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MONETARY CREDIBILITY VS. VOTER APPROVAL: POLITICAL INSTITUTIONS AND EXCHANGE-RATE STABILIZATION DURING CRISES

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This paper analyzes how political institutions affect the execution of exchange-rate policy. By focusing on policy-makers' responses to the emergence of speculative pressure on their currencies, we argue that the effect of democratic institutions on exchange-rate stability is likely to be conditioned by the officially announced exchange-rate regime. Officially fixed exchange rates are the main instrument of autocrats to signal commitment to long-term stability. Autocratic governments with strictly fixed exchange rates are thus more likely to defend their exchange rates than autocrats with an intermediate regime because the latter implicitly signal that they care less about monetary stability. In contrast, democrats defend more often in intermediately than in fully fixed official regimes by using a combination of external and internal adjustments, which reduce the negative effects of a devaluation on voters. Our analysis of 189 currency crises between 1975 and 1999 supports this conditional effect.

1. INTRODUCTION

WITH THE increase in the number of democracies around the globe, the question of how democracy affects economic prosperity and stability has become increasingly important. An important aspect in this regard is exchange-rate stability as an essential component of overall macroeconomic stability in open economies. Exchange-rate stability and its impact on long-term monetary stability are important because they fundamentally affect the wellbeing of large segments of society. Failure of governments to achieve such stability can boost inflation and reduce foreign investments, leading to serious declines in citizens' real incomes and job security, to name just a few of many possible negative consequences. A current example of such a decline is Zimbabwe, where the government's inability to stabilize prices has led to a breakdown of the economy. The ability and willingness of policy-makers to achieve exchange-rate stability thus have important consequences for social welfare.

Recent research has shown that autocracies, rather than democracies, tend to choose exchange-rate regimes that provide higher degrees of exchange-rate stability (Broz, 2002; Hall, 2008). While this finding has been firmly established for the officially announced, de jure, exchange-rate regime, research looking at the actual, de facto, exchange-rate behavior has been somewhat more ambivalent. Bearce and Hallerberg's (2008) results support the findings of a negative relationship between democracy and exchange-rate stability, but other authors do not find such an effect (Simmons and Hainmueller, 2005).

Since policy-makers quite often deviate from their officially announced exchange-rate regime (Levy-Yeyati and Sturzenegger, 2005; Reinhart and Rogoff, 2004), the move to an analysis of de facto exchange rates has provided important new insights into how much policy-makers value exchange-rate stability. Nevertheless, studies on the

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choice of de facto exchange-rate regimes typically tell us only how policy-makers behave in normal times. An equally important question is how the authorities behave when market pressure on their currency makes the maintenance of exchange-rate stability increasingly difficult and costly. It is during these crisis periods that governments are forced to reveal how strong their commitment to exchange-rate and monetary stability really is.

In order to explore the vigor with which exchange-rate stability is maintained during hard times, our study, therefore, focuses on the outcome of speculative attacks on national currencies. We analyze to what extent democratic political institutions affect policy-makers' incentives to defend the exchange rate, and under what circumstances they are more willing to deviate from their behavior in tranquil times. We add to previous research on this question (Eichengreen, 1996; Leblang, 2003; Sattler, 2008; Satyanath, 2006; Simmons, 1994; Walter, 2009) by focusing on the conditional effect of democratic institutions. These institutions do not operate in isolation, but their effect on exchange-rate stability is likely to be conditioned by other institutions, economic constraints, and governments' overall commitment to stability. One particularly salient factor in this regard is the de jure exchange-rate regime that policy-makers operate in. This regime not only significantly conditions the macroeconomic policy instruments available to policy-makers but also sends important signals about the weight the government attaches to monetary stability in general (Broz, 2002).

Exiting a fixed exchange rate in response to exchange market pressure imposes considerably larger reputation costs on autocratic policy-makers than on democratic policy-makers because fixed exchange rates are the only institutional instrument available to them to commit to monetary stability. This increases the likelihood that autocrats will honor their de jure regime and will defend the exchange rate. Autocrats who reveal that they are less committed to monetary stability by following more flexible de jure exchange-rate regimes are likely to show little concern for exchange-rate stability. In contrast, democratic policy-makers are equally concerned about the domestically oriented median voter, who cares about her purchasing power but even more about interest rate stability (Bearce and Hallerberg, 2008). Since defending a fixed exchange rate usually requires a significant tightening of monetary policy, this makes a defense very costly for democrats and puts them in the uncomfortable situation of having to choose between two evils. In more flexible exchange-rate regimes, a defense can be achieved through a combination of internal and external adjustment measures. This dampens the negative effects of a defense on voters by preserving her purchasing power, and increases the likelihood that democratic policy-makers will defend this more flexible de jure exchange-rate target.

The effect of the political regime type on policy-makers' de facto efforts to preserve exchange-rate stability is thus conditional on the type of de jure exchange-rate regime they operate in. We argue that in countries with fixed de jure exchange-rate regimes, autocrats are likely to defend their exchange rate against speculative pressure, while the behavior of their democratic counterparts is indeterminate. In de jure exchange-rate regimes that allow more flexibility, democrats have clear incentives to defend their currency more often than autocrats. We test the argument's prediction of a conditional relationship with data for 189 speculative attacks on currencies from 1975 to 1999. Our results show support for the hypothesized conditional effect: democracy has a significant effect on currency crisis outcomes, but this effect is conditional on the country's official commitment to exchange-rate stability.

2. THE CONDITIONAL EFFECT OF DEMOCRACY

We argue that the relationship between the political regime type and currency crisis outcomes is conditional on the de jure exchange-rate regime type.[1] The de jure exchange-rate regime type is crucial when speculative pressure emerges because it affects the nature and the magnitude of the potential political and economic costs of a devaluation and determines which instruments are available to policy-makers to counter speculative pressure. Governments differ both with respect to their commitment to monetary stability, as evidenced by their choice of exchange-rate regime, and with respect to the institutional environment in which they operate – most notably the political regime type. The differences between democratic and autocratic environments in turn affect the capacity of policy-makers to implement unpopular policies, as well as the incentives they face when making exchange-rate and monetary policy decisions. When faced with speculative pressure, governments weight the costs of reneging on their de jure commitment to a certain type of exchange-rate policy against the cost of maintaining exchange-rate stability, and these costs are likely to differ in democratic and autocratic regimes. The government's decision-calculus during currency crises is thus influenced both by the country's political regime type and the country's de jure exchange-rate regime. In what follows, we first discuss the effects of the two policy responses available to policy-makers – devaluation and defense – and then analyze how these two factors affect the government's decision-calculus for policy-makers faced with speculative pressure on their currencies.

2.1 The Policy Options: Devaluation and Defense

When a country's exchange rate comes under speculative pressure, policy-makers have two options of how to respond to this situation: they can either give in to the pressure and devalue the currency or they can withstand the pressure and defend the currency by significantly increasing interest rates and (to some extent) by selling foreign-currency reserves. Both of these policy options are costly, both in political and in economic terms.

