

# Protection From Your Neighbour's Fate: The Diffusion of Reserve Accumulation Policies\*

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## Abstract

The contagious nature of financial crises has become an established feature of a world with increased economic integration. In addition the rise in large scale foreign exchange reserve accumulation has been seen as a byproduct of governments attempts to minimise the risks of contagion. Yet whilst the Asian crisis in 1997 is often credited for this rise in reserve accumulation, a similarly severe crisis in Mexico in 1994 did not have such an effect. In this paper I argue that currency crises in other countries only affect governments behaviour in so far as they inform governments that a currency crisis will result in loss of political power. When currency crises in other countries led to political change, governments' expectations of the loss of political power were a currency crisis to occur in their own country increase. As a result they attempt to insure against this possibility, through the large scale accumulation of reserves. It is in this way that the political instability as a result of the Asian currency crisis, and not only the economic results of the crisis, provided greater incentive for other governments to accumulate reserves, in comparison to the lack of political change seen in the Mexican crisis. The implications of the theory are tested on time-series cross-sectional data from 1970 - 2007. The results provide evidence that high levels of political change during currency crisis in other, politically similar, countries leads to governments being more likely to accumulate large stocks of reserves.

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# 1 *Introduction*

The rise of global financial integration over the past few decades has also led to financial crises no longer being contained within a single country. Whether it be directly through trade and/or financial linkages (Glick and Rose, 1999; Kaminsky and Reinhart, 2000; Balakrishnan et al., 2011) or the expectations of investors (Pericoli and Sbracia, 2003; Cook, 2013), financial globalisation has resulted in contagious financial crises.

Whilst the contagious nature of financial crises is firmly established, less is known of how governments attempt to react to and manage this risk. It has been noted that in the aftermath of the Asian financial crisis in 1997, developing countries have engaged in large scale reserve accumulation (Edison, 2003; Gallagher and Shrestha, 2012). By accumulating large stocks of foreign exchange reserves, governments are better able to withstand exogenous shocks and speculative attacks that can result in currency crises (Berg and Patillo, 1999; Edison, 2000; Goldstein, Kaminsky, and Reinhart, 2000). Yet these patterns are not fully captured by economic fundamentals (Edison, 2003), suggesting that this behaviour is not solely determined by fears of contagion. Moreover there was not a similarly large global increase in reserve accumulation after the Mexican currency crisis of 1994. This suggests that the occurrence of a currency crisis alone is not sufficient to induce governments to insure themselves through large scale reserve accumulation.

In this paper I offer an explanation for these differing responses, stressing the importance of the political outcomes of currency crises. It is in this way cur-

rency crises in other countries provide governments with information about the probability of political survival were a crisis to occur within their own country. Governments do so by observing the level of political change as a result of currency crises in politically similar countries. This information affects governments incentives to insure themselves through the large scale accumulation of foreign reserves. When there was significant political change during currency crises in politically similar countries, governments expect a similar fate were a currency crisis to occur within their own country. Thus governments will have a strong incentive to respond by accumulating foreign reserves to insure against this possibility. It is in this way that the Mexican crisis of 1994, which resulted in little political change, offers a different lesson to other countries than that of the Asian financial crisis, which resulted in large amounts of political change and disruption.

I test these implications with statistical analysis on a time-series cross-sectional data set from 1970 to 2007. With the use of spatial- $x$  variables, the statistical model is able to capture how political change in other countries that are politically similar is associated with countries foreign exchange reserve holdings. In doing so I find empirical support for the influence of other countries' experiences with currency crises upon reserve accumulation. This suggests that the incentives to insure against crisis contagion are not purely economic, but also incorporate governments' expectations on the likelihood of loss of political power were a crisis to occur.

This paper adds to existing literature in two key ways. First, it shows how the possibility of contagion is not the only means by which a financial crisis in

one country can have effects beyond its borders as is commonly studied in the existing literature (Glick and Rose, 1999; Kaminsky and Reinhart, 2000; Pericoli and Sbracia, 2003; Balakrishnan et al., 2011; Cook, 2013). In particular the political experience of other countries during financial crises provides information to governments about the likelihood of losing political power were a crisis to occur. This subsequently affects the incentives for governments to use economic policy to insure themselves against possible exogenous shocks. Whilst previous research has explored how financial crises within a country affect economic policies (Drazen and Grilli, 1993; Drazen and Easterly, 2001; Biglaiser and DeRouen, 2004; Abiad and Mody, 2005), this paper broadens this approach to consider the effect of financial crises occurring in other countries. As a result this paper shows how financial crises have further reaching effects on other countries than have previously been examined.

