# Risky Signals: The Political Costs of Exchange Rate Policy in Post-Communist Countries

#### Abstract

It can be risky for governments to renege on exchange rate commitments, but it is misleading to characterize the costs as audience costs. While an audience costs approach assumes that the punishment for reneging is automatic, we model the choice of exchange rate policy in the shadow of elections as a signaling game between voters and governments, where governments have private information and voters are rational. We find that voters draw different inferences when they see reneging by different actors, and only Left governments are punished for breaking their promises. We test this hypothesis in the context of the post-Communist countries from 1990-2007, and find that Left governments were more likely to fall if they reneged on exchange rate commitments, but Right governments were not.

## 1 Introduction

In the 1990s, many post-Communist countries publicly committed to fixed exchange rates, or to various forms of exchange rate targeting, such as bands and crawling pegs, in order to gain credibility with voters and investors. These commitments were particularly attractive to the Left, which suffered from a reputation for inflationary policies (Bodea 2010). There is some evidence that these commitments promoted capital inflows, and in some cases, foreign direct investment. Exchange rate commitments were frequently abandoned, however. This empirical pattern of frequent commitments and frequent reneging poses several questions. If commitments are frequently broken, do they nevertheless convey information about a government's policy intentions? If so, what makes them informative? Do voters punish governments for breaking their public commitments, and if they do, why do they? Is it appropriate to model this as automatic audience costs (Frankel 2005; Leblang 2005), or do we learn something important by analyzing voters' strategic incentives?

Audience costs are non-strategic, automatic penalties imposed on the leader by the public when a particular action is taken. They have no micro-foundations: the analyst does not attempt to model why it is rational for the public to impose them (Fearon 1994; Schultz 2001; Ramsay 2004 criticizes this approach). Rational publics may not automatically impose audience costs; they should draw inferences from what they observe and act appropriately.

We argue that, if voters are rational and exchange rate commitments are tools for governments to signal their preferences for sound macroeconomic policies, the political costs of breaking such commitments should be conditional on government partisanship. It is generally believed that Left governments suffer from greater credibility problems in macroeconomic policy making than Right governments. If this is the case, voters should interpret reneging on commitments differently depending on whether it is done by Left or Right governments. Voters have different priors about Left and Right governments, so they draw different inferences from the policies that they observe. As the Left is more prone to inflationary policies, voters, uncertain about both economic fundamentals and the government's policy preferences, should attribute reneging by a Left government to its traditional policy preference rather than to exogenous shocks. On the other hand, when a Right government breaks an exchange rate commitment, voters are likely to conclude that the policy change was due to something they did not know about the policy environment, rather than infer that the government is soft on inflation. As a result, a government of the Left should suffer disproportionate political costs when it reneges. If, conversely, the costs of breaking exchange rate commitments are automatic audience costs, policy makers should be punished regardless of partisanship.

We develop a model of exchange rate policy, examining the problem of incomplete information about government preferences over economic outcomes and the signaling effects of exchange rate choices. Our key assumptions are that the government has better information about the state of the economy than the voters, so a principal-agent problem exists, and that the preferences of Left and Right governments are drawn from different known distributions. The game begins with an exchange rate commitment in place, which the government may uphold or violate after it observes an economic shock. Policy is set in two periods with an election in between. Voters have single-peaked preferences over the optimal level of inflation (which implies they make different trade-offs between inflation and unemployment) and voting is rational and probabilistic. Our results rationalize the observation that governments that are known to be left-leaning often adopt orthodox economic policies. According to our results, Left governments are less likely to break exchange rate commitments, but are punished disproportionately when they do so. When a Left government breaks an exchange rate commitment, voters update their beliefs to place the government further to the left. Since Left governments are already expected to be to the left of the median voter, this increases their probability of losing office. Conversely, Right governments are perceived by voters as more concerned with inflation than with unemployment, so devaluations move beliefs about Right governments closer to the median voter, which decreases the probability that they lose office. We test the empirical implications of the model in the context of the post-Communist countries in the 1990-2007 period. Our results support the signaling hypothesis.

## 2 Partisanship and Exchange Rate Policy

Exchange rate commitments were frequently adopted and frequently broken in post-Communist countries in the 1990s. Commitments were broken by devaluing the announced parity, by moving from a peg to a crawl, or by widening the fluctuation band of the currency. A similar empirical pattern is observed in other developing countries (Klein and Marion 1994). Within the group of countries that had pegged their exchange rates against any currency for at least five years as of June 1995, "...aside from some small tourism economies, oil sheikhdoms, and highly dependent principalities, there is literally only a handful of countries that have continuously maintained tightly fixed exchange rates..." (Obstfeld and Rogoff 1995). Reneging on commitments to maintain fixed exchange rates is common, despite growing evidence of its high political costs (Cooper 1971; Frankel 2005; Leblang 2005).

Several studies have found that breaking *de jure* exchange rate commitments is politically risky. According to Bernhard and Leblang (2002), British incumbents suffered large losses in public opinion after unanticipated devaluations. Cooper (1971) finds that governments that devalued were twice as likely to fall within 12 months as those in a contemporaneous control group. In a sample including 103 countries in the 1971-2003 period, Frankel (2005) finds that in developing countries, devaluations that broke public promises increased the

likelihood that an executive loses office within one year by 45 percent. The effect was even stronger within six months of the devaluation episode: a currency crash doubled the likelihood that an executive loses office (Frankel 2005). Leblang (2005) studies the effect of breaking a *de jure* exchange rate commitment on the duration of leaders across 124 countries in the period 1973-1999 and finds that abandonment of an exchange rate peg decreases the probability of re-election by 60 percent.

These observations raise several related questions. Why do governments adopt exchange rate commitments, if it is not optimal to keep such promises and breaking promises is politically costly? On the other hand, why do voters punish governments for breaking their promises, if breaking the exchange rate commitment could be the optimal economic policy *ex post*? A possible explanation is that voters punish governments for poor economic performance: devaluations and currency crashes are often accompanied by sharp recessions. However, in many cases devaluations increase production and exports of tradable goods, reduce imports and boost the trade balance, GDP, and employment. The alternative of defending an overvalued exchange rate in the face of declining competitiveness, increasing risks of a financial crisis, and rising risk premia for borrowers is much less attractive. Furthermore, contraction, recession, declining reserves and job losses have not had the severe political consequences that have followed breaking public exchange rate commitments (Frankel 2005). What is it about breaking public exchange rate commitments that is so politically costly? Our model provides rational micro-foundations for the strategies of governments and voters.

A key piece of the puzzle is the rational policymaker's credibility problem. Although a substantial literature has focused on optimal exchange rate regimes as a function of the structural features of the economy (Bosco 1987; Dreyer 1992; Savvides 1990; Wickham 1985), the introduction of exchange rate commitments is usually driven by the need to build monetary credibility (Giavazzi and Pagano 1998). Under such circumstances, it is

optimal for policy-makers to import credibility from an inflation-averse foreign central banker through the delegation of monetary policy. Fixed exchange rates are public and visible commitments that tie domestic monetary policy to that of a less inflation-prone country.<sup>1</sup> They severely restrict the options available to policy-makers for achieving domestic political and economic objectives. Under fixed rates, governments cannot use monetary policy for external adjustment through revaluation and devaluation of the exchange rate and thus insulate the real economy from supply and demand shocks. While this reduces policy-makers' room to maneuver, fixed rates can resolve the government's credibility problems arising from time-inconsistent preferences and asymmetric information.

Absent the exchange rate commitment, policy-makers have an incentive to introduce surprise inflation after wages have been locked in, thus benefiting from increased output and employment (Barro and Gordon 1983; Rogoff 1985). In a rational expectations framework, the public understands that the government's optimal *ex post* strategy might differ from its optimal *ex ante* strategy and discounts the government's inflation announcements accordingly (Kydland and Prescott 1977). As a result, inflation is higher than the government would have adopted absent the credibility problem, without the benefit of increased output. By reducing the incentives for policy-makers to engage in inflationary policies, fixed exchange rates solve the policy-maker's time consistency problem and allow them to avoid inefficient equilibria (Giavazzi and Pagano 1998; Milesi-Feretti 1995).

Fixed exchange rates could also be a solution to credibility problems arising from asymmetric information. While in the previous case, the government lacks credibility because the public understands its time-inconsistent objectives, in this case the public is unable to tell what the government's true motivations or preferences are: is the government more concerned with inflation or with fluctuations in unemployment? As policy-makers have superior information about economic fundamentals, the public cannot tell whether deviations from announced policies reveal information about the government's true preferences, or are simply driven by exogenous shocks. Fixed exchange rates could allow a 'true stabilizer' to reveal himself. Under adverse economic circumstances such as high unemployment, a fixed exchange rate regime might be a signal too costly for a government that is 'soft' on inflation to implement (See Backus and Driffil 1985; Flood and Isaard 1989; Lohmann 1990; Drazen and Masson 1994; Cukierman and Tommasi 1998).

A natural corollary to the credibility argument is that a government's credibility gains from fixing should depend on its partisanship. Theory and empirical evidence have highlighted the different priorities of the Left and the Right, namely, the Left's preference for low unemployment and the Right's concern for maintaining low inflation (Hibbs 1977*a*; Alvarez, Garrett, and Lange 1985; Garrett 1995; Garrett and Lange 1995; Iversen 1999; Oatley 1999; Franzese 2002). Recognizing these different priorities, Simmons (1994) argues that governments of the Left should give up fixed exchange rates more frequently as markets tend to mistrust them disproportionately. However, as Bodea (2010) notes, if Left governments enjoy disproportionate credibility gains from fixed rates, they may be more loath to abandon them in bad times than the Right. It is not obvious which way the relationship ought to run, which suggests a need to model this interaction formally.