Devaluation. Devaluations can impose substantial political costs on policy-makers, which stem from two sources: the economic costs associated with the loss in the currency's value and the negative signaling effect of a devaluation. Economically, devaluations increase the price of imports, and put upward pressure on the inflation rate. Such price increases reduce consumers' purchasing power, diminish workers' real incomes, and hurt firms that strongly rely on internationally imported goods and foreign-currency-denominated debt (Broz and Frieden, 2005; Frieden, 1991; Walter, 2008). Even though devaluations can benefit export-oriented industries in the long run, devaluations in general thus have economically painful short-run consequences. The second type of cost associated with a devaluation originates from the fact that it can have far-reaching negative signaling effects. For one, devaluations affect politicians' reputations because they are frequently interpreted as a broken promise, a sign of incompetent policy-making (Walter, 2009), and a signal that the economy is deteriorating (Hibbs, 1982). It is not surprising, then, that devaluations decrease policy-makers' prospects of staying in power

[1]We distinguish only between fixed and intermediate exchange-rate regimes because speculative pressure rarely emerges in countries with freely floating exchange-rate regimes (Chiu and Willett, 2009; Husain et al., 2005).

(Cooper, 1971; Frankel, 2005; Leblang, 2005; Walter, 2009). The second type of signaling effect concerns the signal policy-makers send to financial markets about their commitment to exchange-rate stability. The more markets believe that the government is truly committed to providing such stability, the less likely is it that they will test this commitment by exerting pressure on the currency. However, a reputation for a strong commitment does not come overnight and needs to be earned. It becomes particularly credible when the government is willing to endure the costs associated with defending a given exchange-rate peg or regime against speculative pressure, and thus honors its commitment in good as well as in bad times. To signal a credible commitment to exchange-rate stability, governments thus have to withstand the testing of this commitment by financial markets.

Defense. To defend an exchange-rate peg that has come under speculative pressure, the authorities typically need to significantly raise interest rates and to sell foreign-currency reserves in substantial quantities. Such internal adjustment measures are painful: both interest rate increases and reserve sales cause monetary conditions to tighten. This in turn reduces investment, lowers economic growth, and increases unemployment.[2] Defenses thus have a negative economic effect across the board: the entire economy suffers from tight monetary policy. The domestic economy bears the full cost of adjustment. Bad economic times, however, decrease politicians' popularity and decrease their prospects of staying in power, as the large literature on political business cycles and economic voting documents. Such considerations are relevant both in fully democratic countries and countries that are autocratic but nevertheless allow elections to take place (Shi, 2006). Defending the currency against speculative pressure thus generates substantial costs for policy-makers interested in reelection.

2.2 How Exchange-Rate Regime and Political Regime Condition the Policy Response to Speculative Pressure

The discussion of the costs associated with devaluations and defenses suggests that neither possible policy response to speculative pressure is without costs for policy-makers. How policy-makers weigh the different costs relative to each other, however, is conditional on the setting in which policy-makers take this decision, in particular, the country's de jure exchange-rate regime type and the political regime type. By distinguishing between fixed vs. intermediate exchange-rate regimes and democratic vs. autocratic political regimes, we can make predictions about the likely outcome of speculative attacks in four different institutional configurations.

Case 1: Fixed De Jure Exchange-Rate Regime and Autocratic Political Regime. Devaluations are typically very costly for autocratic governments who have fixed their exchange rates. Since firms and individuals in countries with fixed exchange rates are more likely to accumulate unhedged foreign-currency-denominated debt, either because they believe in the stability of the currency or because they believe that they will be bailed out in the event of a crisis, the economic costs of devaluations tend to be larger in countries with such regimes than in countries with intermediate exchange-rate regimes (McKinnon, 1999). These costs are frequently disproportionately borne by economic elites, such as

[2]When reserve sales are sterilized, they do not result in tight monetary policy, but typically this is not possible over a longer period of time.

international traders and investors, who therefore favor a defense of the fixed exchange rate. Since these elites tend to be politically powerful in autocratic countries, this increases the costs of a devaluation for autocratic policy-makers (Bearce and Hallerberg, 2008).[3] Similarly, the signaling costs are particularly high when the exchange rate has been fixed. In addition to sending potent signals of weakness and policy incompetence to citizens, abandoning a fixed exchange rate can also raise serious doubts about policy-makers' commitment to monetary stability.

This is particularly problematic for autocrats committed to monetary stability, because they have fewer options to signal this commitment to financial markets than democrats: while democratic governments committed to monetary stability can credibly signal this commitment via two channels – fixing the exchange rate and granting their central bank independence – autocrats only have the option of a fixed exchange rate at their disposal, because they cannot credibly transfer authority to an independent central bank (Broz, 2002). In autocratic countries, commitment to monetary stability can thus only be signaled through a very transparent mechanism such as a fixed exchange rate. As a result, the abandonment of a fixed exchange rate is much more consequential for an autocratic policy-maker than for a democratic policy-maker. This implies that the autocrat has just given up his only option to achieve monetary stability and robs the autocrat of his main tool to achieve monetary stability. Maintaining exchange-rate stability is consequently of paramount importance to autocratic policy-makers who are so interested in monetary stability that they have chosen to officially fix their exchange rate. The costs of devaluing are accordingly very high. Compared with these very high costs of devaluing, defending the fixed exchange rate is less costly for autocratic policy-makers. Autocratic governments generally depend on a small elite rather than the support of broad segments of society (Bueno de Mesquita et al., 2003). While these elites are unlikely to embrace a monetary tightening that puts the economy into a recession, autocrats can compensate them for their losses incurred through bad economic conditions. The brunt of a recession in autocratic countries is typically borne by workers and the general public. While autocratic policy-makers also care about general economic conditions, especially when they allow some kind of electoral politics to take place (Shi, 2006), the fact that they are typically able to cushion the negative consequences of a defense for their most influential supporters means that currency defenses are not as costly to autocrats as devaluations.[4] Consequently, it is overall less costly for autocratic governments to repel a speculative attack against a fixed exchange rate than for democratic policy-makers (Eichengreen et al., 1996). We therefore expect that autocratic policy-makers sufficiently committed in monetary stability to have chosen a fixed exchange-rate regime are most likely to respond to speculative pressure by defending their currency.

Case 2: Fixed De Jure Exchange-Rate Regime and Democratic Political Regime. Both devaluation and defense are very costly to democratic policy-makers operating in an officially fixed exchange-rate regime. As discussed above, devaluing a fixed exchange rate lowers citizens' purchasing power and imposes losses on all firms and individuals who hold foreign-currency-denominated debt. Moreover, the signals of policy incompetence and of a lack of monetary policy credibility associated with a devaluation are costly for

[3]Note that autocratic policy-makers can compensate the elites for their losses, but these are likely to be quite sizeable if they have accumulated large quantities of unhedged foreign-currency-denominated debt.