Second this paper highlights how governments' expectations of the political consequences of currency crises are important to take in to consideration. This complements existing research on the effect of the expectations of investors and speculators (Leblang and Satyanath, 2005). Moreover by showing how politics can affect governments' incentives to insure themselves against the possibility of currency crises, this paper adds to the existing literature on the political and economic determinants of currency crises (Berg and Patillo, 1999; Edison, 2000; Goldstein, Kaminsky, and Reinhart, 2000; Leblang, 2003; Chiu and Willett, 2009; Steinberg and Malhotra, 2014).

The paper proceeds as follows. In the next section I explain how political change during currency crises in other countries affects governments incentives to ac-

cumulate reserves as a form of insurance. Section three describes the data used for the empirical tests in subsequent sections. Section four tests the hypothesis of the theoretical argument, on pooled time-series cross-sectional data from 1970 to 2007. Section five assesses the robustness of the inferences drawn from these tests. The final section offers concluding thoughts.

## 2 *Theory*

In this section I develop a theory to explain how governments' accumulation of reserves to insure against exogenous shocks is influenced by other countries experiences with currency crises. By doing so I aim to detail the conditions under which governments respond to currency crises in other countries by accumulating foreign exchange reserves. To do so I first discuss the political trade-offs governments face when choosing whether to accumulate a large stock of reserves. In particular governments are faced with decreasing short-term expenditures that are of use for maintaining political survival, in order to insure against possible currency crises in the long term. As a result an important part of this calculation will be governments' expectations of the likelihood of loss of political power were a currency crisis to occur. From this point I then explain how the political experience of other countries during currency crises offers information with which governments can update their expectations. In doing so I highlight the conditional nature of this information, in that governments learn more from the political experiences of politically similar close countries.

## 2.1 *The Decision to Accumulate Foreign Reserves*

The accumulation of foreign exchange reserves by governments is a form of insurance against possible future currency crises. By accumulating foreign exchange reserves, governments are better able to withstand external economic shocks and the associated sudden stops in capital inflows. Whilst capital controls are another policy choice that can also dampen these pressures, these policies often lead to a decline in international investment and result in distributional costs (Leblang, 2003; Mukherjee and Singer, 2010).

Nonetheless the large-scale accumulation of foreign exchange reserves does not come without its costs. By accumulating large stocks of reserves governments are left with less leeway to commit to other forms of expenditure and taxation decisions. This impacts their ability to ensure current political survival through the use of fiscal policy. Moreover foreign exchange reserves are typically held in foreign currency deposits and bonds from advanced industrial economies, which offer low yields, leading to lower returns compared to economic investment (Edison, 2003; Gallagher and Shrestha, 2012). It is in this way that the main benefit from reserve holding is experienced in the future. With large scale reserves governments are better able to prevent a future exogenous economic shock leading to a currency crisis. Notably this event may not necessarily occur, which would result in the government not benefitting from prudence in insuring against exogenous shocks.

Assuming that governments are opportunistic, the decision to engage in large scale reserve accumulation faces an important political trade off. Governments

must choose whether to insure against an event that may not necessarily occur or use fiscal policy for short term political goals. Of importance is governments' expectations of the loss of political office were a currency crisis to occur. Whilst governments would generally prefer not to face a currency crisis, they will see less of a need to insure against this possibility if they do not expect to lose political power were a crisis to occur. In this case the short-term political costs of devoting resources to reserve accumulation outweigh the benefits of preventing a currency crisis in the long run.

It is in this way that governments' expectations of the loss of political power, were a currency crisis to occur, influences their decisions on whether to engage in large-scale reserve accumulation. When governments expect to lose power were a currency crisis to occur, they have greater incentive to accumulate reserves to avoid this fate.

## *2.2 Learning From Currency Crises in Other Countries*

The importance of expectations, and the possibility of receiving information, naturally leads to considering governments' decisions in accumulating reserves as being a form of Bayesian learning.<sup>1</sup> That is, governments' have some prior beliefs about the probability of losing political power were a currency crisis to occur, which are updated by observing information.

The important information for governments in updating their expectations is whether currency crises led to the loss of political power of the incumbent gov-

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<sup>1</sup>This is a common approach used in the literature on the diffusion of policies between governments (Simmons and Elkins, 2004; Simmons, Dobbin, and Garrett, 2006; Gilardi, 2010)

ernment in other countries. If other countries experienced political change during currency crises, then governments will update their expectations and believe that it is likely they would face the same fate were a currency crisis to occur within their own country. As a result the benefits of large scale reserve accumulation are large, as a means of insulating the economy against exogenous shocks. In contrast, if currency crises in other countries did not lead to the loss of political power for incumbent governments, then governments will update their belief downwards. Governments' will consider the probability of loss of political support were a currency crisis to occur, to be less likely than before. Therefore governments will have less of an incentive to accumulate a large stock of reserves. In this case doing so would have negative short term costs in terms of ability to use fiscal policy to secure political support, which outweigh the expected political costs were a currency crisis to occur.

