countries with larger manufacturing sectors were less likely to maintain currency pegs,

government, past and future government victory or defeat, left-wing government, and new finance minister.

which implicitly decreased the probability of currency crises. On the other hand, the run-up to an election substantially increased the likelihood that a government will maintain a currency peg, which implicitly increased the probability of speculative attack in post-electoral periods.

Block (2002) empirically examined the impact of structural political conditions on the probability of currency crises in 23 emerging market economies. Using a data set that consists of monthly observations from 1975:1-1997:12 and controlling for a commonly used set of macroeconomic variables, Block found both strong governments, democracy, and right-wing government were less vulnerable to currency crises. However, in contrast to previous studies, he did not find a significant impact of elections on the likelihood of currency crises (though the point estimates are positive).

To our knowledge, Leblang (2003a) was the only empirical study that focused on the interrelationships among political factors, exchange rate regime choice, and currency crises for a large group of developing countries across different regions.[13] He found that democracy reduced the probability of currency crises by choosing exchange rate regimes that were compatible with exchange rate stability. A major problem, however, is that this study used countries' announced exchange rate policies (*de-jure* regime) to classify exchange rate regimes. Such classifications often differed substantially from the exchange rate

[13] Frieden, Ghezzi, and Stein (2001) and Blomberg, Frieden, and Stein (2005) provide valuable analysis of political economic interactions for Latin America.

regime that countries actually operated (*de facto* regime). Indeed, a recent IMF study found that the correspondence was only about fifty percent (Rogoff et al 2003). Thus, a revised IMF *de facto* exchange rate regime classifications constructed by Bubula and Otker-Robe with modified categories developed in Angkinand, Chiu, and Willett (2005) will be used in this paper. These definitely better reflect countries' actual exchange rate policy than the old *de jure* classification and arguably do so better than the new statistical classifications developed by Levy-Yeyati and Sturzenegger (2002) and Reinhart and Rogoff (2002) (For critique of these studies see the analysis and references in Willett, Kim, and Nitithanprapas (2005)).[14]

Recently, Satyanath and Subramanian (2004) and Leblang and Satyanath (2006) both examined the relationship between political institutions and currency crises in a time-series and cross-country framework. The former study found that democratic political institutions had a strong and positive effect on macroeconomic stability after controlling various policy variables, while the latter found that institutional variables, particularly divided government and government turnover, substantially increased the probability of currency crises by affecting speculators' expectations. All these studies above focused explicitly on the impact of political factors in conditioning the probability of currency crises via different channels. This brief overview of both recent theoretical and

[14] For the purpose of robustness check, we will include Reinhart-Rogoff regime classification into the analysis and the results will be reported in the section 1.6.

empirical work provides the foundation for the hypotheses described in the following section.

1.3. Linking Weak Governments to Exchange Rate Regimes and Currency Crises

What are the conditions necessary for countries to manage their exchange rate regimes in order to reduce the likelihood of currency crises? As suggested by numerous economists, the major cause of currency crises is the inconsistencies between domestic macroeconomic policy and exchange rate policy. In the short run, these inconsistencies can be dealt with by reserve flows or other forms of financing. In the long run, however, continuing imbalance reflects fundamental disequilibrium and necessary adjustments (e.g. changes of exchange rate policy) are required. Thailand is the prime example. One of the major sources of Thailand's currency crisis was that, most international investors lost confidence when domestic financial management failed to address the increasingly obvious problems of an overheated economy and a consequently weakening external current account. Soon, doubts took place in international financial markets on the compatibility of the monetary and fiscal stance with an exchange rate regime that pegged the currency tightly to the U.S. dollar. Hesitance and lateness of government officials in addressing the inconsistency fueled an outflow of capital and crises ensued. Exchange rate policy is not a pure economic decision. It often involves with complicated political calculations. Government officials in general face more constraints than private agents when making decisions, which impede them from reacting to the crisis in an efficient manner. As Willett (2005) has suggested, this situation will be even worse if the incumbent government is politically weak and unstable.