There are several ways in which partial partia

rate if there is an electoral bias in favor of the Right under flexible exchange rates, because committing to fixed exchange rates would solve the Left's greater time-consistency problem and thus benefit its political rival. In a broader framework, Cukierman and Tommasi (1997*a*) show that if the uncertainty about the state of the world is greater than the uncertainty about changes in the government's policy preferences, an incumbent might improve her re-election prospects by proposing a policy that contradicts her traditional policy position. In the context of exchange rate policy, a fixed exchange rate commitment would benefit only a Left incumbent, as such a policy is inconsistent with its emphasis on keeping unemployment low. According to both of these arguments, an irrevocable commitment to a fixed exchange rate would move the expected policy of a Left government closer to the preferences of the median voter and improve its re-election chances.

While these formal arguments imply that the Left should choose fixed exchange rates, they do so by assuming that such commitments are irrevocable and solve the time consistency problem (Milesi-Feretti 1995). It remains to be seen why the Left's preference for expansionary policy does not render such commitments incredible. However, coming at the puzzle from the opposite direction, empirical work has uncovered evidence that Left governments are, in fact, less willing than their Right counterparts to abandon exchange rate commitments. The successors to the Communist parties in Eastern Europe realigned less frequently following a public commitment to fixed exchange rates, even when markets tested their resolve (Bodea 2010, see also Table 1). Similarly, using a different data set and a different sample of countries, Leblang (2005, p. 548) finds that during electoral periods, Right governments were more likely to devalue, while Left governments were more likely to defend the exchange rate parity when there was a speculative attack. This suggests that, if exchange rate commitments are rendered credible by the political costs of reneging, these costs must vary systematically according to government partisanship. Our model seeks to rationalize these findings by exploring the effects of partial particular set. on the political penalty for reneging. Studies that conceptualize the political costs of breaking exchange rate commitments as audience costs fail to account for these partisan patterns. If the political costs of breaking exchange rate commitments were automatic audience costs (Fearon 1994), the Left and the Right should be equally likely to be punished by voters, as previous studies have assumed (Frankel 2005; Leblang 2005). In a rational voting framework, on the other hand, if governments use exchange rates to build credibility as theory suggests, we should expect voters to use the publicly available information about Left and Right governments to treat them differently. If voters recognize the different macroeconomic priorities of the Left and the Right, they should interpret their defections from fixed exchange rate commitments differently. As the Left's priority is to maintain low unemployment, the public should expect Left governments to be more likely to be of the 'weak' (inflationary) type than Right governments. While both Left and Right governments might break commitments under adverse economic circumstances. when the incumbent is Left, voters should put a higher weight on the probability that reneging was due to inflationary preferences rather than to exogenous shocks. Hence, we argue that Left governments have stronger incentives to avoid breaking commitments because they are punished more than Right governments if they do renege under the same conditions. A preliminary empirical analysis is consistent with our claims: while left governments broke their commitments less frequently, they were disproportionately punished (see Table 1). The model that follows illustrates this logic, and subsequent statistical analysis tests it more rigorously.

## 3 The Model

Our model is a two-period game of incomplete information whose players are an incumbent government, a challenger, and voters. The government chooses an economic policy in the first period, an election is held, and the winner chooses a policy for the second period. Voters have a range of economic policy preferences, and voting is probabilistic. The government places value b on holding office and has policy preferences that depend on its type and a short-term shock. The government's type is  $\omega_J \sim N(\mu_J, \sigma_{\omega}^2)$ , where  $\mu_L > \mu_R$ , which implies that the Left (J = L) has lower aversion to inflation than the Right in expectation (Alesina and Roubini 1992).<sup>2</sup> The random shock,  $\epsilon_I \sim N(0, \sigma_{\epsilon}^2)$ , where I denotes the time period, represents exogenous economic events that affect the attractiveness of alternative economic policies. For convenience, we denote  $p_{\omega}$  and  $p_{\epsilon}$  as the precision of  $\omega_J$  and  $\epsilon_I$  respectively, or the inverse of the variance. We postulate that the equilibrium exchange rate policy is the following linear function of  $\omega_J$  and  $\epsilon_I$ :

$$\pi_{JI} = h_{JI} + k_{\omega JI}\omega_J + k_{\epsilon JI}\epsilon_I$$

where  $h_{JI}$ ,  $k_{\omega JI}$ , and  $k_{\epsilon JI}$  are coefficients to be determined.<sup>3</sup> The sequence of events is as follows:

- 1. Nature selects a government of type  $\omega_J$  and the shock  $\epsilon_1$ .
- 2. The government chooses a rate of devaluation  $\pi_{J1}$ .
- 3. The public updates its beliefs about the government's type and decides whether to re-elect the incumbent or elect the challenger. If the incumbent is Left, the challenger is Right and *vice versa*.
- 4. The elected government chooses  $\pi_{J2}$ . With this move the game ends.

The stage-game utility for the government is as follows:

$$-(\pi_{JI} - (\omega_J + \epsilon_I))^2 + b$$

An incumbent who is not re-elected receives a second stage-game utility of -l, which is strictly negative.

In the first period, the incumbent chooses  $\pi_{J1}$  to maximize:

$$-(\pi_{L1} - (\omega_L + \epsilon_1))^2 + b + \delta P_L(\pi_{L1})(-(\pi_{L2} - \omega_L)^2 + b) + \delta(1 - P_L(\pi_{L1}))(-l)$$
(1)

where  $\delta$  is the discount factor,  $\pi_{L1}$  is the devaluation rate in the first period, and  $P_{L1}$  is the probability of re-electing a Left incumbent given the policy she chooses in the first period.

The utility of a type *n* voter is given by  $-(\pi_{JI}^e - c_n)^2$ , where  $c_n$  is the ideal point of voter *n* and  $\pi_{JI}^e$  is the expected policy in the second period. A random sample of voters cast votes, so the ideal point of the median voter is drawn from a distribution:  $c_m \sim U(\underline{c}, \overline{c})$ .

### Solution Concept

The solution concept is perfect Bayesian equilibrium (PBE). PBE requires that (a) each player's choices be sequentially rational given her beliefs at the time of choice and the other player's strategy; (b) beliefs about the other player's type be consistent with prior beliefs, equilibrium strategies, and Bayes' Rule on the path of play.

### **Proposition 1**

The following strategies form a Perfect Bayesian Equilibrium:

1. The incumbent chooses policy in the first period:

$$\pi_{L1} = \omega_L + \epsilon_1 - \delta \frac{p_{\epsilon}}{4(\bar{c} - \underline{c})(p_{\omega} + p_{\epsilon})}(b+l)$$

$$\pi_{R1} = \omega_R + \epsilon_1 + \delta \frac{p_{\epsilon}}{4(\bar{c} - \underline{c})(p_{\omega} + p_{\epsilon})}(b+l)$$

2. Voters re-elect the incumbent with probability:

$$P_L(\pi_{L1}) = \frac{1}{2(\bar{c} - \underline{c})} \left[2\bar{c} - \frac{p_\omega}{p_\omega + p_\epsilon} (\mu_{\omega L} - \frac{\pi_{L1} - h_{L1}}{k_{L1}}) - \mu_R\right]$$

$$P_R(\pi_{R1}) = \frac{1}{2(\bar{c} - \underline{c})} \left[ \frac{p_\omega}{p_\omega + p_\epsilon} (\mu_{\omega R} + \frac{\pi_{L1} - h_{L1}}{k_{L1}}) + \mu_L - 2\underline{c} \right]$$

3. The elected government chooses policy in the second period:

$$\pi_{J2} = \omega_J + \epsilon_2$$

*Proof*: See Appendix 1.

### Discussion

Our analysis generates results about equilibrium economic policies, reelection probabilities, and voter expectations.

1. *Devaluation*: Equilibrium inflation (devaluation) is lower for a Left incumbent. For a given government type and exogenous shock, equilibrium devaluation will be lower

for a left-wing incumbent because  $k_{L1} = k_{R1} = 1$ , but  $h_{L1} < h_{R1}$ .

$$h_{L1} = -\delta \frac{p_{\epsilon}}{4(\bar{c} - \underline{c})(p_{\omega} + p_{\epsilon})}(b+l)$$
$$h_{R1} = \delta \frac{p_{\epsilon}}{4(\bar{c} - \underline{c})(p_{\omega} + p_{\epsilon})}(b+l)$$

This result is driven by strategic considerations. While the preferences of the Left are more inflationary than those of the Right, the desire for re-election restrains the Left.

- 2. *Reelection*: The probability of reelection is decreasing in the first-period policy for the Left government, and increasing in the first-period policy for the Right government. Voters have different priors about the inflationary preferences of the Left and the Right, so they draw different inferences from the policies they observe. Devaluing moves a Left government away from the median voter in expectation, but moves a Right government closer to the median voter in expectation. Consequently, voters are less likely to reelect a Left government after it devalues, and more likely to reelect a Right government after it devalues. This follows from Proposition 1, part 2.
- 3. Implications for credibility: For any observed policy  $\pi_{JI}$ , voters infer that the type of the government is further to the left if it is a Left government, and further to the Right if it is a Right government.