[4]In addition, autocratic policy-makers have much more options to either manipulate or to ignore electoral outcomes than democratic policy-makers.

democratic policy-makers as well. Compared with autocratic policy-makers, the former is likely to weigh in more heavily for democrats than the latter: since citizens can vote the government out of office at regular intervals in democracies, sending signals of policy incompetence is costly for any politician standing for reelection. When policy-makers devalue even though elections are close, they are therefore likely to lose the election. On the other hand, the regularity of democratic elections gives policy-makers the option to overcome this problem by postponing a devaluation until after the next elections, when their political survival is much more secure. Delayed devaluations are a particularly frequent phenomenon around election time (Blomberg et al., 2005; Frieden et al., 2001; Klein and Marion, 1997; Sattler and Walter, 2008; Stein and Streb, 2004; Walter, 2009). Democratic policy-makers who devalue also face a loss of monetary credibility, which can be substantial (but not as large as for autocrats). Overall, devaluing a fixed exchange rate is hence a very costly policy route for democratic policy-makers. At the same time, however, the policy alternative – defending the currency – is equally costly for democratic policy-makers. For one, domestic economic conditions tend to be much more salient issues in democratic countries, especially since the median voter typically suffers when tight monetary policy slows down economic activity (Simmons, 1994). Since voters unsatisfied with the government's economic policy tend to punish policy-makers in democratic regimes by withdrawing political support or not reelecting them (Sattler et al., 2008, 2010), democratic policy-makers are therefore likely to weigh more heavily the popular pressure to avoid the painful domestic adjustment measures required for an exchange-rate defense (Bearce and Hallerberg, 2008; Eichengreen, 1996). The costs of defending a fixed exchange rate despite such strong popular opposition are thus very high for democratic policy-makers. Democratic policy-makers with de jure fixed exchange rates thus have to choose between two evils. Because both options impose substantial political costs on them, which one they will choose cannot be determined theoretically.

Case 3: Intermediate De Jure Exchange-Rate Regime and Autocratic Political Regime. When the de jure exchange-rate regime allows the exchange rate some degree of flexibility, for example by specifying a certain band within which fluctuations are possible, both the economic and the political costs of devaluing are much lower for autocrats than when the exchange rate is fixed. The economic costs are lower because citizens engage in economic transactions with the expectation of some exchange-rate volatility in mind, so that a devaluation tends to be less devastating to their finances. More importantly, the signaling costs of devaluations are much lower in intermediate de jure exchange-rate regimes. As discussed above, autocrats committed to monetary stability need to fix their exchange rate in order to credibly signal their commitment (Broz, 2002). The reverse conclusion is that autocratic policy-makers who implement intermediate or flexible exchange-rate regimes reveal that they are not overly committed to monetary stability. Not having a reputation to lose to begin with, devaluing thus does not send a negative signal. Taken together, this implies that the costs of a devaluation are comparatively low for autocratic policy-makers operating in intermediate exchange-rate regimes, such as crawling pegs or bands. Compared with defending a fixed exchange rate, which is associated with high costs for autocrats, it is also less costly to defend a more flexible exchange rate. In an intermediate exchange-rate regime, policy-makers can respond to speculative pressure with a mix of external and internal adjustment measures, rather than internal adjustment only. This means that policy-makers can partly absorb the negative effects of tight monetary policy (i.e. internal adjustment) by depreciating the

currency within the limits permitted by the de jure exchange-rate regime (i.e. external adjustment). This cushions the effects of a defense and thus lowers the costs of defending against speculative pressure. Even though monetary conditions have to be tightened to a lesser degree than when defending fixed exchange rates, however, this still leads to a contraction of the economy and is likely to induce a recession. While the costs of defending an intermediate exchange rate are thus lower than those of defending a fixed rate, for autocrats, this is still a more costly policy option than a devaluation. We conclude that autocrats operating in intermediate exchange-rate regimes should consequently be more likely to devalue their exchange rate when faced with speculative pressure on their currency.

Case 4: Intermediate De Jure Exchange-Rate Regime and Democratic Political Regime. Democratic governments need to be concerned about the effects of a devaluation on the median voter. Devaluations and depreciations decrease voters' purchasing power and are therefore politically costly for democratic policy-makers irrespective of the exchange-rate regime: even with floating exchange rates, unexpected depreciations hurt the incumbent's standing (Bernhard and Leblang, 2006). Devaluations moreover continue to have negative signaling effects: they signal that the economy is weakening and that the government's commitment to monetary stability may be weakening, especially when other institutional characteristics of the country, such as an independent central bank, suggest that the government values exchange-rate stability despite implementing an intermediate exchange-rate regime.[5] Thus, even though the citizens and firms tend to be less vulnerable to exchange-rate movements in intermediate than in fixed exchange-rate regimes, the political costs of devaluing in response to speculative pressure continue to be high for democrats. As for autocrats, the costs of defending the currency in the context of an intermediate exchange-rate regime are considerably lower than in fixed exchange-rate regimes because internal and external adjustment strategies can be mixed. Under these circumstances, it is less necessary for democratic policy-makers to fully subordinate other policy goals, such as higher economic growth or low rates of unemployment, to the goal of exchange-rate stability, and hence a defense is more feasible (Obstfeld, 1994, 1996). Overall, then, the political costs of devaluing exceed those of defending for democrats operating in intermediate exchange-rate regimes. We therefore predict that the most likely policy response to speculative pressure under these circumstances is a defense of the currency.

Table 1 summarizes the costs of devaluation and defense for democratic and autocratic regimes for each de jure exchange-rate regime type. Our argument suggests that the effect of the political regime type on policy-makers' efforts to preserve exchange-rate stability is conditional on their officially proclaimed type of exchange-rate regime. In countries with de jure fixed exchange-rate regimes, autocrats are likely to defend their exchange rate against speculative pressure, whereas the outcome is indeterminate for their democratic counterparts. In exchange-rate regimes that allow more flexibility, we predict that democrats have a higher propensity to defend, whereas autocrats are more likely to devalue in response to speculative pressure.

[5]Of course, it is also possible that democratic policy-makers are not particularly committed to monetary stability (typically, this is true for democratic countries that have neither fixed their exchange rate nor made their central bank independent). In these cases, devaluations are likely to be more prevalent than defenses.

TABLE 1 COSTS OF DEVALUATION AND DEFENSE

	Fixed exchange rate	Intermediate exchange rate
Autocracy		
Cost of devaluation	Very high	Low
Cost of defense	High	Medium
Predicted policy response	Case 1: defense	Case 3: devaluation
Democracy		
Cost of devaluation	Very high	High
Cost of defense	Very high	Medium
Predicted policy response	Case 2: unclear	Case 4: defense

3. DATA AND METHOD

To evaluate these hypotheses, we use monthly data for 52 developing and emerging market economies and 20 industrialized countries for 1975–1999.[6] Since the focus of this study is on the effect of policy-making in an economically integrated world, we focus on the time period in which capital accounts were increasingly liberalized. The analysis ends in 1999 because data for some key variables are not available after that year. Since the dynamics surrounding speculative attacks in emerging markets and developing countries may be different from those in developed countries (Leblang, 2003), we also split the sample and estimate models for developing and emerging market economies separately.

Since the scope of argument is limited to countries that routinely intervene in the foreign exchange market, i.e. countries with fixed and intermediate exchange-rate regimes, we exclude countries with floating exchange-rate regimes from the sample, but include countries that actively manage the exchange rate even though they proclaim to float. For this purpose, we rely on the classification of "de facto exchange-rate regimes" by Reinhart and Rogoff (2004), which classifies exchange-rate regimes based on both the officially announced regime and the actual exchange-rate behavior. We include all periods with exchange-rate regimes classified as non-crawling bands that are narrower than or equal to $\pm 2\%$, and any stricter classification.[7] Using a more restrictive threshold to determine which exchange rates are pegged would lead to the exclusion of important crises, such as the 1997 crisis in the Czech Republic. Although it may be useful to use lower cutoff points in other contexts, this does not seem adequate for the study of speculative attacks.