However not all countries' experiences should offer the information same for a government. For instance the political experience of an autocracy will not offer much information for a democratic government, but will be of use for a similarly autocratic government. Thus the channels by which governments learn from currency crises in other countries should be dependent on the extent to which there are shared characteristics between governments.<sup>2</sup>

This offers an explanation for why governments can hold differing expectations, and subsequently differing likelihoods to accumulate reserves, at the same time. Figure 1 illustrates this, with regard to two hypothetical countries *A* and *B*. Whilst *A* and *B* share identical prior beliefs of the probability that they would

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<sup>2</sup>Those governments that are similar and are learnt from, I refer to from now on as their "peer group".



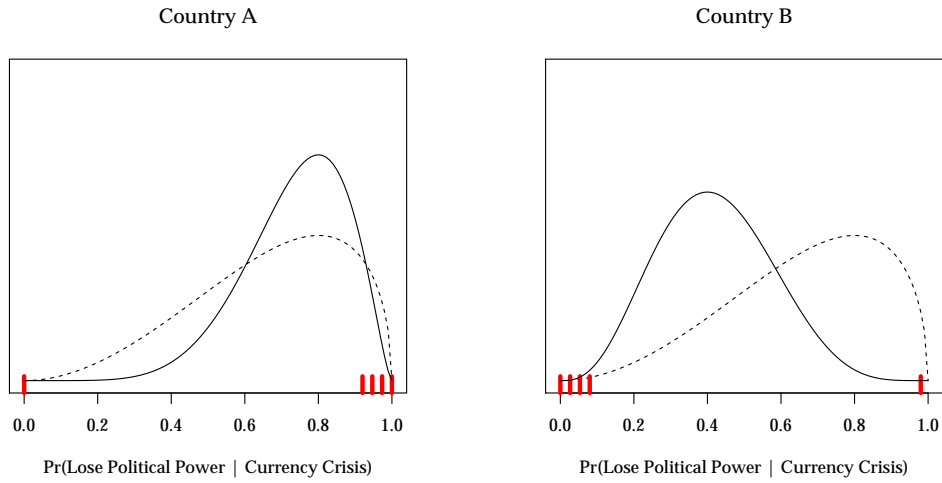


Figure 1: How governments with identical prior beliefs can come to differing posterior beliefs in the probability of losing office were a currency crisis to occur, based upon the different political experiences of their peer groups during currency crises. The dashed density is the prior belief and the solid density is the posterior belief. The red tick marks indicate the political experiences during a currency crisis, of members of a country's peer group. Tick marks close to zero indicate no loss of political power during a currency crisis, tick marks close to one indicate loss of political power during a currency crisis.

lose office were a currency crisis to occur, the differing experiences of their peer groups lead to different updated beliefs. For country *A* the majority of their peer group lost political power during a currency crisis, thus the government subsequently has a stronger expectation that they would lose political power were a currency crisis to occur. In contrast for country *B* their peer group has the opposite experience during their currency crises, so subsequently believe it less likely they would lose political power were a currency crisis to occur. As a result by learning from other countries, country *A* becomes more likely to accumulate foreign reserves, whilst country *B* becomes less likely to accumulate reserves.

### 2.3 *Mechanisms for Learning From Others*

Following the logic above, I now discuss two peer groups that governments can learn from. In particular I focus on how features of political institutions offer similarities between that are informative of likely political experiences were a currency crisis to occur.

The first way that governments can learn from other countries political experience during currency crises is by focusing on events in countries with similar political institutions. These cases can be informative as the extent to which governments are accountable to different groups in society are largely determined by the political institutions governments operate within. For example if a currency crisis results in the removal of the incumbent in a democracy this is unlikely to be informative to an autocratic government, who is not faced with the same selection mechanism, i.e. elections. In contrast this event will be informative to democratic governments, who do operate under similar institutional rules. Therefore governments will place greater weight on the political results of currency crises given similarity in their level of democracy / autocracy. This leads to the testable hypothesis that: *when currency crises resulted in political change in similarly democratic/autocratic countries, governments are more likely to excessively accumulate foreign reserves.*

Another important institutional difference amongst governments, is the extent to which the system allows for attribution of blame to specific members of the government. Presidential systems, where political power is consolidated by the executive, allow for individuals within a country to more easily blame the

incumbent for the currency crisis. In contrast non-presidential parliamentary based systems result in a more dispersed attribution of blame, leaving it harder to pinpoint who within the government is at fault for the occurrence of the crisis. There is some evidence for these differences between presidential and non-presidential systems, as Chwioroth and Walter (2010) find that presidential systems see higher levels of turnover than non-presidential systems in a variety of financial crises. As a result of these differences in accountability for crises, governments will pay more attention to currency crises in countries which share the institutional features (presidential vs. non-presidential) that lead to these differing levels of accountability. This leads to the testable hypothesis that: *when currency crises resulted in political change in similarly presidential/non-presidential countries, governments are more likely to excessively accumulate foreign reserves.*

### 3 *Research Design*

#### 3.1 *Data - Dependent Variable*

The dependent variable of interest in this paper is the ratio of foreign exchange reserves to months of imports. This measure is used as the effectiveness of reserves as insurance against currency crises is dependent upon the amount of imports they are able to cover (Edison, 2003; Rodrik, 2006; Gallagher and Shrestha, 2012). Data on the number of months of imports covered by foreign exchange reserves is taken from the World Development Indicators (World Bank, 2013). For the estimation I use the natural logarithm of this variable, which better ap-

proximates a normal distribution and has considerably less skew.