Voters use the fact that Left governments have electoral incentives to moderate their policies when they form their expectations, so for any given set of policies, voters place Left governments further to the left than they would place Right governments. Voters observe the first-period policy  $\pi_{J1}$ , and because they know the government's equilibrium strategy, this is equivalent to observing  $\omega_J + \epsilon_1$ , because  $\omega_J + \epsilon_1 = \pi_{J1} - k_{J1}$ . The voters' problem is to draw inferences about the unknown value of the government's type,  $\omega_L$ , from the observation of the sum of the government's type and the stochastic shock,  $(\omega_L + \epsilon_1)$ . This observation is a random draw from a normal distribution with an unknown mean  $\omega_L$  and precision  $p_{\epsilon}$ . The prior distribution over than unknown mean is  $N(\mu_L, p_{\omega})$ . Using Theorem 1 of Section 9.5 of De Groot (1970, p.167), the posterior distribution of  $\omega_J$ ,  $f(\omega_J, \pi_{JI})$  is  $N(\omega_J, p'_{\omega})$ , where  $\omega_L = \frac{p_{\omega}}{p_{\omega} + p_{\epsilon}} \mu_J + \frac{p_{\epsilon}}{p_{\omega} + p_{\epsilon}} (\pi_{JI} - k_{JI})$  and  $p' = p_{\omega} + p_{\epsilon}$ . Recalling that  $h_{L1} < h_{R1}$ , it is possible to show that  $\omega_L > \omega_R$  for all  $\pi_{L1}$ . This means that any observed rate of devaluation  $\pi_{JI}$  is interpreted by voters as associated with a stronger (posterior) type if the incumbent is Right than when the incumbent is Left.

Our model builds on Canavan and Tommasi (1997*b*) and Cukierman and Tommasi (1998), but our results differ from both. In contrast to Canavan and Tommasi (1997*b*) and the standard Barro-Gordon framework (1983), which focus on the ability of the government to introduce surprise inflation, in our model and in Cukierman and Tommasi (1998), voters have policy preferences over the rate of inflation (devaluation), and the probability of reelection depends on how close the chosen policy is to the ideal point of the median voter. Similarly to Canavan and Tommasi (1997*a*), we find that weak types tend to devalue (inflate) more in equilibrium, but our two-party probabilistic voting model provides us with the additional implications that equilibrium policy, reelection, and credibility are conditional on partisanship.

In contrast to Cukierman and Tommasi (1998), our model includes no learning about exogenous economic shocks, and this is not important in our model because the shocks do not persist. Consequently, policy choice affects the government's re-election chances only through its effect on voters' beliefs about the government's type. Another important distinction is that Cukierman and Tommasi (1998) assume away the problem of commitment. In their model, a policy proposal that is announced is implemented. We focus instead on the possibility that a commitment to a fixed exchange rate will be broken and how this will depend on partisanship. Consequently, in our model a government cannot commit to carrying out a policy that it does not prefer in the second period. These distinctions in the setup lead to important differences in the results. In our model, voters use the expected second-period policy to choose whether to reelect the incumbent, so the relevant question for voters is inferring the type of the incumbent government.<sup>4</sup> This creates incentives for moderate Left governments to signal their type by defending the exchange parity, even when exogenous shocks might dictate abandoning it. In contrast, Right governments abandon their exchange rate commitments whenever they become inconsistent with the state of the economy.

### 4 Empirical Tests

We test the empirical implications of the model using data for the 1990-2007 period that cover 26 countries in Eastern Europe and the former Soviet Union. This choice of sample solves two potential inference problems. First, our theoretical argument applies only when voters have substantially different priors about the policy preferences of Left and Right governments. The model makes strong predictions in this sample, however, because the Left's credibility problem was particularly acute during the post-Communist transition. The socialist parties in Eastern Europe suffered from serious reputation problems as successors to the Communist parties, so they faced incentives to adopt fixed exchange rates in order to convince investors that they would adhere to sound economic policies (Bodea 2010). The information environment during the transition was scarce, and a fixed exchange rate served as a visible and public commitment to buy credibility and gain access to international capital markets. In addition to anecdotal evidence, the lower credibility of the left-wing politicians is apparent from the higher cost of government debt for left-wing governments. Bodea (2010) compares the real yield on three month T-bills and finds that in Eastern Europe and the former Soviet Union, left-wing governments pay an interest rate premium compared to right-wing governments: even after controlling for inflation, the right had a mean rate of 1.68 %, while the left had a mean rate of 8.4 % (median rates are 1.8 % the right and, respectively 8.8 % for the left). Second, restricting the sample allows us to minimize measurement error on the key independent variable, partisanship. Our main analysis covers the 1990-2001 period, because Stone (2002) provides detailed coding of partisanship during that period. As a robustness check, we have extended the analysis to 2007 using partisanship coding from the Database of Political Institutions, which distinguish only left, right, and center parties. Studies of partisan politics have established that voters are able to rank parties on a left-right scale that has cross-national validity, but these rankings become imprecise when they are extended across regions and time periods. It is doubtful that socialism had the same meaning in Latin America in the 1980s and Eastern Europe in the 1990s, for example, and there is empirical evidence that Left parties behaved differently in these different contexts (Pop-Eleches 2009).<sup>5</sup>

Our empirical analysis tests two competing explanations for the high political costs of breaking exchange rate commitments: the audience costs explanation advanced by Leblang (2005), and the signaling argument developed here.

**Audience Costs Hypothesis**: Breaking an Exchange Rate Commitment should reduce the expected tenure of Left and Right governments equally.

**Signaling Hypothesis**: Only Left governments should be punished for breaking their exchange rate commitments.

### The Dependent Variable: Government Duration

Government duration is the number of months the current government has been in office. A government is coded as falling when the prime minister or the main party of the ruling coalition changes; the departure of a junior partner from a coalition while the prime minister and the main coalition partner remain the same, is not. In the few cases where the Prime Minister died unexpectedly in office, the government is coded as continuing.

#### Main Explanatory Variables

**Breaking an Exchange Rate Commitment** As Kaminski *et.al.* (1998) show, there are various ways to operationalize the concept of abandoning an exchange rate commitment. Most studies focus on crises such as large changes in the exchange rate (15 % or 20 %) or speculative attacks (See Klein and Marion 1994; Edwards 1989; Edwards and Montiel 1989; Frankel and Rose 1996; Eichengreen et.al. 1996; Krugman 1979; Bernhard and Leblang 1999). Our interest is not in devaluations per se, however, but in whether governments keep whatever commitments they make, because we want to know whether voters use this information to draw inferences about future behavior. Consequently, we code breaking a commitment as a deviation from a pre-announced policy. Following Bodea (2010), we treat all realignments as potentially entailing reputation costs. Even small realignments can signal to markets how much governments value exchange rates as disinflation instruments, and frequent and incremental realignments can be equivalent to devaluation or an outright abandonment of the fixed exchange rate. All of the following events are considered breaking exchange rate commitments when they surprise the public: devaluation of the currency, even if the country remains on a pegged exchange rate regime; transition between currency regimes, such as from pegs to crawls or pegs to bands; devaluation of the parity within the crawling peg or crawling band regimes; changes in the width of the fluctuation band; and changes in the foreign currency or the basket of currencies to which the domestic currency is pegged. The dataset includes only de jure exchange rate commitments and changes in the parameters of the arrangement that were not announced and specified when the arrangement was initially adopted. This coding is appropriate for our purposes, as we are concerned with the reputation effects of exchange rate policy. If a government maintains a *de facto* fixed exchange rate regime but does not publicly announce it, there is no reason to expect it to suffer reputation costs from realignments. There are 21 episodes in the data for Left governments and 29 episodes for Right governments that fit our definition of breaking an exchange rate commitment (see Table 1).

[Table 1 about here.]

[Table 2 about here.]

#### Left-right Government Partisanship

We use an ideology score to capture government partial partial model model assumes that Left and Right governments have preferences about the trade-off between inflation and unemployment that are drawn from different distributions, so voters have different prior beliefs about Left and Right incumbents. The coding of government partisanship from Stone (2002) is based on press accounts, interviews for some countries, published sources, and the opinions of country experts. The score reflects the ideological position of the largest party in the government and ranges from -10 (extreme left on economic issues) to 10 (extreme right). The measure is well-suited to our analysis because it was coded on economic policy only, not on any of the other confounding issues that often divide left- from right-leaning governments. The measure is based on pre-electoral rhetoric rather than policy. For instance, Poland from 1993-97 is coded as as having a Left government because of the SLD's populist electoral platform, rather than a moderate government, despite the fact that the SLD did not reverse the key policies of the previous reformist coalitions. Similarly, there are significant differences in the scores of the Chernomyrdin, Kiriyenko, and Primakov governments in Russia, despite their similar economic policies. According to our argument, voters' priors about the government's type affect the way they perceive the government's actions, so the preferred measure captures pre-election expectations. These data range from 1990 to 2001. We also perform

robustness checks in which we extend the analysis to 2007, and for these models we use the cruder coding of partial partial particular (-1), center (0) or right-leaning (1) from the World Bank's Database of Political Institutions.

For parliamentary systems, the ideology of the prime minister's party is the partisanship of the government; for non-party coalitions and caretaker governments, the largest pro-government party determine's government partisanship. The coding scheme is more complicated for presidential systems. If the prime minister belongs to a parliamentary party, the partisanship score is based on that party's position. Otherwise, Stone (2002) uses "public statements by the president and prime minister at the time the government was appointed, votes of confidence in the government, public perceptions and expectations gleaned from the press, and cabinet reshufflings that increase or decrease the influence of ministers with known reformist or antireformist policy agendas (56)." We interact government partisanship with broken commitments, because our hypothesis is conditional: the effect of breaking commitments on government duration depends on partisanship.