We operationalize speculative attacks as proposed by Eichengreen et al. (1995, 1996) and define speculative attacks as periods of extreme pressure in the foreign exchange market. We use a modified version of the exchange market pressure (EMP) index and

[6]The developing and emerging market countries are Albania, Argentina, Armenia, Azerbaijan, Bahrain, Bangladesh, Belarus, Bolivia, Brazil, Bulgaria, Cambodia, Chile, China, Colombia, Costa Rica, Croatia, Czech Republic, Dominican Republic, Ecuador, El Salvador, Estonia, Georgia, Guatemala, Haiti, Honduras, Hungary, India, Indonesia, Israel, Kazakhstan, Kuwait, Kyrgyz Republic, Laos, Latvia, Lebanon, Lithuania, Macedonia, Malaysia, Maldive Islands, Mexico, Moldova, Morocco, Myanmar, Nepal, Nicaragua, Pakistan, Panama, Paraguay, Peru, Philippines, Poland, Qatar, Romania, Russia, Saudi Arabia, Singapore, Slovak Republic, Slovenia, South Africa, South Korea, Sri Lanka, Thailand, Tunisia, Ukraine, Uruguay, Venezuela, Vietnam, and Yemen Arab Republic. The industrialized countries are Australia, Austria, Belgium, Canada, Cyprus, Denmark, Finland, France, Greece, Ireland, Italy, Japan, the Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Turkey, and the United Kingdom.

[7]The analysis thus includes strict pegs (category 1 on the Reinhart–Rogoff scale), pre-announced horizontal pegs and bands (categories 2 and 3), de facto horizontal pegs (category 4), crawling pegs and bands (categories 5–10), and non-crawling bands (category 11).

operationalize EMP as an unweighted monthly average of standardized exchange-rate changes, standardized reserve changes, and standardized changes in the interest rate differential relative to the interest rate in a stable reference country.[8] The rationale is that governments can respond to currency crises either by devaluing or floating their currency, by tightening monetary policy, or by spending foreign reserves. Large values of the EMP index indicate that speculative pressure is high. The data for calculating this index are available on a monthly basis from the International Monetary Fund (IMF)'s *International Financial Statistics* (*IFS*). To identify crisis episodes, we follow the literature and define crises as those periods where the index exceeds the country-specific mean by at least two standard deviations. The resulting sample of crises is listed in Table A1 in the Appendix. It includes many well-known crisis events such as the Mexican peso crisis in December 1994 or the speculative attacks on the Thai baht in 1997.

To operationalize the dependent variable – the outcome of a speculative attack – we examine whether the government devalued the exchange rate within the six months following upon the initial attack.[9] This variable measures both whether and how long the exchange rate was defended against a speculative attack. It counts how many months the authorities kept the exchange rate stable after the exchange rate was first attacked. If the exchange rate was not devalued during the six-month period, we count it as a successful defense. The dependent variable thus takes values 1–7, where 1 represents cases in which the exchange rate was devalued in the month in which it was attacked and a value of 7 represents cases in which the exchange rate was defended for at least six months after the onset of speculative pressure. Since this implies that we may have exchange-rate pegs that survive the period of analysis, but collapse later on, our dependent variable is right-censored. In combination with the appropriate econometric model, this allows us to apply a plausible definition of crisis length without imposing strong restrictions about the duration of a specific crisis.

To determine whether and when countries devalued, we use a behavioral criterion that evaluates exchange-rate behavior based on the pre-attack type of de facto exchange-rate regime (Reinhart and Rogoff, 2004). This criterion grants intermediate regimes more policy flexibility than fixed exchange-rate regimes and therefore takes into account that policy-makers operating in intermediate exchange-rate regimes can respond to emerging pressure on their currencies with a mix of external and internal adjustment strategies. A small depreciation of the exchange rate is often in accordance with the rules of a relatively flexible regime, such as a pre-announced crawling band, but violates the requirements of a stricter regime, such as a hard exchange-rate peg. Our devaluation criteria therefore grant regimes with little exchange-rate flexibility less freedom to depreciate than countries that follow more flexible exchange-rate regimes.

[8]Different versions of this indicator have been used in the literature (e.g. Leblang, 2003; Leblang and Bernhard, 2000); for an overview, see Kaminsky et al., 1998. Following the suggestion by Nitithanprapas and Willett (2000), we use a modified unweighted version of the index so as not to understate the number of unsuccessful speculative attacks on fixed exchange rates. We set the U.S. dollar as the reference currency for all countries, except for the Eastern European countries, for whom we use the Deutsche Mark (until 1998) and the Euro (from 1999 onwards). For interest rates, we use (short-term) money market rates (IFS line 60b) if available and discount rates (IFS line 60) otherwise.

[9]The choice of the six-month window is based on calibration exercises by Bensaid and Jeanne (1997, p. 1472) and Moutot (1994), who suggest that crisis episodes in France during the EMS crisis lasted up to five months. Our estimation strategy takes into account that a crisis may last longer than the six-month period following the attack as specified here.

Table 2 Devaluation Criteria, Based on the De Facto Exchange-Rate Regime Type [Reinhart and Rogoff (RR) Fine Classification]

	Coded as devaluation if . . .	
	. . . depreciation in one of the six months following the speculative attack exceeds (%)	. . . overall depreciation after the speculative attack exceeds (%)
Pre-announced peg (RR 2)	1	1
Pre-announced horizontal band (RR 3)	2	2
De facto peg (RR 4)	2	2
Pre-announced crawling peg (RR 5)	2.5	5
Pre-announced crawling band (RR 6)	2.5	5
De facto crawling peg (RR 7)	4	8
De facto crawling band (RR 8)	4	8
Pre-announced crawling band (5%) (RR 9)	5	10
De facto crawling band (5%) (RR 10)	5	10
Non-crawling band (2%) (RR 11)	5	10

The devaluation criteria used in our study are presented in Table 2. We take into account two different criteria: first, we look at the percentage change in the exchange rate from one month to the next, i.e. the amount of depreciation in each individual month. Second, we consider the percentage change in the exchange rate from the pre-attack level to a particular month after the attack, i.e. overall amount of depreciation since the attack began. For comparatively flexible exchange-rate regimes (Reinhart–Rogoff categories 5–11), we allow a higher overall depreciation rate than the individual monthly criterion. The first month in which either of these criteria indicates a devaluation is counted as the month of devaluation. According to this operationalization, governments successfully defended their exchange rate in 46% of all cases. 35.5% of speculative attacks resulted in a devaluation within the month of the attack, while governments initially defended, but subsequently devalued in response to 18.5% of all speculative attacks in the sample. This is similar to the distribution of devaluations and defenses in previous studies (Kraay, 2003; Leblang, 2003).

To estimate the effect of the explanatory variables on the probability of a devaluation, we use duration models (Box-Steffensmeier and Jones, 2004). These models estimate the probability that a government defends the exchange rate in a given month after the attack, conditional on not having devalued until then. We primarily use parametric models because they are more efficient in small samples than the less restrictive, semi-parametric models (Box-Steffensmeier and Jones, 2004, pp. 148–151). Empirical tests show that log-normal duration models are most appropriate.[10] For all models, statistical inference is based on robust standard errors that cluster on countries. Besides explicitly modeling the dynamics of currency crises, duration models have the advantage that they account for the right-censoring of our dependent variable discussed above.