We distinguish two types of weak governments and investigate their effects on the likelihood of currency crises under different exchange rate regimes. One type is generally referred to as *politically unstable governments*. Numerous studies have incorporated measures of political instability into empirical studies of exchange rate regime determination (Edwards 1996, Bernhard and Leblang 1999, Frieden, Ghezzi and Stein 2001, Poirson 2001, Meon and Rizzo 2002). The general conclusion emerging from these studies is that political instability increases the difficulty that macroeconomic policymakers face in maintaining a fixed exchange rate. If the currency speculators suspect a government's determination and capability to defend the peg exchange rate, they may end up forcing a devaluation, and a self-fulfilling speculative attack will occur as illustrated in second-generation model. This uncertainty will be intensified by political instability, such as frequent changes in government policies, or more serious changes, such as violence, coups, and irregular government turnovers. Therefore, uncertainty about the government's policy objectives resulted from political instability can trigger a speculative attack.

To summarize, political instability (e.g. frequent government turnovers, riots, and strikes) tends to create uncertainty about the government's policy objectives (e.g. the authorities' commitment to implement necessary reform and adjustment on exchange rate). Perceptions that authorities might not carry through with adjustment strategies heighten uncertainty and generate turbulence in financial markets. This will make pegged regimes more difficult to sustain, and thus increase the probability of currency crises.

A second type of weak government is associated with *divided governments* where the executive and the legislative branches are controlled by different parties, have different incentives and face different constraints (e.g., Cox and McCubbins (2000), Leblang and Satyanath (2006)). Haggard (2000) and MacIntyre (2001) argue that the number of veto players and their diverse policy preferences will influence policy responses when crises take place. In particular, a country with many veto players will delay the changes in policy in responding to external shocks due to the difficulty in rectifying agreements among authorities (MacIntyre (2001), and Angkinand (2004)). Drawing experiences from the Asian financial crises, they have individually argued that the presence of multiple veto players substantially contributed to the Asian financial crises in 1997. This literature suggests that policymakers in divided governments in general face collective action problems in devising responses to exogenous shocks. For example, if a single political party controls the executive and legislative branches of government, then it is more likely to be able to reach agreements and successfully defend its currency. Given a speculative attack, on the other hand, policymakers in divided governments are likely to be less successful in gathering the political and economic resources required to defend the exchange rate parity. This is consistent with the implication of Alesina and Drazen's (1991) war-of-attrition model, in which more evenly divided power among groups (in this case government and opposition) leads to greater delays prior to stabilization. In fact, Roubini and Sachs (1989) and Alesina and Drazen (1991) show that the presence of divided government and the lack of government stability contribute to wars of attrition that delay fiscal adjustments and lead to macroeconomic imbalances. These considerations suggest the hypothesis that other things being equal, *the more unstable and the more divided is a nation's government; the higher is the probability of currency crises under any type of exchange rate regime.*

Furthermore, Willett (2005) suggests that the effect of politically weak governments on the likelihood of crises is likely to be stronger under adjustable pegs than other types of intermediate regimes. This is because the political cost of changing an adjustable peg is usually greater than for crawling band and managing floating regime. The result is a greater tendency to generate one-way speculative gambles, which provide currency speculators with an easy target to attack. A politically weak government will only exacerbate the situation due to its lack of capability to credibly defend its currency when necessary. This suggests another hypothesis that *the more unstable and the more divided the government, the greater is the increase in the probability of currency crises under an adjustable peg exchange rate regime compared with other types of exchange rate regimes.*

1.4. 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[15]. Our dependent variable is a currency crisis index. Following Eichengreeen, Rose and Wyplosz (1996), we compute exchange market pressure indices (EMP) based on the weighted averages depreciation of the domestic currency, the loss of international reserves and the increase in interest rates. 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 weight would be imposed on the corresponding variable in calculating EMP. Currency crises are identified if the EMP index exceeds the pooled mean plus 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 with both two and three standard deviations threshold. As a proxy of measuring government stability, we use the government stability index of the *International Country Risk Guide* (ICRG). According to ICRG, government stability is defined as government's ability to carry out its declared program, and its ability to stay in office. Socioeconomic conditions reflect pressures at work in society that could constrain government action or fuel social dissatisfaction. This is an assessment

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[15] See appendix I for the sample countries.