### **Control Variables**

Drawing on the literature on government duration,<sup>6</sup> which explains government tenure as a function of coalition and regime characteristics, we control for two measures of political fragmentation: the number of parties in the governing coalition and the seat share of the largest party in the governing coalition. A number of empirical studies have found that politically fragmented governments have lower durability (Taylor and Hermann 1971, Sanders 1977, King 1990). Following the literature, we expect governments with a large number of coalition partners and governments lacking strong parliamentary support to be less stable. Government fragmentation could also make breaking commitments less costly: when voters cannot attribute responsibility to parties in the governing coalition, governments may face lower costs for breaking their commitments (Powell and Whitten 1993). The quality of democracy should affect the cost of breaking public commitments, because it determines the ability of voters to punish governments for breaking promises. Our measure for democracy is taken from the Polity IV index. To investigate the effect of economic development, we include GDP per capita and annual economic growth. Przeworski et. al. (1996) find that income is an important prerequisite for political stability. Chiozza and Goemans (2004) also find that leaders of countries experiencing economic growth have longer tenure. We control for the executive powers of the president, as presidentialism might contribute to government instability (Liphart 1992, Linz 1997, Sartori 1997). According to Linz (1994) and Liphart (1994), presidentialism undermines the stability of democratic regimes because of the winner-take-all nature of political competition. the rigidity of fixed terms for the executive, and frequent legislative deadlock between the executive and the legislature. On the other hand, the weaker political parties and divided governments typical of presidential systems disperse influence and reduce clarity of responsibility, thus undermining anti-incumbent voting (Powell and Whitten 1993, Powell 2000). While some studies have found empirical support for the greater fragility of presidential systems (Riggs 1993, Przeworski et. al. 1996, others have presented evidence that casts doubt on these findings (see, for example, Shugart and Carey 1992, Mainwaring and Shugart 1997, Powers and Gasiorowski 1997).<sup>7</sup>

Warwick (1994) finds that leaders become more likely to dissolve the government as elections approach, so we control for the number of months to the next parliamentary election. The shortened government duration could be due to worsening economic condition rather than to a loss of credibility: concurrent economic crisis could be the reason for voters' punishment, not devaluations. To control for this possibility, we include unemployment (percentage of unemployed in the labor force) as a proxy for economic crisis. Previous studies have found that unemployment and inflation contribute to shorter government duration (see for example, Robertson 1984).

#### **Estimation Method**

We model the timing of government collapse using a parametric Weibull duration model. The Weibull model allows the probability that a government falls in a particular month to increase or decrease as a function of time, but restricts the effect of time to be monotonic.<sup>8</sup> Diagnostic tests confirmed the results of earlier studies, which also found the Weibull model to predict the fall of governments better than alternative survival models. The Weibull model performs better (has a smaller Akaike Information Criterion) than the gamma, exponential, log-logistic, log-normal, and Gompertz. A similar result is reported in (Warwick 1994, Warwick and Easton 1992). Estimation of the models with gamma frailty rejects the hypothesis that there is residual heterogeneity in the data. Estimation of a Cox proportional hazards model produces results similar to those presented here.

### Results

The estimation results are presented in Tables 3-7. The results are presented in accelerated time (ATF) parameterization of the Weibull model, so a positive coefficient indicates that an increase in the independent variable increases the expected government duration. The analysis presented in Table 3 covers data from 1990-2001. The first three models use the coding of government partisanship taken from the Database of Political Institutions (DPI), and models 4-6 use the coding of partisanship from Stone (2002). Table 6 extends the analysis to the 1990-2007 period, using the DPI coding of partisanship. In all of the tables, we observe the convention of labeling effects with one, two or three asterisks to indicate statistical significance at the .1, .05 and .01 levels, respectively. We find the same qualitative results, and very similar substantive results, across all nine specifications. In every case, the coefficient of the *Breaking Commitments* variable is negative and significant. *Government Partisanship* is negative and insignificant in all models; however, the interaction between the two is positive and significant in all models. Due to the inclusion of interaction terms and the resulting conditionality of estimates, the significance, sign, and magnitude of the effects of our variables of interest are not immediately indicated by their coefficients (Friedrich 1982). To aid in interpretation, Tables 4, 5 and 7 present first differences in expected *Government Duration* (in months) for all values of *Government Partisanship*, while changing the value of the break of commitment variable from 0 to 1. All other explanatory variables are held at their means, or at 0 for the dummy variables.<sup>9</sup> We also depict the effect of breaking commitments on expected government duration in Figure 1, using estimates from Model 7.

[Table 3 about here.]
[Table 4 about here.]
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These results support the signaling explanation rather than the audience costs explanation of the relationship between exchange rate commitments and government collapse. If the political costs of breaking exchange rate commitments were automatic audience costs, we should observe similar decreases in government duration in the aftermath of realignments for Left and Right governments. To the contrary, we observe that Left and Right governments fare very differently in the aftermath of breaking exchange rate commitments. Our results consistently show that Right governments suffer no significant penalties for breaking commitments, while Left-wing governments are punished for breaking their commitments, which is consistent with a model in which rational voters draw different inferences from similar behavior when they have different priors.

In each of the models estimated, we find a significant, negative effect of violating exchange rate commitments—talk about exchange rates is not cheap—but this effect depends on

whether the government leans to the left. Right of center governments can say and do as they please; voters do not vote them out of office when they abandon their exchange rate promises. Our weakest findings are in the sample restricted to the 1990-2001 period using the DPI indicator for partial partia 4. In those results, the effects of breaking a commitment are statistically insignificant for Right governments, but significant for Left and Center governments. Furthermore, Left governments suffer penalties that are approximately twice as great as those predicted for Right governments and approximately one-third stronger than those suffered by Center governments. These results already indicate that Left and Right governments fare quite differently when they break their exchange rate commitments. The results strengthen if we remain in the same sample and shift to the Stone (2002) measure of partial partial partial sample and shift to the Stone (2002) measure of partial parti which, as we indicated above, makes finer distinctions about the partian orientations of particular governments. The results presented in Table 5 indicate that governments that are right-of-center are predicted to have longer periods in office when they break commitments, although again, these effects are not statistically significant. They are substantively significant, however, and they strongly reject the hypothesis, using a onetailed test, that Right governments are punished for violating their commitments. Center governments have insignificant predicted effects using this measure. Left governments, on the other hand, have significantly shorter terms in office if they break an exchange rate commitment, losing on average as much as ten months to a year of expected duration when they do so. Moving to the expanded sample for the 1990-2007 period and again using the DPI indicator for partial partia governments are again predicted to last longer in office when they break exchange rate commitments, although these effects are not statistically significant. Center governments are expected to have shorter terms if they break their commitments, although these results are likewise insignificant in two of the three models. Left governments, on the other hand, are predicted to be significantly more likely to fall when they deviate from their exchange rate commitments. For the 1990-2001 sample, the decrease in expected Government Duration ranges from 6 to 13 months for Left governments (Government Partisanship<0) using the Stone (2002) measure of partisanship, and from 4 to 10 months using the DPI partisanship measure. For the 1990-2007 sample, the decrease in expected government duration ranges from 9 to 31 months for Left governments. These results provide an explanation for earlier findings (Bodea 2010) that only left-leaning governments appear to be deterred from breaking their exchange rate commitments: only left-leaning governments are punished by rational voters for doing so.

To facilitate the interpretation of these results, Figure 2 depicts the impact of breaking commitments on government survival by government partial partial partial back and the figure makes evident, the probability of remaining in office after breaking a commitment is much lower for a Left government than for a Right government.

These results are robust to the inclusion of many variables that have been shown to affect government duration in the existing literature. The economic development indicator (GDP Per Capita), as expected, has a statistically significant effect that increases government duration in all specifications except Models 6 and 9. The political fragmentation indicators, the Number of Parties in the Governing Coalition and Parliamentary Support of the Largest Party in the Government have the expected signs (a greater number of parties decreases expected government duration while stronger parliamentary support increases it), but are not statistically significant (with the exception of Models 1 and 2, where Number of Parties in the Governing Coalition is significant). Interim governments have a negative sign, as expected, and the coefficient is significant. Presidentialism does not have a strong impact on government duration. It has a positive and statistically significant coefficient in Models 1-3, but the effect is substantively insignificant; the coefficient is insignificant in all other models. We include a dummy variable to capture differences in our sample between successor states of the former Soviet Union and the other post-Communist countries (Models 3, 6 and 9), which has a significant effect only in Model 6.

A potentially important threat to inference is that the economic crises that typically accompany devaluations could be responsible for the deterioration of the government's fortunes, rather than the signaling effect of the devaluation itself. Consequently, we control for the level of unemployment in Models 2, 3, 5, 6, 8 and 9. We find that unemployment (*Economic Crisis*) does not have statistically significant effects, once we control for the other variables in our model (with the exception of Model 2, where the effect is significant). However, our results are robust to the inclusion of unemployment as a proxy for economic crisis, which supports our interpretation that voters' punishments are motivated not only by worsening economic conditions *per se*, but also by the fact that governments have broken their promises. We have experimented with several other measures for economic crisis, with similar results.