[10]To check the adequacy of the log-normal model, we examined whether the results depend on the models' underlying assumptions about the shape of the hazard rate. Re-estimating the specification with a Weibull parameterization and using a Cox proportional hazard model did not substantively change the results, but the model fit statistics indicated that we should favor the log-normal over the Weibull model. Both the Akaike and the Schwartz Bayesian information criteria show lower values for the log-normal model.

Our key explanatory variables are the political regime type, the de jure exchange-rate regime type, and an interaction term between these two variables. We use different measures to operationalize the political regime type. We primarily rely on the Polity IV scores (Marshall et al., 2002), but validate the robustness by using other democracy measures, such as the Freedom House index and the binary democracy measure by Alvarez et al. (1996). The Polity IV variable is rescaled such that it varies between 0 (most autocratic) and 20 (most democratic) to facilitate the interpretation of the interaction term. To assess the effect of the de jure exchange-rate regime, we use different indicators by Ghosh et al. (2002). The main analysis relies on the coarse measure of de jure exchange-rate regimes, which distinguishes between pre-announced fixed, intermediate, and floating regimes. The indicator is rescaled such that it takes the value 0 of an intermediate regime, and greater values represent more fixed de jure regimes. For robustness checks, we also use the 15-scale indicator by Ghosh et al. (2002). The expected conditional effect of the de jure exchange-rate regime on the relationship between political regime type and government response to crises is modeled with an interaction term between the political regime type and the exchange-rate regime indicators.

The models include control variables identified as important by the theoretical and empirical literature on currency crises. On the economic side, these include the level of foreign reserves relative to the money base, real GDP growth, the inflation rate, and GDP per capita, all lagged by one month.[11] Unless noted otherwise, data are from the IMF's *IFS*. For sensitivity analyses and to account for the potential impact of various political variables discussed in the literature, we also analyze the effects of government partisanship and electoral timing.[12] Table A2 in the Appendix presents the descriptive statistics.

The estimation equation is specified as a log-linear model of duration times,

$$\log(y_i) = \alpha_0 + \alpha_1 D_i + \alpha_2 R_i + \alpha_3 D_i R_i + \mathbf{a}'\mathbf{X}_i + \varepsilon_i,$$

where y_i measures the number of months between an attack and the collapse of the fixed exchange rate for crisis i; D_i is the democracy level of the country at the time of the crisis; R_i is the de jure exchange-rate regime before the crisis; $\mathbf{X}_i$ is a vector including the control variables mentioned in the previous paragraph; and ε_i is a random error. The errors are assumed to be normally distributed for the log-normal duration model.

Since we expect that democracies operating in an intermediate de jure exchange-rate regime should be more likely to defend their exchange rate, the coefficient on the democracy variable should be positively signed. The coefficient on the de jure exchange-rate regime should also be positively signed, indicating that autocracies with a more fixed de jure regime are more likely to defend.[13] Moreover, as democracies are expected to be less likely to defend their exchange rate in more rigid de jure exchange-rate regimes, the coefficient on the interaction term between democracy and the de jure exchange-rate regime should be negative.

[11]Foreign Reserves are total reserves held by the central bank in U.S. dollars minus gold (IFS line 1l.d) divided by the monetary aggregate M1 (IFS line 34). Real GDP growth is the average annual growth rate in real GDP for the previous year (calculated using data from the IFS and the World Development Indicators). Inflation rates are computed as the average annual percentage change in the consumer price index (IFS line 64) for the three pre-attack months.

[12]Partisanship is measured with a dummy variable for left governments. We also include dummies for pre-election periods (taking the value 1 for the three months before an election) and post-election periods (for three months after an election). Data are from the Database of Political Institutions (Beck et al., 2001).

[13]As discussed above, the de jure exchange-rate regime variable takes the value 0 for intermediate regimes. For the Polity IV indicator, the value 0 represents fully autocratic regimes.

TABLE 3 ESTIMATION RESULTS FOR SELECTED (LOG-NORMAL) DURATION MODELS

	Model 1 Baseline model	Model 2 Full model	Model 3 Developing countries	Model 4 Election effects	Model 5 Partisan effects
Democracy		0.057***	0.062***	0.061***	0.053***
		(0.017)	(0.017)	(0.018)	(0.018)
De jure XR regime		0.885**	0.668	0.936**	0.907**
		(0.443)	(0.439)	(0.451)	(0.458)
Demo × XR regime		−0.053*	−0.033	−0.055*	−0.055*
		(0.030)	(0.029)	(0.031)	(0.030)
Reserves/M1 ($t-1$)	0.077**	0.094**	0.070**	0.088**	0.116***
	(0.037)	(0.038)	(0.031)	(0.038)	(0.044)
Growth ($t-1$)	0.102	0.220	−0.018	0.567	0.387
	(1.111)	(1.053)	(0.988)	(1.061)	(1.037)
Inflation ($t-1$)	−0.002	−0.002	−0.003	−0.000	−0.002
	(0.002)	(0.003)	(0.002)	(0.002)	(0.002)
GDP/capita	0.068***	0.053***	0.063***	0.057***	0.053***
	(0.018)	(0.016)	(0.018)	(0.016)	(0.016)
Pre-election				−0.349	
				(0.335)	
Post-election				−0.531**	
				(0.228)	
Left government					0.381
					(0.269)
Constant	0.906***	0.096	0.045	0.062	0.034
	(0.218)	(0.288)	(0.291)	(0.291)	(0.304)
σ	1.41	1.38	1.21	1.37	1.37
N	189	189	116	189	189
χ^2	28.53	46.02	70.12	53.10	44.14
Prob. $> \chi^2$	0.000	0.000	0.000	0.000	0.000
Log likelihood	−243.20	−239.75	−151.94	−238.15	−238.63

Notes:
*$p < 0.10$.
**$p < 0.05$.
***$p < 0.01$.
Errors cluster on countries.

4. RESULTS

Table 3 presents the results for the parametric duration models with a log-normal distribution. The shape of the hazard rate indicates that the risk of an exchange-rate collapse at a particular point in time, given that the rate has survived until then, first increases and then decreases, which is consistent with the view that most governments initially try to defend their exchange rate, even though many of them eventually give up and devalue.[14] The risk of a collapse thus increases during the first month of an attack, but then decreases continuously once an exchange rate has survived this critical first month. In other words, once a government has managed to stabilize the exchange rate during the first month after the attack, it has good chances that its efforts at maintaining exchange-rate stability will succeed in the medium run.

[14]When the shape parameter, σ, for the log-normal model is relatively small as for the models in Table 3, the hazard rate reaches its peak quickly and then declines monotonically (Box-Steffensmeier and Jones, 2004, pp. 31–37).