### 3.2 *Data - Independent Variables*

To test the main hypothesis of this paper, I make use of spatial- $x$  variables to capture the effect of political change in other countries upon a given country's likelihood of excessively accumulating reserves. To do so I use data on political turnover during previous currency crises, taken from the Cross-National Time-Series Data Archive (Banks and Wilson 2013). From this data I use two variables, the first being a count of major cabinet changes in a year and the second being a count of changes of effective executive.<sup>3</sup> For both variables the modal observation is that no change occurred during previous currency crises. In addition if political change does occur during a previous currency crisis, it is typically only one major cabinet change or change in effective executive. For this reason I transform these variables to be binary variables, indicating whether that form of event took place during the previous currency crisis. Doing so ensures that the results are not driven by particular cases with large numbers of political turnover, such as Argentina in 2001. The time periods of currency crisis are taken from Reinhart and Rogoff (2009).

The spatial weights matrix, takes different forms dependent on the linkages between countries to be measured. For the implication of the theory that gov-

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<sup>3</sup>These variables in the Cross-National Time-Series Data Archive are 'polit11' and 'polit12' respectively. From the codebook for this data, major cabinet changes constitutes "The number of time in a year that a new premier is named and/or 50% of the cabinet posts are assumed by new ministers." and changes of effective executive constitutes "The number of times in a year that effective control of executive power changes hands. Such a change requires that the new executive be independent of his predecessor."

ernments learn from the political experience during currency crises of politically similar countries in terms of democracy/autocracy, I link countries by their similarity in polity 2 score (Marshall and Jaggers, 2010). Therefore an off-diagonal element,  $w_{ij}$ , in the weights matrix,  $W_{Polity}$ , receives the value of 20 if  $i$  and  $j$  have identical polity 2 scores, and 0 if  $i$  has a score of 0 and  $j$  of 20 (or vice versa).<sup>4</sup> For linking countries by political similarity in terms of being a presidential or non-presidential system I use data from Beck et al. (2001). An off-diagonal element  $w_{ij}$ , in the weights matrix  $W_{Exec}$  receives a value of 1 if  $i$  and  $j$  are both presidential or both non-presidential systems, and 0 otherwise.<sup>5</sup> These matrices are row-standardised as the theory focuses on governments' expectations of political change, were a currency crisis to occur. Thus it is natural to take a weighted average over those linked countries' experiences, as is done in row-standardisation. For further discussion of this issue see Plümper and Neumayer (2010); Neumayer and Plümper (2014).

Additional variables used in previous research that capture the economic determinants of reserve accumulation are also included. Following Edison (2003) there are a number of categories of economic factors that influence foreign exchange reserve accumulation. Firstly as a country's economic size increases, international transactions are also likely to increase resulting in a greater need for foreign exchange reserves. Thus countries' GDP per capita and population size are included. This data is collected from the World Development Indicators

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<sup>4</sup>More formally  $w_{ij} = \frac{20 - |x_i - x_j|}{20}$  where  $x_i$  denotes the current polity score of  $i$  and  $x_j$  denotes the polity score of country  $j$  when their currency crisis occurred. Both range from 0 to 20.

<sup>5</sup>As before  $j$  indexes the political system for other countries when the currency crisis occurred, not the current system.

(World Bank, 2013). Secondly more open economies are likely to have higher current account variability, thus resulting in higher reserve holdings to offset this. Data on the level of imports and current account balance, both as a percentage of GDP, are included to capture this. This data is collected from the World Development Indicators (World Bank, 2013). Thirdly higher levels of capital account openness result in a higher susceptibility to financial crises as well as greater possibility of capital flight, thus increasing the demand for foreign exchange reserves. To capture this the Chinn-Ito index, measuring capital account openness, is used (Chinn and Ito, 2008). Fourthly, countries with pegged exchange rates typically need greater levels of reserves in order to maintain these pegs. I use data from Reinhart and Rogoff (2004), which classifies historical exchange rate regimes. Using this data I create a binary variable, which takes the value of one if a country has a pre-announced or de facto peg or crawling peg, and zero otherwise.<sup>6</sup>