### **Robustness Checks**

We subject our results to a number of robustness checks. It is a standard assumption of the political economy literature about partisanship that the Left prefers an inflationunemployment trade-off that puts more emphasis on avoiding unemployment than the Right would choose (Alesina and Sachs 1988, Hibbs 1977b, Havrilesky 1987). However, an alternative interpretation of our results could be that constituents of the Left are in fact more sensitive to inflation and devaluation than constituents of the Right, because poor segments of the population are unable to hedge against these risks. Consequently, an alternative explanation for the short duration of Left governments that have broken their exchange rate commitments is that their core constituents desert them, rather than that they lose the support of the median voter. We examine this alternative explanation by controlling for devaluation (Models 11 and 12 in Table 9 in the Appendix) and inflation (Models 13 and 14 in Table 9 in the Appendix). These models also include interaction terms between breaks of commitments and devaluation and inflation, respectively. We find that our results hold after controlling for the rate of devaluation and inflation, which implies that voters punish governments specifically for breaking their promises, rather than because of the economic effects of doing so or the economic conditions that make the policy change necessary.

In addition, we used a number of alternative specifications. As noted above, we used a variety of alternative duration models, which made no substantial difference to our results. Changing the time window over which breaking a commitment is expected to affect duration from six months to one year does not change the substantive results (See Tables 12 and 13 in the Appendix). In addition, in order to consider the possibility that our results could be driven by the fact that several authoritarian countries in our sample are ruled by former members of the CPSU, we reestimated our analyses for the subset of non-authoritarian countries. This had no substantial effects on our results. Due to the frequency of mixed parliamentary-presidential systems in the post-communist countries, in the 1990-2007 sample, some models employ an alternative continuous measure of presidentialism based on Siaroff (2003). Our results are robust to this change (see Model 15 in Table 9 in the Appendix).

## 5 Conclusion

Exchange rate commitments pose several linked puzzles. Why is it that governments and markets treat exchange rate commitments as important, when they are so often violated? Why is it that voters appear to punish governments that renege on these promises, in spite of the fact that maintaining exchange rate commitments when they are untenable is usually much more harmful?

We reject the conventional notion that voters punish politicians reflexively when they observe that a promise has been broken. Voters are sophisticated enough to draw inferences from government policies, and if they choose to vote against governments that break promises, there are probably rational calculations that lead them to believe that this strategy is their best response under the circumstances. In a model with rational voters, we find conditions under which it makes sense for voters to punish a government that breaks its promises—but only if their prior belief makes it rational to infer from the signal that the government is too far to the left. If the government is believed to lie to the right of the median voter, devaluation is more likely to indicate that devaluation is not optimal. We test the hypothesis that Left governments and only Left governments are punished when they renege on exchange rate commitments, and we find robust support for it.

This helps to explain prior findings that Left governments are particularly stubborn in their defense of exchange rate targets. Indeed, in our model, Left governments defend exchange rate targets under circumstances when Right governments that are more conservative would abandon them. The need to demonstrate their dedication to sound money, in fact, may drive moderate Left governments to react to economic shocks by embracing economic policies that are more anti-inflationary than it is optimal, and that are more conservative that a Right government would have chosen.

### 6 Appendix 1

#### Equilibrium Analysis

#### The Incumbent's Choice of Exchange Rate Policy in the Second Period.

A Perfect Bayesian Equilibrium is found by backward induction. Because the equilibrium choice of exchange rate policy is a linear function of  $\omega_J$  and  $\epsilon_I$ :

$$\pi_{L1} = h_{L1} + k_{\omega L1}\omega_L + k_{\epsilon L1}\epsilon_1 \tag{2}$$

observation of  $\pi_{L1}$  by voters does not enable them to disentangle the effect of  $\omega_L$  from  $\epsilon_1$ . This implies that  $k_{\omega L1} = k_{\epsilon L1} = k_{L1}$ . Therefore, (2) simplifies to:

$$\pi_{L1} = h_{L1} + k_{L1}(\omega_L + \epsilon_1)$$

By the time the public forms its second-period beliefs about the government's type, it is engaged in a one-shot game with the government. As the government's policy choice in the second period does not affect voter's beliefs about the government's type, the government has a dominant strategy, which is  $\pi_{L2} = \omega_L$ .

Aware of the government's dominant strategy in the second period, voters' set their policy expectations to the expected value (or posterior) of  $\omega_J$  conditional on all available information. That is,  $\pi_{L2}^e = E(\omega_L | \pi_{L1}) = \dot{\omega}_L$ .

#### The Voter's Decision to Re-elect

Voters' preferences are single-peaked and the outcome of the election is determined by the preferred policy of the median voter. The party whose expected exchange rate policy in the second period is closest to the median voter's ideal point,  $c_m$ , wins. The incumbent party's expected policy is equivalent to the posterior of the voter's belief about the government's type  $\dot{\omega}_L$ . Voters make an inference about the unknown value of  $\omega_L$  from an observation of  $\pi_{L1} = h_{L1} + k_{L1}(\omega_L + \epsilon_1)$ . Using Theorem 2 from De Groot (1970, p.169), the posterior distribution of  $\omega_L$  conditional on  $\pi_{L1}$  is:

$$\dot{\omega}_L = \frac{p_\omega}{p_\omega + p_\epsilon} \mu_{\omega_L} + \frac{p_\epsilon}{p_\omega + p_\epsilon} (\frac{\pi_{L1} - h_{L1}}{k_{L1}})$$

The utility of the median voter from re-electing the incumbent is  $-(\omega_L - c_m)^2$  and the utility from electing the challenger is:  $-(\omega_R - c_m)^2$ . The median voter will re-elect the incumbent only if the expected utility of this action is higher than the expected utility from electing the challenger. The decision rule of the median voter implies that there exists a critical value  $c_m^c$  such that if  $c_m \leq c_m^c$ , the Right-wing challenger wins the election, and if  $c_m > c_m^c$ , the Left incumbent is re-elected. Without loss of generality, if the incumbent is Left, the value of  $c_m^c$  is obtained from:

$$-(\acute{\omega}_L - c_m^c)^2 = -(\omega_R - c_m^c)^2$$

**Assumption 1:** We assume that  $\omega_L > \omega_R$ , *i.e.* while the public updates its beliefs about the incumbent's type, L is always perceived to be the left party (see Canavan and Tommasi 1997*a*). In terms of exchange rate policy, this means that the expected rate of devaluation by the Left is bigger than that of the Right.

# Conditions on the model's exogenous parameters for fulfilling **Assumption 1**:

Assumption 1 requires that

$$\dot{\omega}_L = \omega_L + \epsilon_1 - \delta \frac{p_\epsilon}{4(\bar{c} - \underline{c})(p_\omega + p_\epsilon)}(b+l) > \omega_R \qquad (A1)$$

We can rearrange (A1) as

$$\frac{\omega_R - \omega_L - \epsilon_1 + \mu_R - \mu_L}{2\sigma_\omega + \sigma_\epsilon} < \frac{-\delta \frac{1}{\delta_\epsilon} (b+l) + 4(\frac{1}{\sigma_\omega} + \frac{1}{\sigma_\epsilon})(\mu_R - \mu_L)}{(\bar{c} - \underline{c})(12 + 4\frac{\sigma_\epsilon}{\sigma_\omega} + 8\frac{\sigma_\omega}{\sigma_\epsilon})}$$

The left-hand side of (A1) is a standard normal. It follows that the condition is satisfied with a very high probability if  $\mu_R - \mu_L$  is sufficiently large or if b+l is sufficiently small. Using Assumption 1 and simplifying (11), we obtain:

$$c_m^c = \frac{\dot{\omega}_L + \omega_R}{2}$$

Because  $c_m$  is uniformly distributed, the probability that  $c_m$  is to the left of  $c_m^c$  is given by:

$$P_L(\pi_{L1}) = \frac{\bar{c} - c_m^c}{\bar{c} - \underline{c}}$$

The Left Incumbent's Choice of Exchange Rate Policy in the First Period. Substituting the expressions for  $\pi_{L2}^e$  and  $c_m^c$  into (1), we obtain the following first- and second-order conditions for the maximization problem of a Left incumbent:

$$-2\pi_{L1} + 2(\omega_L + \epsilon_1) - \delta \frac{p_\epsilon}{2k_{L1}(\bar{c} - \underline{c})(p_\omega + p_\epsilon)}(b+l) = 0$$
(3)

$$-2 < 0 \tag{4}$$

Rearranging the first-order condition, we obtain the following equilibrium rate of devaluation:

$$\pi_{L1} = \omega_L + \epsilon_1 - \delta \frac{p_\epsilon}{4k_{L1}(\bar{c} - \underline{c})(p_\omega + p_\epsilon)} (b+l)$$
(5)

Equation (5) implies that  $k_{L1} = 1$  and  $h_{L1} = -\delta \frac{p_{\epsilon}}{4(\bar{c}-\underline{c})(p_{\omega}+p_{\epsilon})}(b+l)$ .

A similar derivation shows that the equilibrium rate of devaluation for a Right incumbent is:

$$\pi_{R1} = \omega_R + \epsilon_1 + \delta \frac{p_\epsilon}{4k_{R1}(p_\omega + p_\epsilon)(\bar{c} - \underline{c})}(b+l)$$
(6)

This implies that  $k_{R1} = 1$  and  $h_{R1} = \delta \frac{p_{\epsilon}}{4(\bar{c}-\underline{c})(p_{\omega}+p_{\epsilon})}(b+l)$ 

### Notes

<sup>1</sup>An alternative to fixed exchange rates that generally has better welfare implications is delegating policymaking to an independent central bank with conservative policy preferences (Rogoff 1985). This assumes the ability to credibly delegate policy, however, which can be problematic. A practical advantage of fixed exchange rates is that violations of commitments are impossible to hide, so exchange rate commitments can provide informational shortcuts for voters, which enhances the credibility of the underlying policy commitments.