Model 1 shows the results of the economic baseline model. Positive coefficients imply that higher values of the respective explanatory variable increase the duration of the defense of the exchange-rate peg (or decrease the probability that the peg collapses and the exchange rate is devalued). The economic variables are lagged by one period because we assume that the decisions of governments and speculators are based on information from the previous month. The results imply that the duration of a defense is higher when policy-makers dispose of a high level of reserves relative to the money base. The reserve level reflects the government's technical ability to defend the exchange rate. Hence, the reported result suggests that crises in our sample generally tend to follow the dynamics described by the first-generation currency crisis models (Flood and Garber, 1984; Krugman, 1979). In these models, bad macroeconomic conditions as reflected by budget deficits and high inflation lead to a constant outflow of capital and a decrease in the stock of reserves. Once the reserve level falls below a specific threshold, a speculative attack depletes the remaining stock of reserves and the government is forced off the peg. Economic growth and inflation do not show a statistically significant impact on the expected duration of the fixed exchange rate after an attack. Both variables measure the government's willingness to sustain restrictive economic policies that are consistent with a fixed exchange rate in the long run. The variables are thus related to second-generation models that attribute the emergence of crises to a lack of credibility that the government will defend the fixed exchange rate when this requires economically painful adjustment measures (Obstfeld, 1996). A reason why we do not find a systematic effect of these variables on crisis outcomes may be that most crises in our dataset, especially in the developing world, are crises that are related to bad fundamentals rather than crises related to a lack of credibility. The estimated effect of GDP per capita confirms the idea that richer countries can incur greater economic burdens and thus are better able to defend the fixed exchange rate.

The second specification (Model 2) in Table 3 tests our theoretical argument about the conditional effect of democracy and the de jure exchange-rate regime on currency crisis outcomes. The coefficients on the constitutive terms, i.e. the de jure exchange-rate regime and the political regime-type variables, as well as on the interaction term between these two variables correspond to our theoretical expectations as discussed in the previous section: the coefficients on the democracy and de jure exchange-rate variables are positive, while the coefficient on the interaction term is negative. The positive coefficient on the democracy variable indicates that governments with an intermediately fixed exchange rate (when the exchange-rate regime is 0) are more likely to defend as the country becomes more democratic. This result reflects the predicted variation as we move from case 3 to case 4 in Table 1. The positive coefficient on the exchange-rate regime variable suggests that the probability of a defense for an autocratic country (when Democracy is 0) increases as the exchange rate becomes more fixed. This finding represents the predicted variation as we move from case 3 to case 1 in Table 1. The coefficient on the interaction indicates that the positive effect of greater democracy on the duration of a defense decreases as the exchange-rate regime becomes more fixed, which corresponds to case 2 in Table 1.

To facilitate the interpretation and to gain a sense of the magnitude of these effects, we examine the estimated expected duration of an exchange-rate defense for an intermediate and a fixed de jure exchange-rate regime for countries with different political regime types. The expected duration of an exchange-rate regime is measured in number of months after the outbreak of a currency crisis. If the expected duration is one month, this

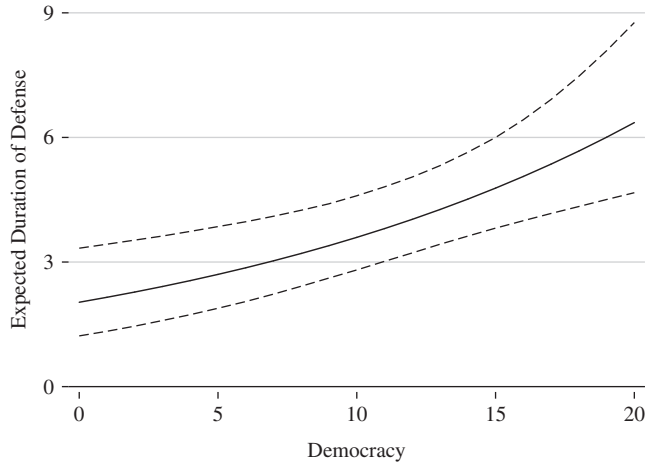

Figure 1. Expected duration of defense for intermediate exchange-rate regimes as democracy changes (solid line) and 95% confidence interval (dashed lines).

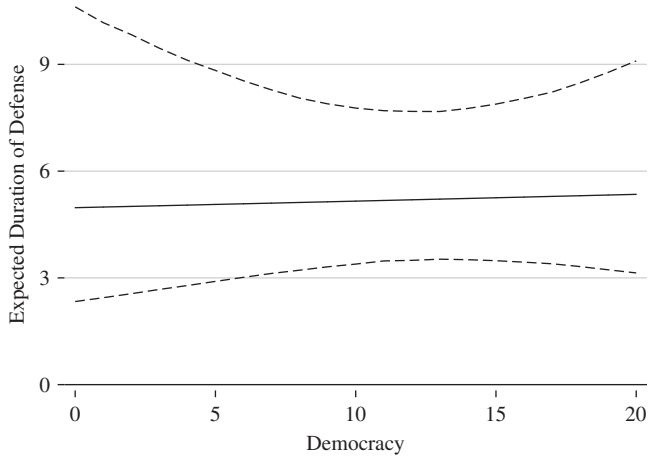

Figure 2. Expected duration of defense for fixed exchange-rate regime as democracy changes (solid line) and 95% confidence interval (dashed lines).

means that the exchange rate is likely to collapse in the month of the speculative attack. An expected duration of seven months means that the government is expected to successfully defend beyond our six-month window of analysis. Figure 1 plots the expected duration for intermediate exchange-rate regimes as the democracy level increases. Figure 2 is for fixed exchange-rate regimes.

As predicted in Table 1, there is a large effect of democratic institutions for intermediate exchange-rate regimes: democratic policy-makers defend intermediate exchange rates almost three times as long as autocratic policy-makers (Figure 1). This indicates that autocratic policy-makers who do not fully tie their hands by choosing a fixed exchange rate, but who opt for the ''cheaper'' intermediate version, truthfully reveal that they are only weakly committed to exchange-rate stability. The expected length of defense for highly autocratic countries is only slightly more than two months, while democratic

countries tend to successfully defend their intermediate de jure regime over the complete six-month window.

In contrast, when speculators attack a currency that officially follows a fixed exchange-rate regime, the difference between the two regime types disappears (Figure 2). Both democratic and autocratic governments are expected to defend the fixed exchange rate about five months after the attack. Compared with the responses in intermediate exchange-rate regimes, this duration is significantly longer for autocratic policy-makers, but only slightly shorter for democratic governments, which is in line with our theoretical predictions.

The marginal effect of a change from an intermediate to a fixed regime, i.e. for the difference between the expected durations in Figures 1 and 2, is statistically significant for autocratic governments at conventional significance levels. The 95% confidence interval for the marginal effect does not include zero for autocratic countries, specifically for values of our democracy variable below 10. The 95% confidence interval of the marginal effect includes 0 for values of the democracy variable greater than 10, which is consistent with the predictions in Table 1. Similarly, if we compute the reverse marginal effect, i.e. the effect of a more democratic government on exchange-rate defenses for different de jure exchange-rate regimes, we find that this effect is statistically significant for less rigid exchange-rate regimes, but not for more fixed regimes. This is again consistent with the prediction in Table 1.