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. In general, the risk rating of government stability assigned is the sum of three subcomponents, each with a maximum score of four points and a minimum score of 0 points. A score of 4 points equates to Very Low Risk and a score of 0 points to Very High Risk. The three subcomponents are:

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

Therefore, the ICRG index ranges from 1 (the lowest level of government strength) 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).[16][17] 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

[16] The measure is labeled ALLHOUSE in the Database of Political Institutions.

[17] 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.

controls the legislature, that is, a unified government. And it 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), a new IMF *de facto* regime classification that only goes back to 1990. As suggested by Angkinand, Chiu, and Willett (2006) [18], 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 type of exchange rate regime.

We follow the literature on determinants of currency crises for our choice of macroeconomic control 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 growth, current account deficit/surplus as a share of GDP, and real effective exchange rate appreciation.[19] Kaminsky, Lizondo, and Reinhart (1998), for example, find each of these variables to be among the strongest leading indicators of currency crises.[20] 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

[18] 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.

[19]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.

[20] See Kaminsky et al. (1998) for an evaluation of various crises indicators.

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, which 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[21] and the second examining the incentives of policymakers surrounding elections.[22] 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 electoral period using data from Database of Political Institution (DPI) and create an election dummy, which is coded as one if there is an election in either legislature or executive branch. Appendix I provides detailed definitions and sources of all variables used in the analysis.

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[21] Lobo and Tufte (1998), Leblang and Bernhard (2001), and Frieden, Ghezzi and Stein (2001).
[22] The literature on political business cycle is pioneered by Nordhaus (1975), and is extended by Cukierman and Meltzer (1986), Persson and Tabellini (1990), and recent study by Alesina, Roubini, and Cohen (1997), and Stein and Streb (1999).

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 will be undertaken by applying an interaction dummy regression model. A probit panel model is defined as:

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

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

$CC_{i,t}$ is a currency crisis dummy variable, which takes a value of 1 in a crisis year for any country *i* at time *t*, and 0 if there is no currency crisis. ln [$P_{i,t}$ / 1-$P_{i,t}$] is the odd ratio of the probit estimation, while $P_{i,t}$ is the probability that a currency crisis occurs under certain type of exchange rate regime (i.e. $CC_{i,t}$ equals to 1). *G* is our primary political variables: government stability and divided government. *ER* is an exchange rate regime dummy variable, which takes a value of 1 if a country adopts a particular exchange rate regime *j* one year before crisis year, 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 the antilog of $L_{i,t}$ = antilog [$P_{i,t}$ / (1- $P_{i,t}$)], we can simply solve for the value of $P_{i,t}$ and obtain the probability of currency crises under a particular exchange rate regime. x is a k-element vector of standard economic and financial variables. β_k are coefficients, which captures the effect of the change in a control variable k on the change in the odd ratio. $\varepsilon_{i,t}$ is the error term. To minimize the problem of reverse causality, all the independent variables are lagged by one year.

1.5. 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 probit panel 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 an ICRG government stability index that takes into account government's ability to carry out its declared program, and its ability to stay in office (it ranges from 1-12, where 12 indicates the highest stability). The second indicator is whether the government is a divided or a unified government. The results of these two political indicators are presented in column (1) and column (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 pegged 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 than with hard pegs, crawls, managed floats, and floats (12.27% versus 3.97%, 7.55%, 10.86%, and 4.47%).

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.[23] 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

[23] 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).

associated with efforts at exchange rate based stabilization and while counting some successes, also tend to be quite crisis prone.[24] We suspect that this anomaly of stronger governments associated with higher probability of crises is mainly due to the nature of forward looking crawls. We then re-estimate the model with all specifications remain unchanged. Column (3) and (4) in table 1 present the statistical results where table 2c and 2d report the probability of currency crises for both stable governments and divided governments, respectively.