<sup>2</sup>The assumption of normality implies that some values of devaluation and the government's type are negative. We think of the normal distribution as an approximation to a distribution over the positive real line and truncated at zero, an approximation relatively accurate if  $\mu_{\omega_J}$  is a large positive number and the probability that  $\omega_j$  is negative is small (see Canavan and Tommasi 1997*a*).

<sup>3</sup>In other words, we assume that the result of the optimization problem of the government is a linear function of  $\omega_J$  and  $\epsilon_I$ .

<sup>4</sup>In Cukierman and Tommasi's model, a right policy will move beliefs about the Left closer to the median voter ("Hotelling effect"), but it could also signal to voters that right policies have become better from the point of view of social welfare (due to exogenous shocks) and make the Right challenger more attractive ("expectations effect"). Which effect will prevail depends on uncertainty: greater uncertainty about exogenous shocks will make the "Hotelling" effect stronger (Cukierman and Tommasi 1998). In contrast, in our model, Right policies benefit Left governments electorally and vice versa because the "expectations effect" is not present.

<sup>5</sup>Similarly, it is an open empirical question whether the salience of the left-right dimension increased or decreased during the time of our analysis. Party systems, voter attachments and the significance of party labels in the region have been unstable during the post-Communist period. While the struggle between the anti-reform Left and pro-reform Right dominated political contestation in the early transition, recent empirical studies have shown that the Left has weakened and that the salience of the left-right dimension has diminished in some Eastern European countries (Enyedi 2006, Markowski 2006a, 2006b). In Poland, for example, the post-Communist SLD's share of the popular vote dropped sharply in the 2005 parliamentary election.

<sup>6</sup>For a review, see Laver and Schofield 1999 and Warwick 1994.

<sup>7</sup> For the analysis of the 1990s, *Presidentialism* varies between 1 and 21, with higher scores indicating stronger powers of the executive. The measure for presidential powers is based on a modification of the Hellman-Tucker score, modified to reflect coding disagreements and updated from 1996-99 to reflect constitutional and extraconstitutional changes that took place after the original data were gathered.

The coding scheme generally follows the one created by Matthew Shugart and John Carey (1992) but was modified by Joel Hellman and Joshua Tucker. For the 1990-2007 analysis, we had to use a different measure as the Hellman-Tucker score is unavailable. We used a simple binary coding where "1" stands for presidential systems and "0" for parliamentary systems. This coding is based on the SYSTEM variable from the World Bank Database of Political Institutions. Because many post-communist countries employ mixed presidential-parliamentary systems, we also used an alternative measure for the 1990-2007 analysis, namely, Siaroff's (2009) coding on a scale of 1-9, with higher scores indicating stronger presidential powers. Our results are not affected by the use of the alternative measure (see Model 15 in Table 9 in the Appendix.

<sup>8</sup>In general, parametric assumptions like this are more useful than harmful if they are based on theory or substantive knowledge; in this case there is a substantial empirical literature on government duration.

<sup>9</sup>Expected government duration for substantively interesting values of the explanatory variables is computed with Clarify (King *et.al.*)

# 7 Appendix 2

[Figure 1 about here.]

[Figure 2 about here.]

[Table 8 about here.]
[Table 9 about here.]
[Table 10 about here.]
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Figure 1: Marginal Effect of Breaking Commitments on Government Duration (Weibull First Differences and 95 % confidence). *Dummy variables (except Breaking a Commitment) are set to 0; all other values are set to mean.* 



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	Left	Center	Right
Government Partisanship	155	68	69
Broken Commitments	21	0	29
Collapse After Broken Commitments	7	0	6

 Table 1: Exchange Rate Commitments, Partisanship, and Government Fall in postcommunist Europe, 1990-2007

	Left	Center	Right
Albania	12	0	21
Armenia	0	26	0
Azerbaijan	0	29	0
Belarus	30	0	0
Bulgaria	8	33	12
Czech Republic	17	10	29
Croatia	25	0	22
Estonia	0	10	13
Georgia	0	14	0
Hungary	28	0	25
${f Kazakhstan}$	19	18	16
Latvia	0	23	12
Lithuania	20	13	19
Macedonia	16	20	0
Moldova	28	9	0
Poland	14	0	8
Romania	20.9	15	9
Russia	0	21	10
Slovakia	16	46	0
Slovenia	22	20	10
Tajikistan	55	0	0
Turkmenistan	44	0	0
Ukraine	9	9	10
Uzbekistan	38	31	0

 Table 2: Average Government Tenure by Partisanship (DPI Partisanship Measure), 1990 

 2007

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
	DPI Partisanship Measure			Stone Measure		
Break of Exchange Rate Commitment	$-2.0219^{***}$ (0.6209)	-2.1293** (0.7311)	-2.1528** (0.7048)	-1.0887** (0.5227)	$-1.0655^{*}$ (0.5502)	$-1.0161^{**}$ (0.4754)
Government Partisanship	-0.1129 (0.0758)	-0.0946 (0.0856)	-0.1047 (0.0814)	-0.0103 (0.0093)	-0.0066 (0.0109)	$\begin{array}{c} 0.0051 \\ (0.0112) \end{array}$
Break of Commitment*Partisanship	$0.3637 \\ (0.2434)$	$0.4364 \\ (0.2662)$	$0.5516^{*}$ (0.2912)	$0.1086^{***}$ (0.0334)	$0.1125^{**}$ (0.0373)	$0.1283^{***}$ (0.0324)
Break of Commitment*Democracy	$0.2964^{**}$ (0.0955)	$0.3029^{**}$ (0.1109)	$0.3087^{**}$ (0.1088)	$0.1941^{**}$ (0.0681)	$0.2059^{**}$ (0.0749)	$0.2152^{**}$ (0.069)
Democracy	-0.044 (0.0296)	-0.0242 (0.0321)	-0.0243 (0.0293)	-0.0272 (0.017)	-0.029 (0.0228)	-0.0346 (0.0238)
Months to Elections	$-0.0181^{***}$ (0.0044)	-0.0158** (0.0051)	$-0.0186^{***}$ (0.0046)	$-0.0166^{***}$ (0.0043)	$-0.0153^{**}$ (0.0052)	$-0.0188^{***}$ (0.0047)
Number of Coalition Members	-0.0668* (0.0404)	-0.1073** (0.0398)	-0.0695 (0.0442)	-0.0667 (0.0484)	-0.0716 (0.0577)	-0.0673 (0.0532)
Parliamentary Support	$0.0001 \\ (0.0007)$	$0.0002 \\ (0.0007)$	$0.0008 \\ (0.001)$	$\begin{array}{c} 0.3865 \\ (0.3865) \end{array}$	.4605051 (0.5674)	$0.5124 \\ (0.5682)$
Presidentialism	$\begin{array}{c} 0.0447^{*} \ (0.0234) \end{array}$	$0.0613^{**}$ (0.0266)	$0.0551^{**}$ (0.0251)	$\begin{array}{c} 0.0078 \\ (0.0174) \end{array}$	$\begin{array}{c} 0.0012\\ (0.0189) \end{array}$	-0.006 (0.0179)
Interim Government	$-0.9359^{***}$ (0.1789)	$-0.8613^{***}$ (0.1937)	$-0.8432^{***}$ (0.1608)	-0.8403*** (0.1608)	$-0.8431^{***}$ (0.2042)	$-0.8038^{***}$ (0.1733)
War	$-0.6216^{**}$ (0.2254)	-0.7767** (0.3072)	$-0.8062^{**}$ (0.2573)	-0.3979 (0.2572)	-0.3691 (0.3301)	-0.7491** (-0.2314)
Log(GDP Per Capita)	$0.1834^{**}$ (0.0742)	$\begin{array}{c} 0.26441^{***} \\ (0.0819) \end{array}$	$0.2573^{*}$ (0.1069)	$0.1309^{*}$ (0.0701)	$0.1834^{*}$ (0.0908)	0.0994 (0.0899)
Economic Crisis		$0.0219^{*}$ (0.0123)	$\begin{array}{c} 0.0147 \\ (0.0118) \end{array}$		$\begin{array}{c} 0.0001 \\ (0.0106) \end{array}$	-0.0144 (0.0089)
Former Soviet Republic			-0.1308 (0.2232)			$-0.4837^{**}$ (0.1741)
Constant	$2.5756^{***}$ (0.543)	$1.5081^{*}$ (0.7594)	$1.9542^{*}$ (0.982)	$2.7534^{***} \\ (0.7029)$	$2.3104^{**}$ (0.9861)	2.3257** (1.0631)
Observations Shape Parameter 95 % Confidence Interval Wald Chi-square (Pseudo) Log Likelihood Year fixed effects	1927 1.7186 (1.4808-1.9947) 233.58*** -113.2699 No	1473 1.6947 ( 1.4349-2.0015) 141.63*** -90.7051 No	1473 1.8246 (1.5183- 2.1925) 178.68*** -82.9927 Yes	2335 1.6041 (1.3957-1.8435) 174.15*** -127.4476 No	$\begin{array}{c} 1648\\ 1.5773\\ (\ 1.3504\text{-}1.8423)\\ 130.06^{***}\\ -89.1645\\ \text{No} \end{array}$	$\begin{array}{c} 1648 \\ 1.7864 \\ (1.5144-2.1074) \\ 233.58^{***} \\ -75.8349 \\ Yes \end{array}$

### Table 3: Breaking Exchange Rate Commitments and Government Fall, 1990s

 Table 4: Effect of Breaking Exchange Rate Commitments on Government Duration (Number of Months), First Differences, 1990s