4.1 Selection Effects

Speculative attacks do not occur at random. Rather, speculative pressure increases when financial markets believe that the probability of devaluation is high, raising the possibility that our statistical results are biased if this non-random selection is not taken into consideration. For robustness checks, we therefore re-examine the findings using a selection model that estimates (a) the probability that a speculative attack occurs (selection) and (b) the probability that the government successfully defends, given that an attack has been launched (outcome). Using the estimator suggested by Boehmke (2005) and Boehmke et al. (2006), the selection process is modeled using a latent variable specification:

$$\log(z_i^*) = \mathbf{b}'\mathbf{W}_i + v_i,$$

$$z_i = \begin{cases} 1 & \text{if } z_i^* > 0, \\ 0 & \text{if } z_i^* \leq 0, \end{cases}$$

where z_i denotes whether a crisis occurs ($z_i = 1$) or not ($z_i = 0$); $\mathbf{W}_i$ is a vector of empirically observable measures of economic conditions and government characteristics; and v_i is a random error. The outcome equation is the same as for the previous section.

The selection equation includes variables that indicate whether economic fundamentals are bad or whether the government's ability to defend the fixed exchange rate is low, as identified by previous research (Block, 2003; Kaminsky and Reinhart, 1999; Kaminsky et al., 1998; Leblang, 2002, 2003; Leblang and Bernhard, 2000; Leblang and Satyanath, 2006). These factors are expected to influence market expectations about future exchange-rate stability and include the country's de jure exchange-rate regime, reserves/M1, real GDP growth, inflation, real exchange-rate overvaluation, and contagion.[15] We also

[15]As proposed by Goldfajn and Valdés (1998) and Leblang (2003), real exchange-rate overvaluation is measured as the difference between the real exchange-rate and the long-run real exchange-rate path, which was

include a binary de jure exchange-rate regime variable in the selection equation to account for the possibility that those countries with intermediate regimes are more likely to be attacked.[16] We show the results for the selection equation without country-fixed effects, but also use fixed-effects models. We also estimate models that account for the time until a crisis occurs using the procedure proposed by Carter and Signorino (2007). The results are the same using these alternative specifications. An indication for a selection bias is the correlation between the errors of the selection and the outcome equations. If a correlation exists, this correlation (ρ) should be negative, because potential unobserved factors increasing the probability of a crisis should decrease the duration of the fixed exchange rate once a crisis occurs.

The results for the duration-selection model (without fixed effects) are shown in Table 4. The estimated correlation between the errors, ρ, is negative, but it is very small and close to zero. The testing results show that we cannot reject the null hypothesis that ρ equals zero. This means that this first test does not indicate that the errors of the two equations are correlated and that the results are biased by selection. The estimated coefficients confirm this conclusion. The results are almost identical to those from the duration models without selection as a comparison of the results presented in Table 4 and Model 2 in Table 3 shows. We conclude from these tests that the main results are not biased because of sample selection and that the conclusions drawn from these results hold.

4.2 Other Robustness Analyses

When we restrict the sample to developing countries (Model 3), the results point to the same direction, but the coefficient on the de jure exchange-rate regime variable and the interaction term are not statistically significant. In this sample, the crisis in the Philippines in 1983 has a disproportionate influence that interferes with our results. If we exclude this observation, the results are again the same as for Model 2 with no other significantly deviating observations in the sample. The main results are also robust to controlling for other political considerations or economic factors that may influence government behavior. It is particularly noteworthy that the conditional effect of the political regime type remains unchanged when we control for electoral considerations (Model 4). Our results support the findings from political business cycle studies that the likelihood of a devaluation significantly increases right after elections (Blomberg et al., 2005; Frieden et al., 2001; Klein and Marion, 1997; Stein and Streb, 2004; Walter, 2009). However, this electoral effect does not change the general finding that the regime type in combination with the exchange-rate regime affects policy-makers' responses to speculative pressure. Similarly, Model 5 shows that partisan considerations do not change this result, even though political economy research suggests that left- and right-wing governments represent different constituencies and thus might react differently to speculative attacks (Leblang, 2003). The estimated influence of the political regime type is not sensitive to the inclusion of these partisan factors. The results are also robust to the inclusion of other

calculated using a Hodrick–Prescott filter ($\lambda = 14{,}400$). The real exchange rate is the nominal exchange rate (IFS line rf) adjusted for differences between foreign and domestic (consumer) price levels (IFS line 64). Contagion is a dummy variable, which takes the value of 1 if there is more than one crisis in the international financial system within the same month. The other variables are operationalized as described above.

[16]Reflecting the idea of the unstable middle, which suggests that intermediate regimes tend to be more unstable in general and thus face a greater risk of being attacked, this is a dummy variable that takes the value 1 for intermediate regimes and 0 otherwise.

TABLE 4 RESULTS FROM THE SELECTION MODEL

	Model 6 Duration with selection		
	Selection		Outcome
Democracy			0.057***
			(0.017)
De jure XR regime			0.889**
			(0.448)
Demo × XR regime			−0.053*
			(0.030)
GDP/capita			0.053***
			(0.017)
Reserves/M1 ($t-1$)	−0.052		0.097**
	(0.056)		(0.045)
Growth ($t-1$)	−0.038		0.265
	(0.094)		(1.075)
Inflation ($t-1$)	−0.001		−0.002
	(0.001)		(0.003)
Binary de jure regime	0.006		
	(0.069)		
XR overvaluation	−0.008*		
	(0.005)		
Contagion	0.827***		
	(0.074)		
Constant	−2.206***		0.207
	(0.061)		(0.784)
ρ		−0.04	
		(0.24)	
σ		1.38	
N		10,355	
χ^2		138.55	
Prob. $> \chi^2$		0.000	
Log likelihood		−1,114.51	

Notes:
*$p < 0.10$.
**$p < 0.05$.
***$p < 0.01$.
Errors cluster on countries.

economic control variables. Adding the current account deficit, domestic credit growth, the importance of exports and capital account openness does not change the conditional effects of the political regime type and de jure exchange-rate regimes.

Our results also hold when measures of political regime type different from the Polity IV indicator are used. Replacing the Polity variable with the Freedom House indicator measuring political freedom (Freedom House, 2005) yields qualitatively similar results. Accounting for the view that democracy is a dichotomous concept, we also use the binary democracy indicator developed by Alvarez et al. (1996). The results confirm that governments with intermediate de jure regimes more often defend their exchange rates as the country becomes more democratic. The impact of democracy on exchange-rate defenses is smaller for fixed exchange-rate regimes.

Finally, re-estimating the model with different econometric approaches does not change the results. A probit model with a dummy variable that only distinguishes

between successful defenses and devaluations yields qualitatively similar results. The results from a selection-probit model yield the same conclusions as the results from the duration-selection model in Table 4. The estimated conditional effect of the political regime type is the same as for the standard probit models. In other words, we do not find evidence for a selection effect and conclude that the results from our analyses, which do not model the selection process explicitly, are unbiased.[17]

In sum, our results provide strong support for the argument that the effect of the political regime type on currency crisis outcomes is conditional on the de jure exchange-rate regime type. Autocratic governments are most likely to defend when they have fixed their exchange rate, and least likely to defend when they follow an intermediate exchange-rate regime. This relationship is reversed for democratic policy-makers: these are more likely to defend when they follow an intermediate exchange-rate regime that allows them to absorb the pressure through a mix of internal and external adjustment, whereas the effect is not so strong when they follow a fixed exchange-rate regime.