I also account for independent central banks possibly constraining governments ability to choose the level of reserves within a country. As direct measures of central bank independence are limited in coverage both in terms of countries and years, I use a common proxy in the literature involving the level of turnover of central bank governors. As in Plümper and Neumayer (2011) I use the square root of the number of irregular turnovers in the past five years, multiplied by  $-1$  so that a value of zero indicates central bank independence and decreasing values indicate decreasing central bank independence. The data for this comes from Dreher, Sturm, and de Haan (2010). Finally to measure the extent

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<sup>6</sup>De facto and crawling pegs are coded as having a value of 2 or less in the coarse annual data.

to which governments are accountable to the general population I include the combined polity 2 score (Marshall and Jaggers, 2010), which measures the level of democracy, and a binary variable indicating whether the political system is a presidential system or not from the Database of Political Institutions (Beck et al., 2001).

### *3.3 Estimation*

The main statistical estimator used in this paper is fixed effects regression, which is used to account for unobserved time invariant unit heterogeneity. In order to account for temporal dependence in the level of reserves I include a lagged dependent variable, as well as a linear time trend.

## *4 Results*

Table 1 displays the results of the statistical analysis, examining the effect of political change during currency crises in politically similar countries upon reserve accumulation. As a first overview we can see that all the coefficients are in the expected direction. In addition coefficient sizes are larger for changes in effective executive than major cabinet changes. This is expected as the loss of executive power results in a larger political cost compared to changes in a government's cabinet.

Models 1 and 4 show the effect of major cabinet and effective executive changes in countries that are similarly autocratic/democratic during currency crises.

Table 1: Main Results

	(1)	(2)	(3)	(4)	(5)	(6)
	Major Cabinet Changes			Changes in Effective Executive		
Lag of Log Reserves	0.820*** (0.035)	0.821*** (0.035)	0.822*** (0.035)	0.820*** (0.035)	0.821*** (0.034)	0.821*** (0.034)
$W_{Polity}$	0.124 (0.098)			0.154 (0.136)		
$W_{Exec}$		0.208*** (0.073)			0.323*** (0.104)	
$W_{Pres}$			0.265** (0.117)			0.378** (0.158)
$W_{NonPres}$			0.146 (0.095)			0.276* (0.142)
Polity 2 Score	0.004 (0.003)	0.005* (0.003)	0.006* (0.003)	0.004 (0.003)	0.005* (0.003)	0.005* (0.003)
Imports (% GDP)	-0.003** (0.002)	-0.003** (0.002)	-0.003** (0.002)	-0.003** (0.002)	-0.003** (0.002)	-0.003** (0.002)
Trade Balance	0.014*** (0.003)	0.013*** (0.003)	0.013*** (0.003)	0.014*** (0.003)	0.014*** (0.003)	0.014*** (0.003)
Central Bank Independence	0.019 (0.013)	0.019 (0.014)	0.019 (0.014)	0.019 (0.013)	0.018 (0.014)	0.019 (0.014)
Presidential System	0.112 (0.072)	0.055 (0.080)	-0.020 (0.144)	0.111 (0.072)	0.094 (0.074)	0.062 (0.113)
GDP per capita (natural log)	-0.116** (0.052)	-0.125** (0.053)	-0.126** (0.053)	-0.119** (0.053)	-0.134** (0.055)	-0.134** (0.055)
GDP growth	-0.006* (0.004)	-0.006* (0.004)	-0.006* (0.004)	-0.006* (0.004)	-0.006 (0.004)	-0.006 (0.004)
Population (natural log)	0.343** (0.160)	0.372** (0.163)	0.387** (0.160)	0.346** (0.158)	0.319* (0.164)	0.330** (0.162)
Capital Account Openness	-0.005 (0.011)	-0.006 (0.011)	-0.006 (0.011)	-0.005 (0.011)	-0.006 (0.011)	-0.006 (0.011)
Currency Peg	0.011 (0.033)	0.011 (0.033)	0.009 (0.033)	0.011 (0.033)	0.012 (0.032)	0.012 (0.032)
Time Trend	-0.001 (0.005)	-0.000 (0.005)	-0.000 (0.005)	-0.000 (0.005)	0.001 (0.005)	0.001 (0.005)
Currency Crisis	-0.121*** (0.026)	-0.118*** (0.026)	-0.118*** (0.026)	-0.120*** (0.027)	-0.118*** (0.026)	-0.118*** (0.026)
Constant	-4.620 (2.809)	-5.096* (2.841)	-5.297* (2.785)	-4.632 (2.781)	-4.165 (2.878)	-4.317 (2.827)
Observations	1790	1790	1790	1790	1790	1790

Country clustered standard errors in parentheses

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$



Whilst both of the coefficients are in the expected positive direction, they are not statistically significant at conventional levels. Therefore there is considerable uncertainty in the extent to which political change in similarly democratic/autocratic countries is associated with increased reserve accumulation.