$Partisanship^{10}$	-1	0	1
Model 1	-9.5*** (-25.2, -2.2)	-7.2*** (-18.9, -1.7)	-4.7 ( -14.5, 0.4)
Model 2	-3.8*** (-12.4, -0.7)	-2.9*** (-9.6, -0.5)	$^{-1.8}_{(-7.1,0.2)}$
Model 3	-7.7** (-32.1, -0.7)	-5.7** (-24.9,-0.5)	$^{-3.1}_{(-15.2, 1.1)}$

Table 5: Effect of Breaking Exchange Rate Commitments on Government Duration (Num-<br/>ber of Months), First Differences, 1990s

Partisanship <sup>11</sup>	-10	-7	-3	0	3	7	10
Model 4	-13.3*** 12	-11.2***	-7.3**	-3.5	1.7	11.7	22.6
Model 5	(-42.2, -2.9) -9.9**	(-34.6, -2.5) -8.3**	(-23.9, -0.9) -5.1	(-13.5, 6.9) -1.8	(-8.1, 26.4) 2.7	(-4.6, 63.8) 11.8	(-2.1, 108.6) 22.1
Model 6	(-38.2, -0.9) -10.3***	(-51.8, -0.3) -8.9**	(-21.9, 0.2) -5.7**	(-12.7, 9.2) -1.8	(-7.8, 29.7) 4.2	(-2.7, 74.4) 17.6	(-6.1, 161.1) 34.5
	(-45.6, -0.6)	(-39.6, -0.6)	(-26.3, -0.2)	(-13.9, 7.7)	(-4.4, 34.6)	(-0.5, 103.4)	(0.3, 191.7)

Table 0: Dreaking Exchange Rale Communents and Government Fall, 1990-	Table 6:	Breaking	Exchange	Rate	<i>Commitments</i>	and	Government	Fall.	1990-20	07
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	Model 7	Model 8	Model 9
Break of Exchange Bate Commitment	-2.0128**	-2.0574**	-2 1985**
Broad of Exchange Trace commonst	(0.7448)	(0.7546)	(0.7543)
Government Partisanship	-0.0229	-0.0304	-0.0619
-	(0.0863)	(0.0951)	(0.0839)
Break of Commitment*Partisanship	0.4652	0.4173	0.5062
	(0.3209)	(0.3119)	(0.3156)
Break of Commitment*Democracy	0.3042**	0.3102**	0.3505**
	(0.1123)	(0.114)	(0.1159)
Democracy	-0.107***	-0.1204***	-0.1155***
	(0.016)	(0.0192)	(0.021)
Months to Elections	-0.0129**	-0.0139**	-0.0171***
	(0.0042)	(0.0049)	(0.0044)
Number of Coalition Members	-0.0431	-0.0288	.014099
	(0.042)	(0.0467)	(0.0407)
Parliamentary Support	-0.0001	0.0007	0.0012
	(0.0008)	(0.0008)	(0.0009)
Presidentialism	-0.1246	-0.2668	-0.2985
	(0.1738)	(0.176)	(0.16733)
Interim Government	-1.4728***	-1.4698***	-1.1908***
	(0.1904)	(0.2199)	(0.1982)
War	-1.0859***	-0.6476**	-0.5829**
	(0.2203)	(0.3278)	(0.2887)
Log(GDP Per Capita)	$0.1774^{**}$	0.1935**	0.1204
	(0.0708)	(0.0788)	(0.0956)
Economic Crisis		-0.0129	-0.0165
		(0.0098)	(0.0113)
Former Soviet Republic			-0.0328
			(0.2324)
Constant	3.3387***	$3.4869^{***}$	4.2757***
	(0.5679)	(0.6801)	(0.9069)
	41.05	2200	2222
Observations Shape Parameter	4167 1.3704	3382 1.4069	3382 1.5272
95 $\%$ Confidence Interval	( 1.2177- 1.5421)	(1.2257 - 1.6151)	( 1.3213- 1.7653)
Wald Chi-square (Pseudo) Log Likelihood	248.10	164.04***	232.88***
Year fixed effects	-208.0804 No	-210.2072 No	-198.4507 Yes

Table 7: Effect of Breaking Exchange Rate Commitments on Government Duration (Number of Months), First Differences, 1990-2007

Partisanship <sup>13</sup>	-1	0	1
Model 7	-9.4** (-26.9, 0.4)	-5.3** (-17.7, 1.9)	2.4 (-10, 23.7)
Model 8	-11* (-36.1, 0)	$^{-6.8}_{(-22.3, 1.7)}$	0.5 (-15.9, 22.9)
Model 9	-30.8* (-129.4, 2.7)	-14.3 (-72.9, 10.1)	13 (-27.7, 93.1)

Variable	Number of observations	Mean	Standard Deviation	Minimum	Maximu
	2224				4.0
Government Partisanship (Stone Measure)	3891	-0.35	2.18	-10	10
Government Partisanship (DPI measure)	4786	-0.23	0.77	-1	1
Number of Coalition Members	4470	2.39	1.5	1	8
Parliamentary Support	5605	80.83	88.11	0	530
Democracy (Polity II)	5268	4.15	6.22	-9	10
Log(GDP per capita)	5448	7.39	1.02	4.81	9.49
Presidentialism	5122	0.55	0.49	0	1
Months to Elections	4994	25.99	15.19	1	60
War	4995	0.04	0.19	0	1
Interim Government	5007	0.03	0.16	0	1
Economic Crisis (Unemployment)	3840	10.58	6.54	0.03	37.25
Former Soviet Republic	6183	0.53	0.49	0	1
Devaluation	2280	8.58	127.2	-89.67	5773.8
Inflation	2011	6.59	32.31	-15.14	1275

### Table 8: Summary Statistics, 1990-2007 sample

	Model 10 DPI Partisanship Measure	Model 11 Stone Measure	Model 12	Model 13	Model 14	Model 15 DPI Measure
Break of Exchange Rate Commitment	$-2.1991^{**}$ (0.8056)	-2.2094** ( 1.0148)	-2.2439** ( 1.0694)	$-1.0115^{**}$ (0.5083)	$-0.9738^{**}$ (0.4825)	-2.178 ** (0.7414)
Government Partisanship	-0.0954 ( $0.0899$ )	0.003 (0.0113)	$0.0032 \\ (0.0114)$	$0.0176 \\ (0.0121)$	$0.0128 \\ (0.0127)$	-0.0377 (0.0868)
Break of Commitment*Partisanship	$0.5729^{*}$ (0.3359)	$\begin{array}{c} 0.1218^{***} \\ (0.0283) \end{array}$	$\begin{array}{c} 0.1224^{***} \\ (0.0283) \end{array}$	$\begin{array}{c} 0.1128^{***} \\ (0.0332) \end{array}$	$\begin{array}{c} 0.1112^{***} \\ (0.0324) \end{array}$	$0.5079^{*}$ (0.3091)
Break of Commitment*Democracy	$0.3345^{**}$ (0.1218)	$\begin{array}{c} 0.3711^{**} \\ (0.1552) \end{array}$	$0.3763^{**}$ ( $0.165$ )	$0.2092^{**}$ (0.0725)	$0.2028^{***}$ (0.0686)	$0.3369^{**}$ (0.1091)
Democracy	$-0.1252^{***}$ (0.0207)	-0.0234 (0.0259)	-0.0235 (0.026)	-0.0229 (0.0257)	-0.0189 (0.0266)	$-0.1168^{***}$ (0.0243)
Months to Elections	$-0.0154^{***}$ (0.0047)	$-0.0187^{***}$ (0.0049)	$-0.0187^{***}$ (0.0049)	$-0.0185^{***}$ (0.0049)	$-0.0183^{***}$ (0.0049)	$-0.0158^{***}$ (0.0047)
Number of Coalition Members	-0.0514 (0.0429)	$-0.1132^{**}$ (0.0544)	$-0.1136^{**}$ (0.0543)	-0.0693 (0.053)	-0.0649 (0.0532)	$\begin{array}{c} 0.0086 \\ (0.0459) \end{array}$
Parliamentary Support	$0.0002 \\ (0.0008)$	$0.135 \\ (0.5711)$	$\begin{array}{c} 0.1325 \\ (0.5702) \end{array}$	$\begin{array}{c} 0.5294 \\ (0.5635) \end{array}$	0.6277 (0.6076)	$\begin{array}{c} 0.0006 \\ (0.0011) \end{array}$
Presidentialism	-0.2297 (0.1783)	$0.0005 \\ (0.0192)$	$\begin{array}{c} 0.0003 \\ (0.0192) \end{array}$	-0.0009 (0.0191)	$0.0028 \\ (0.02)$	-0.0416 (0.0491)
Interim Government	$-1.4405^{***}$ (0.1998)	-0.6535 (0.2035)	$-0.6521^{***}$ (0.2011)	$-0.6786^{***}$ (0.1928)	$-0.6282^{**}$ (0.2066)	$-1.1456^{***}$ (0.1974)
War	$-0.9548^{***}$ (0.2571)	-0.4429 (0.2708)	-0.4393 (0.2772)	-0.2075 (0.334)	-0.2134 (0.3378)	$-0.7912^{**}$ (0.3663)
Log(GDP Per Capita)	$0.1363^{*}$ (0.0751)	$\begin{array}{c} 0.0701 \\ (0.095) \end{array}$	$0.0695 \\ (0.0939)$	$0.1208 \\ (0.086)$	$0.1229 \\ (0.0862)$	$0.1625^{*}$ (0.0829)
Economic Crisis		-0.0055 (0.0099)	-0.0055 (0.0101)	-0.0129 (0.0097)	-0.0134 (0.0094)	-0.0074 (0.0103)
Inflation				0.0011 (0.0008)	-0.0017 (0.0037)	
Inflation*Partisanship						
Devaluation		0.0006 (0.0033)	0.0007 (0.0032)			
Devaluation*Partisanship			-0.0001			
Former Soviet Republic		$-0.4946^{**}$ (0.1718)	(0.0006) -0.4961** (0.1699)	$-0.5453^{**}$ (0.1761)	$-0.5176^{**}$ (0.1802)	
Constant	$3.8615^{***}$ (0.5944)	$2.9364^{**}$ (1.2081)	$2.9416^{**}$ (1.2)	2.0548** ( 1.0389)	$1.9442^{*}$ ( 1.0682)	$\begin{array}{c} 4.0182^{***} \\ (0.7549) \end{array}$
Observations Shape Parameter 95 % Confidence Interval Wald Chi-square (Pseudo) Log Likelihood Year fixed effects	$\begin{array}{c} 3567 \\ 1.3614 \\ (1.1989- 1.5457) \\ 230.10^{***} \\ -225.8253 \\ Yes \end{array}$	$1529 \\ 1.8041 \\ (1.5169 - 2.1456) \\ 211.76^{**} \\ -66.6202 \\ Yes$	$1529 \\ 1.8041 \\ (1.5169 - 2.1455) \\ 214.33^{***} \\ -66.6145 \\ Yes$	1482 1.8135 (1.5371- 2.1345) 247.85*** -67.5747 Yes	1482 1.8141 (1.5367- 2.1415) 260.57*** -67.2849 Yes	$\begin{array}{r} 3226\\ 1.4931\\ (1.2866-1.7326\\ 199.90^{***}\\ -194.5957\\ Yes \end{array}$