5. CONCLUSION

How does democracy affect policy-makers' willingness to maintain exchange-rate stability? This paper has shown that the answer to this question is not straightforward, but depends on the institutional setting. The relationship between the political regime type and currency crisis outcomes is conditional on the officially announced exchange-rate regime type. The analysis of the outcome of 189 speculative attacks supported our theoretical argument that autocrats, who follow fixed exchange rates, are likely to defend their currency more vigorously than democrats because they face potentially damaging reputation costs should they decide to devalue. In contrast, in more intermediate exchange-rate regimes, democrats tend to be more committed to defending their currency against speculative pressure than autocrats. These findings suggest that democratic governments devalue more often when they are bound by a highly inflexible exchange-rate regime, such as the Gold Standard during the interwar period, but are more likely to defend when an intermediate exchange-rate regime allows them to use a mix of internal and external adjustment strategies to counter the pressure. Autocrats, in contrast, defend more often when they follow fixed exchange rates, but devalue in more flexible regimes. To put it succinctly: A Robert Mugabe will not mind that a devaluation of Zimbabwe's currency takes away his only tool for credibly committing to monetary stability, when he is not particularly interested in monetary stability in the first place.

More generally, our results show that institutional configurations have important interactive effects. Studies that focus on the independent effect of institutions alone are likely to miss these interactions. Of course, the political and the exchange-rate regime type are not the only institutions that interact to shape policy-makers' incentives to provide exchange-rate stability, be it in tranquil times or in the face of speculative pressure. For example, the effect of the electoral clock is likely to be influenced by the electoral system, and the effect of veto players on monetary stability is likely to depend on central bank independence. Future research that takes these interactive effects into account is likely to substantially broaden our understanding of how institutions shape exchange-rate policy and economic policy more generally.

[17]The detailed results of all robustness tests are available from the authors.

APPENDIX

Table A1 List of Currency Crises

Argentina 1981m2	Denmark 1982m3	Indonesia 1997m8	Nicaragua 1993m8
Australia 1976m12	Denmark 1993m8	Ireland 1983m3	Norway 1978m2
Australia 1982m8	Ecuador 1994m1	Ireland 1986m8	Norway 1992m9
Austria 1977m1	Ecuador 1995m11	Ireland 1992m9	Pakistan 1993m5
Austria 1977m9	Ecuador 1995m2	Israel 1991m10	Pakistan 1995m11
Austria 1978m10	El Salvador 1990m5	Israel 1998m10	Pakistan 1996m10
Austria 1990m12	El Salvador 1992m11	Italy 1983m3	Pakistan 1998m10
Azerbaijan 1999m7	El Salvador 2000m12	Italy 1992m7	Pakistan 1999m7
Belgium 1981m10	Estonia 1996m11	Italy 1995m3	Pakistan 2000m9
Belgium 1981m3	Estonia 1997m11	Kazakhstan 1999m4	Paraguay 1992m10
Belgium 1984m3	Finland 1982m10	Kuwait 1981m2	Paraguay 1998m1
Belgium 1993m8	Finland 1983m9	Kuwait 1986m12	Peru 1998m6
Bolivia 1988m1	Finland 1986m8	Kuwait 1988m7	Peru 1999m2
Bolivia 1989m8	Finland 1991m9	Kuwait 1993m1	Philippines 1983m7
Bolivia 1991m1	Finland 1992m4	Laos 1995m9	Philippines 1986m2
Bolivia 1993m11	Finland 1993m9	Latvia 1994m5	Philippines 1990m11
Brazil 1998m9	Franc 1993m7	Macedonia 1997m7	Philippines 1995m3
Bulgaria 1997m2	France 1976m2	Malaysia 1975m8	Philippines 1997m7
Canada 1979m1	France 1977m7	Malaysia 1980m5	Portugal 1983m7
Canada 1979m10	France 1978m2	Malaysia 1981m2	Portugal 1992m9
Canada 1980m4	France 1981m5	Malaysia 1984m10	Saudi Arabia 1994m1
Canada 1981m7	France 1982m4	Malaysia 1986m4	Singapore 1975m7
Canada 1982m3	France 1983m3	Malaysia 1997m7	Singapore 1976m12
Canada 1992m9	France 1987m1	Mexico 1981m9	Singapore 1982m3
Canada 1998m8	France 1992m9	Mexico 1990m3	Singapore 1997m8
Chile 1978m5	France 1995m3	Mexico 1994m12	Singapore 1998m5
Chile 1979m7	Greece 1975m10	Mexico 1994m4	Slovak Rep. 1998m10
Chile 1982m6	Greece 1978m6	Nepal 1975m10	Slovenia 1995m10
Chile 1989m6	Greece 1979m9	Nepal 1975m4	South Korea 1980m1
China 1993m7	Greece 1985m10	Nepal 1980m5	South Korea 1982m6
Colombia 1985m1	Guatemala 1981m10	Nepal 1981m9	South Korea 1997m11
Colombia 1995m4	Guatemala 1999m9	Nepal 1984m12	Spain 1978m10
Colombia 1998m6	Honduras 1990m3	Nepal 1985m12	Spain 1982m10
Colombia 1999m7	Honduras 1992m10	Nepal 1991m6	Spain 1992m9
Costa Rica 1983m11	Honduras 1993m7	The Netherlands	Spain 1995m3
Costa Rica 1984m11	Honduras 1994m4	1976m6	Sri Lanka 1977m11
Costa Rica 1991m1	Honduras 1995m10	The Netherlands	Thailand 1981m7
Costa Rica 1992m7	Honduras 1996m7	1977m7	Thailand 1984m11
Croatia 1997m4	Hungary 1993m9	The Netherlands	Thailand 1997m2
Cyprus 1982m12	Hungary 1994m6	1978m10	Tunisia 1986m9
Cyprus 1987m1	Hungary 1995m2	The Netherlands	Tunisia 1991m4
Cyprus 1992m9	India 1991m5	1981m3	Turkey 2000m11
Cyprus 1995m3	India 1993m3	The Netherlands	Ukraine 1998m9
Czech Republic 1997m5	India 1995m10	1982m4	The United Kingdom
Denmark 1976m9	India 1997m12	The Netherlands	1992m9
Denmark 1977m7	Indonesia 1978m11	1983m3	Uruguay 1982m11
Denmark 1979m12	Indonesia 1983m4	New Zealand 1975m8	Uruguay 1990m12
Denmark 1979m6	Indonesia 1984m7	New Zealand 1984m8	Uruguay 1998m9
Denmark 1981m3	Indonesia 1986m9	New Zealand 1985m2	Venezuela 1998m

TABLE A2 SUMMARY STATISTICS

Variable	Obs.	Mean	Std. dev.	Min.	Max.
Duration	189	4.33	2.77	1	7
Democracy	189	15.25	6.30	0	20
De jure XR regime	189	0.15	0.694	−1	1
Reserves/M1	189	0.828	1.51	0.017	18.19
Growth	189	0.036	0.095	−0.536	0.874
Inflation	189	13.76	30.18	−10.12	343.57
GDP/capita	189	10.47	7.20	0.869	31.00
Pre-election	189	0.111	0.315	0	1
Post-election	189	0.095	0.295	0	1
Left government	189	0.301	0.460	0	1

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