Models 2 and 5 show the same effect, however this time for countries that are similarly presidential/non-presidential systems. Again both of the coefficients are positive, and they are approximately twice the size of those when weighting by autocratic/democratic similarity. In addition they are statistically significant at conventional levels. This potentially suggests that experiences are relatively more informative when other countries are similar in how institutions affect the attribution of blame for a currency crisis compared to the selection mechanisms of governments.

To further investigate this effect I decompose the presidential/non-presidential spatial variable into two separate spatial variables. An element  $w_{ij}$  in  $W_{Pres}$  takes a value of 1 if there is a presidential political system in  $i$  and there was a presidential system in  $j$  when the crisis occurred. Otherwise the value is 0. This is the same for  $W_{NonPres}$  except countries are linked in terms of being a non-presidential system.

Models 3 and 6 show these disaggregated relationships. In doing so we find that presidential systems are more responsive to political change in similar systems during currency crises, than non-presidential systems. For both major cabinet and effective executive changes, the coefficient is approximately 1.5 times larger for presidential systems compared to non-presidential systems. Furthermore the coefficients for presidential systems are statistically significant at conven-

tional levels, whilst this is only the case for changes in effective executive for non-presidential systems.

In summary the results show evidence for the hypotheses that political change in other politically similar countries during currency crises, leads to a country increasing reserve accumulation.

## 5 *Alternative Mechanisms and Robustness*

In this section I explore the sensitivity of the results to the inclusion of other possible mechanisms, including other spatial mechanisms.<sup>7</sup> The inclusion of other spatial mechanisms is particularly important, as different measures of connectivity are often correlated with one another (Franzese and Hays, 2008).

### 5.1 *Currency Crises in Other Countries*

First I examine how inferences change when including spatial variables that measure the occurrence of currency crises in other countries. This provides a stronger test of the hypothesis that governments are particularly mindful of the political consequences of currency crises when choosing reserve policies. By including these variables, the models account for the alternative explanation that governments may instead simply be trying to unconditionally prevent currency crises. In addition it accounts for the alternative explanation that investors engaging in speculative attacks do so on politically similar countries, and that

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<sup>7</sup>The results of these robustness tests in terms of the full tables of coefficients are located in the appendix.

reserve accumulation by a country is a response to observing a currency crisis in another country which could potentially start an attack upon their own currency.

To do so I look at four contagion mechanisms for currency crises: geographical distance, trade linkages, similarity in level of democracy/autocracy and similarity in being a presidential/non-presidential system.<sup>8</sup> When linking countries by geographical proximity, I use data on minimum distances from the CShapes data set (Weidmann, Kuse, and Gleditsch, 2010). The weights matrix,  $W_{Distance}$ , is based upon inverse-minimum distance where an element  $w_{ij}$  equals 1 if  $i$  and  $j$  are contiguous and monotonically decreases towards 0 the further the distance of countries.<sup>9</sup> These weights matrices are included in both row-standardised and non-row-standardised form. Whilst the justification for row-standardisation holds as before, examining non-row-standardised versions is important in order to capture heterogenous exposure (Neumayer and Plümper, 2014). This is important because the effect of a linked country having a currency crisis upon a country's reserve accumulation could be the same independent of how many countries a country is linked to.

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<sup>8</sup>The weights matrices used here for political similarity and geographical proximity are constructed in the same way as the previous section, with the exception of no longer being row-standardised. The weights matrix for trade linkages is constructed using data from the Correlates of War Trade Data (Barbieri and Keshk, 2012; Barbieri, Keshk, and Pollins, 2009)

<sup>9</sup>More formally  $w_{ij} = 1/(1 + x)$  where  $x$  denotes the minimum geographical distance between  $i$  and  $j$ .

## 5.2 *Interdependence in Reserve Accumulation*

Second, I account for additional spatial interdependence in reserve accumulation by estimating spatial- $y$  models. This accounts for other governments' reserve accumulation potentially being strategic complements or substitutes for a given country's own reserve accumulation. I use the inverse-minimum distance between countries as the spatial weights matrix, which is row-standardised. Thus the model includes the effect of geographically close countries' levels of reserve accumulation upon a country's own level of reserves. Spatial maximum likelihood models are estimated as they have better performance compared to a spatial OLS approach (Franzese and Hays, 2007).

## 5.3 *Domestic Learning*

As currency crises are often clustered, it may be that the spatial effect is driven by cases where governments also experienced a currency crisis and political change at the same time as those countries they are linked to. To account for this issue I perform robustness tests including domestic versions of the political change variables, which have been shown in previous work to exhibit an association with subsequent reserve holdings (Author 2015).