### Table 9: Breaking Exchange Rate Commitments and Government Fall

 Table 10: Effect of Breaking Exchange Rate Commitments on Government Duration (Number of Months), First Differences

Partisanship <sup>14</sup>	-1	0	1	
Model 10	-12.8* (-42, 1.6)	-2.6 (-17.4, 10.6)	15 (-6.8, 80.1)	
Model 15	-20.4* (-70.2, 0.9)	-11.7 (-42.7, 2.7)	4.7 (-23.3, 51.8)	

 Table 11: Effect of Breaking Exchange Rate Commitments on Government Duration

 (Number of Months), First Differences, 1990s

Partisanship <sup>15</sup>	-10	-7	-3	0	3	7	10
Model 11	$-28.6^{***16}$ (-145.7, -1.2)	-26.5*** (-137.2, -1)	-22.2** ( -115.4, -0.6)	$^{-17.3}_{(-95.6, 1.6)}$	-10.1 (-61.9, 18.6)	4.9 (-39.9, 81.5)	22.8 (-21.6, 165.4)
Model 12	-27.9*** <sup>17</sup> ( -149.1, -1.4)	-25.9*** (-138.7, -1.2)	-21.9** (-117.2, -0.8)	-17.3 (-92.2, 0.2)	-10.6 (-70.1, 15.2)	3.7 (-41.6, 64.5)	20.9 (-23.3, 141.1)
Model 13	-27.1*** (-135.7, -1.2)	-25.1*** (-126.4, -1.1)	-20.8** (-104.1, -0.7)	$^{-15.9}_{(-80.9, 3.6)}$	-8.5 (-62.2, 22.4 )	7.1 (-41.8, 90.3)	25.9 (-25.7, 193.1)
Model 14	-6.2*** (-27.1, -0.4)	-5.4*** (-23.2, -0.4)	-3.6** ( -15.6, -0.1)	-1.1 (-8, 5.3)	2.9 (-2.9, 22.9)	$12.5 \\ (-0.9, 69.1)$	24.9 (-0.2, 134.9)

	Model 16	Model 17	Model 18	Model 19	Model 20
Break of Exchange Rate Commitment (last 6 months)	$-0.959^{*18}$ (0.533)	$-2.204^{***}$ (0.693)	-1.059** (0.053)	$-2.141^{**}$ (0.864)	
Break of Exchange Rate Commitment (last 12 months)	$-0.959^{*}$ (0.533)	$-2.204^{***}$ (0.693)	$-1.059^{**}$ (0.053)	$-2.141^{**}$ (0.864)	$-0.979^{**}$ (0.467)
Government Partisanship	$0.004 \\ (0.009)$	-0.013 (0.012)	-0.003 (0.011)	-0.015 (0.096)	-0.012 (0.009)
Break of Exchange Rate Commitment*Partisanship	$0.092^{**}$ (0.032)	$0.108^{**}$ (0.035)	$0.092^{***}$ (0.031)	$0.108^{***}$ (0.028)	$0.085^{**}$ (0.042)
Break of Exchange Rate Commitment*Democracy	$0.171^{***}$ (0.068)	$\begin{array}{c} 0.337^{***} \\ (0.099) \end{array}$	$0.180^{**}$ (0.069)	$0.328^{**}$ (0.123)	$\begin{array}{c} 0.131 \\ (0.178) \end{array}$
Democracy	-0.015 (0.018)	-0.033* (0.018)	-0.008 (0.017)	-0.029* (0.017)	$-0.032^{*}$ (0.017)
Months to Elections	-0.016*** (0.004)	$-0.015^{**}$ (0.005)	$-0.0154^{***}$ (0.005)	-0.015*** (0.004)	$-0.014^{***}$ (0.004)
Number of Coalition Members	-0.065 (0.049)	-0.094** (0.047)	-0.061 (0.052)	-0.094** (0.046)	$-0.104^{**}$ (0.043)
Parliamentary Support	$\begin{array}{c} 0.417 \\ (0.412) \end{array}$	$0.176 \\ (0.441)$	$     \begin{array}{c}       0.423 \\       (0.429)     \end{array} $	$0.181 \\ (0.388)$	$\begin{array}{c} 0.295 \\ (0.352) \end{array}$
Executive Powers Score	$0.004 \\ (0.018)$	$ \begin{array}{c} 0.002 \\ (0.016) \end{array} $	$ \begin{array}{c} 0.006 \\ (0.018) \end{array} $	$0.003 \\ (0.017)$	$ \begin{array}{c} 0.002 \\ (0.017) \end{array} $
Interim Government	$-0.585^{**}$ (0.184)	$-0.641^{**}$ (0.208)	-0.489** (0.213)	$-0.632^{***}$ (0.169)	$-0.733^{***}$ (0.155)
War	-0.294 (0.354)	$-0.448^{**}$ (0.216)	-0.301 (0.376)	$-0.466^{**}$ (0.233)	-0.226 (0.257)
Log(GDP Per Capita)	$0.149^{**}$ (0.075)	$0.109 \\ (0.093)$	$\begin{array}{c} 0.131 \\ (0.081) \end{array}$	$0.104 \\ (0.068)$	0.083 (0.068)
GDP Growth	$0.013^{*}$ (0.007)	$0.015^{**}$ (0.007)	$   \begin{array}{c}     0.001 \\     (0.008)   \end{array} $	$0.015^{**}$ (0.006)	$0.012^{**}$ (0.005)
Devaluation		$   \begin{array}{c}     0.001 \\     (0.001)   \end{array} $		$0.005 \\ (0.004)$	
Inflation	$0.001 \\ (0.001)$		0.003 (0.011)		
Devaluation*Democracy				$     \begin{array}{c}       0 \\       (0.001)     \end{array} $	
Inflation*Democracy			-0.001 (0.002)		
Devaluation*Partisanship				$\begin{pmatrix} 0 \\ (0.001) \end{pmatrix}$	
Inflation*Partisanship			$0.001 \\ (0.001)$		
Constant	$2.493^{***}$ (0.802)	$3.147^{***}$ (0.889)	$2.569^{***}$ (0.858)	$3.16^{***}$ (0.687)	$3.215^{***}$ (0.668)
Observations Shape Parameter 95 % Confidence Interval Wald Chi-square Log Likelihood	$1863 \\ 1.716 \\ (1.469-2.004) \\ 137.65 \\ -98.141$	$2077 \\ 1.701 \\ (1.503, 1.924) \\ 142.78 \\ -103.122$	$1863 \\ 1.7126 \\ (1.468-1.999) \\ 134.70 \\ -96.7775$	2077 1.7033 (1.461-1.986) 186.03 -102.654	$2335 \\ 1.679 \\ (1.457-1.935) \\ 190.99 \\ -124.549$

Table 12: Breaking Exchange Rate Commitments and Government Fall, 1990s

Partisanship <sup>19</sup>	-10	-7	-3	0	3	7	10
Model 16	$(21 8)^{21}$	$-14^{***}$	-11**	-7 (15-5)	-2 (14,15)	7	18
Model 17	(-21, -6) $-24^{***}$ (-32, -16)	-22*** (-29 -14)	-19*** (-25 -8)	-15** (-23 -2)	-12 (-21 7)	-5 (-18 24)	$\begin{pmatrix} -11, 74 \end{pmatrix}$
Model 18	(-52, -10) -15.44*** (-21 -9)	-14*** (-19 -7)	-11*** (-17 -3)	-8 (16 3)	(-21, 7) -4 (-14, 13)	(-10, 24) 5 (-13, 39)	(-11, 40) 15 (-11, 72)
Model 19	-23*** (-30 -16)	-21*** (-23 -14)	-18*** (-24 -9)	-15** (-22 -3)	-11 (-20, 6)	-4 (-18, 25)	(-11, 72) 3 (-17, 44)
Model 20	-21***	-18*** (04 0)	-13***	-8	-2	10	24

 Table 13: Effect of Breaking Exchange Rate Commitments on Government Duration

 (Number of Months), First Differences