As shown in both table 2c and 2d, we find that for countries with backward looking crawls, our general findings hold. That is, 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 fight against high inflation. In contrast, 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 countries where they have long history of high inflation. The problem of ERBS arises when the currency does not depreciate rapid enough after the fall of

[24] 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).

inflation and cause currency overvaluation. This in turn hurts the country's export competitiveness and currency crises ensued.

It has been generally argued from previous work that during the 1980s and 1990s there was a tendency in the economic profession that was married in 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. A higher than expected tendency for such programs to end in crises such as occurred with Mexico in 1994 and Brazil in 1999 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.

1.6. Robustness Checks

1.6.1 Alternative Definitions of Crisis Index

In the benchmark regression, we test our hypotheses using pooled precision weighting system in constructing a crisis index. The problem of precision weights, however, is arguably inappropriate since the precision measures reflect government intervention rather than the excess demand in foreign exchange markets (see Nitithanprapas and Willett 2000). 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.[25] Table 3 and 4a-4d report the re-estimation results and the probability of currency. 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 similar pattern with 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.

1.6.2 Alternative Measures of Political Institutions

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

[25] 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.

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 checks and balances, adjusting for whether these players are independent of each other.[26][27] 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 column (1) and (2) for pooled precision weights and column (3) and (4) for equal weights, respectively. This suggests that larger number of veto players will increase the likelihood of currency crises due to their tendency of delaying any necessary adjustments in responding to exogenous shocks. Furthermore, when we look at the probability distribution across different types of exchange rate regimes, we find that adjustable parities become extremely

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[26] 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.

[27] I 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 I do not report the results in this paper.

vulnerable to speculative attacks if there is large number of veto players involved in the decision making process. This result holds up across different measures of crises indices.

1.6.3 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.[28] Table 7 and 8a-8c present the empirical results without including freely falling regime.[29]

In column (1)-(3) in table 7, only government instability has a positive and statistically significant effect on the probability of currency crises. Other two variables, divided government and checks, are with correct sign while not statistically significant. When these variables interact with exchange rate regimes,

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[28] 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.

[29] For the purpose of robustness check, I 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, I 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.

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 even worse with adjustable parities than hard pegs, crawls, moving bands, managed floats, and freely floats (27.5% versus 16.3%, 6.5%, 7.4%, 8.6%, and 12.1%). Note that we do not observe the same pattern of anomaly for crawling regime as we found when 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%).

Table 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 large number of veto players and adjustable parities will be very likely to suffer from currency crises as shown in table 8c. After several sensitivity tests we conduct above, by and large, our empirical model seems to be quite robust. The results are basically stable across different specifications of dependent variable (Crisis Index), independent variables (both exchange rate regimes and veto player measure).

1.7. Concluding Remarks

This paper investigates the interactive effects between weak political institutions and alternative exchange rate regimes on the likelihood of currency crises. The most important conclusion of our analysis is that weak political institutions significantly increase the probability currency crises. Furthermore, after controlling for a commonly used set of macroeconomic variables, this paper demonstrates that both unstable government and divided government will make currency crises more likely particularly under Bretton Wood narrow band adjustable peg regimes than other types of exchange rate regimes. This finding has significant policy implications. It implies that countries with weak political institutions should at least consider moving away from the "dead center" of narrow band adjustable peg in order to avoid severe speculative attacks. On the contrary, countries with strong political institutions are more likely to effectively manage intermediate exchange rate regimes in a stable manner.