## 5.4 *Regional Heterogeneity*

I also perform a further robustness test, that attempts to deal with unobserved heterogeneity. I examine possible unit heterogeneity in the form of countries

within different regions typically implementing different reserve policies. Edison (2003) notes how countries in South-East Asia following the 1997 crisis have typically held high levels of reserves. South America also had a famous financial crisis in the 1980s as well, which may also have subsequently affected governments reserve accumulation policies. To assess the sensitivity of the results to these concerns, I estimate the model with regional fixed effects instead of country fixed effects.

### *5.5 Results of Robustness Tests*

Figure 2 plots the results of the various robustness tests outlined previously. Firstly in terms of the robustness of the effects' direction, they remain positive for all of the robustness tests performed. Moreover the substantive size of the effects remains largely consistent, especially in the cases where the effect in the main model was statistically significant. Secondly, the statistical significance of effects in the robustness tests is consistent with those of the main models. In cases where an effect was statistically significant at conventional levels in the main model, it remains so for the vast majority if not all of the robustness tests.

In summary the empirical analysis finds robust support for other countries' experiences during currency crises influencing a country's reserve accumulation. The mechanism is strongest when looking at presidential countries learning from other presidential countries. In addition the estimated coefficients for these variables are always positive in all models. Thus whilst there is consider-

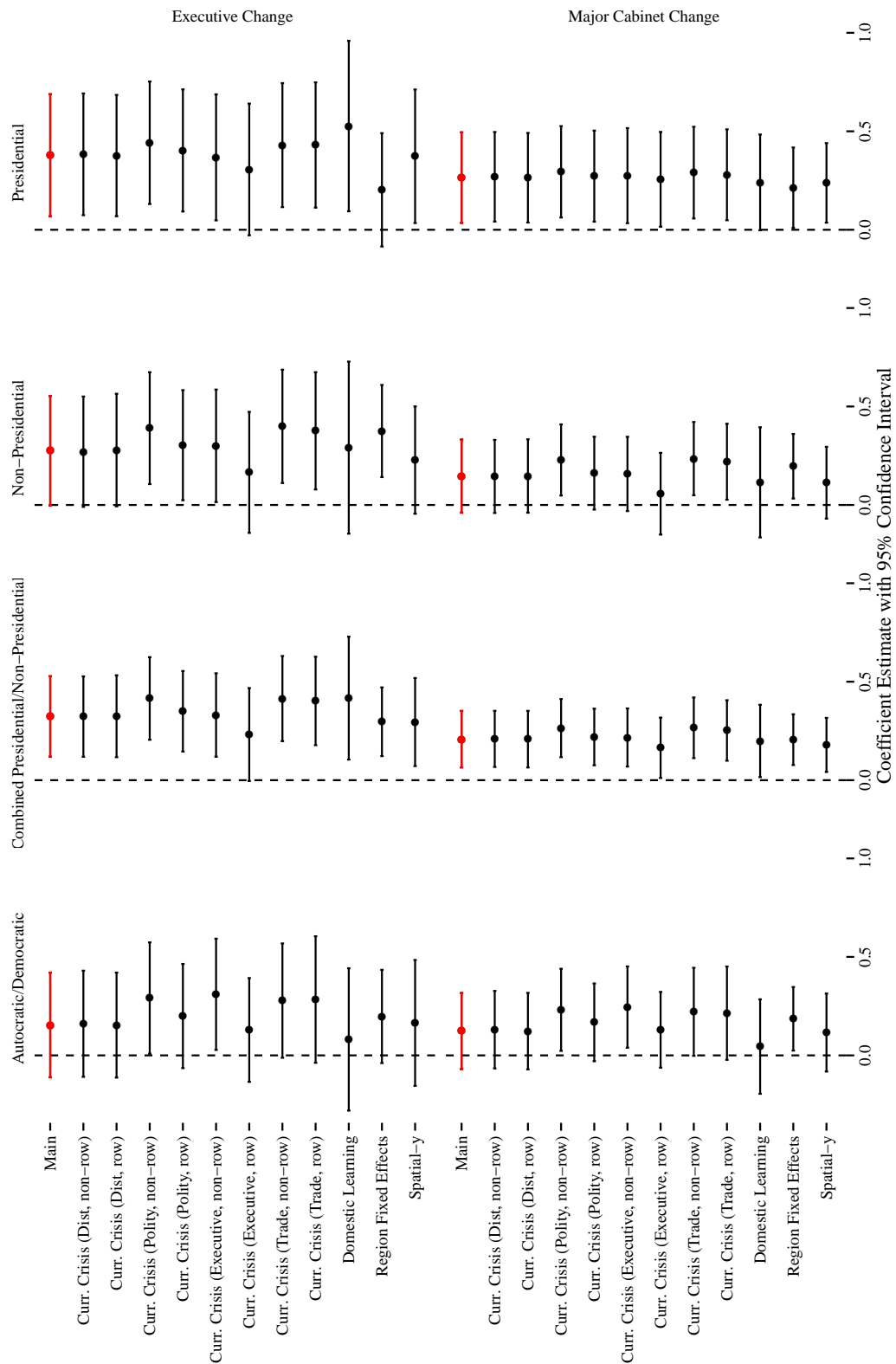


Figure 2: Results of the robustness tests displaying the coefficient estimates for the variables of interest with associated 95% confidence intervals. Columns are defined by the form of the spatial weights matrix, and rows are defined by the variable that is weighted (either major cabinet changes or changes in effective executive).