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

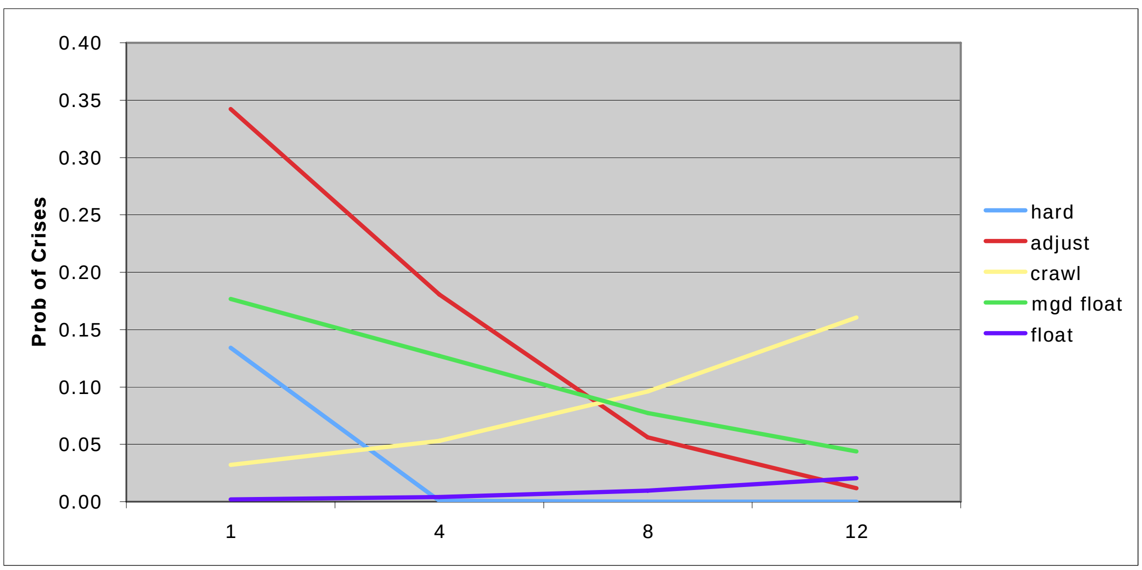
(***, **, * indicates the significance level of 1%,5%, and 10%. The numbers in parentheses are the standard errors)

	(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 Government (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 Government (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.

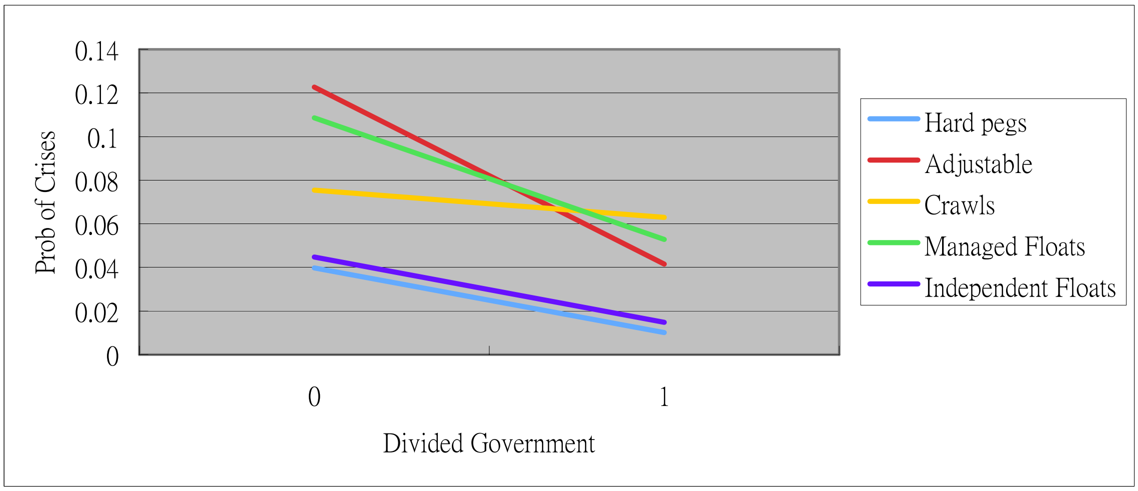
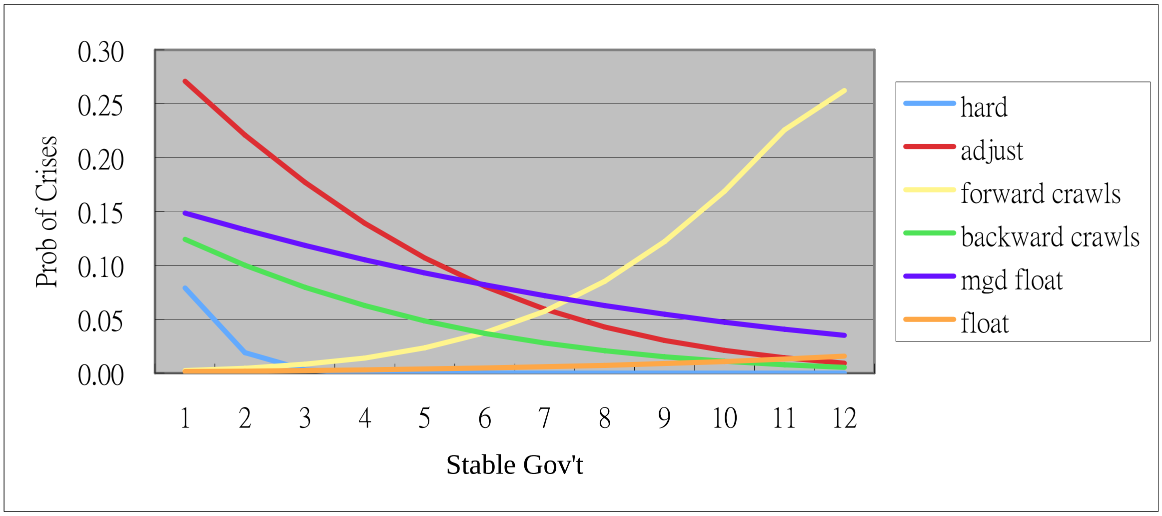


Table 2c. Probability of Crises for Stable Government (3)

	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.

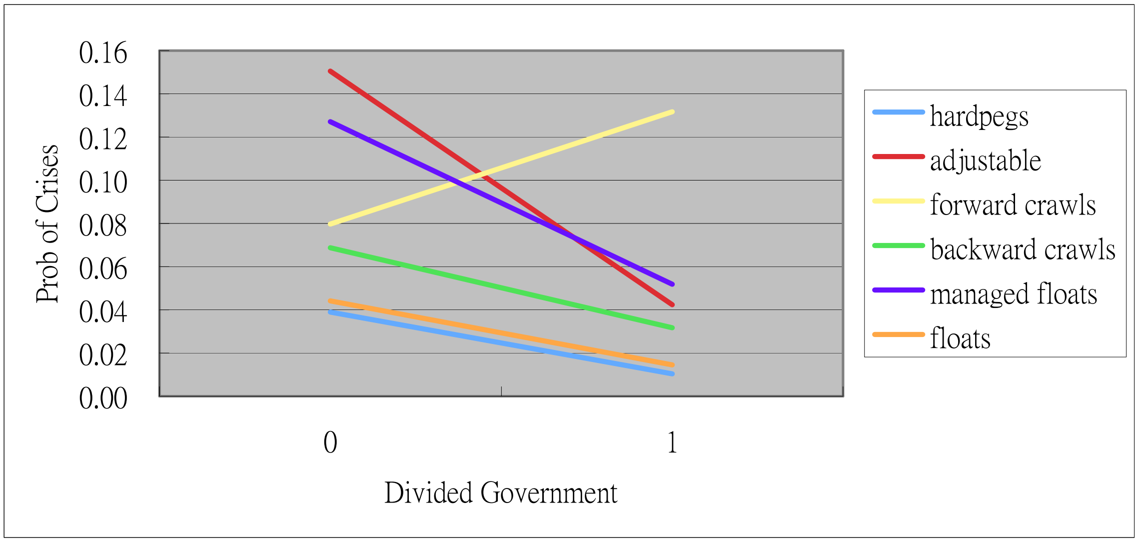

0.16
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
Prob of Crises
0
1
Divided Government
hardpegs
adjustable
forward crawls
backward crawls
managed floats
floats

Table 3. Sensitivity Analysis: Using Equal Weight

(***, **, * 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 Government Using Equal Weight

	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 Weight

	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 Weight

	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 Weight

	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 Weight

	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 Weight

	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 Weight

	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 Weight

	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