able uncertainty about the effect of political change in similarly autocratic/democratic countries for individual models, taken as a whole the evidence suggests there does exist an effect albeit weaker than that of presidential/non-presidential systems. As a result the empirical analysis shows that currency crises not only have effects beyond borders in terms of contagion, but also lead to changes in economic policy in other countries.

## 6 *Conclusion*

The contagious nature of financial crises has become an established feature of a world with increased economic integration, with large scale reserve accumulation a seemingly guaranteed by-product. Yet not all currency crises have led to similarly large increases in reserves by other countries. In this paper I offer a political theory that can account for these divergences in response. Governments are not concerned by other countries experiencing currency crises per se, rather they are concerned when other currency crises offer them information on the likelihood of losing political power were one to occur in their own country. That is, the *political* outcomes of other currency crises are of importance, not simply the *economic* outcomes. Thus when currency crises in other countries result in a loss of political power for the incumbent government, governments wish to avoid this fate and do so through the large scale accumulation of foreign reserves.

The implications of this theory were tested with pooled time-series cross-sectional data from 1970 to 2007. In doing so I find support for the theory that govern-

ments learn from other countries political experiences during currency crises. When currency crises in politically similar countries resulted in loss of political power for the incumbent, governments are more likely to insure themselves against currency crises through the large scale accumulation of reserves. This result is robust to other possible forms of external influence, such as trying to prevent against contagion of currency crises in general, as well as to learning from past domestic experiences of currency crises.

This paper adds to the literature on the contagious nature of financial crises, and to literature examining how governments attempt to deal with an ever more economically globalised world. By exploring the possibility of learning from other countries' political experiences during currency crises, this paper highlights how financial crises not only spill over in terms of inducing similar crises (Glick and Rose, 1999; Kaminsky and Reinhart, 2000; Pericoli and Sbracia, 2003; Balakrishnan et al., 2011; Cook, 2013), but also in terms of affecting economic policy with regards to reserve accumulation. Moreover this complements existing work on the role of politics in the prevalence and use of capital controls (Quinn and Inlan, 1997; Mukherjee and Singer, 2010; Pepinsky, 2012), by examining the accumulation of foreign reserves which can be a similar policy tool in this context.<sup>10</sup>

In doing so this paper has highlighted how financial crises can have a wider reach than simply increasing the likelihood of crises emerging elsewhere. Moreover financial crises in other country can offer completely different lessons to other governments dependent on the political outcome that occurred. Future

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<sup>10</sup>This is also one of the first papers to do so, with regards to political influences. At least to my knowledge.



research on examining how domestic policies and outcomes are shaped by the political outcomes of events in other countries, whether they be financial crises, wars, economic policies, etc., offers the potential to better understand the wide reaching effects of an ever more interconnected world.

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## *Appendix*

This appendix includes the full tables of coefficients for the various robustness tests mentioned in the main text. Each table takes the following structure:

**Models 1 - 8:** Inclusion of spatially weighted currency crisis variables.

**Model 9:** Inclusion of whether there was domestic political change during a previous currency crisis.

**Model 10:** Inclusion of regional fixed effects, instead of country fixed effects.

Table 2: Robustness of the effect of Major Cabinet Changes in Similarly Autocratic/Democratic Countries

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Lag of Log Reserves	0.820*** (0.035)	0.820*** (0.035)	0.817*** (0.035)	0.817*** (0.035)	0.817*** (0.034)	0.818*** (0.035)	0.820*** (0.035)	0.818*** (0.034)	0.811*** (0.040)	0.895*** (0.022)
$W_{Polity}$ Major Cabinet Changes in $J$	0.130 (0.100)	0.123 (0.099)	0.231** (0.106)	0.168 (0.101)	0.245** (0.105)	0.130 (0.098)	0.221* (0.114)	0.214* (0.121)	0.045 (0.122)	0.186** (0.082)
$W_{Distance}$ Currency Crises in $J$ (no row std.)	-0.008 (0.011)									
$W_{Distance}$ Currency Crises in $J$ (row std.)		0.003 (0.044)								
$W_{Polity}$ Currency Crises in $J$ (no row std.)			-0.000*** (0.000)							
$W_{Polity}$ Currency Crises in $J$ (row std.)				-0.171** (0.067)						
$W_{Exec}$ Currency Crises in $J$ (no row std.)					-0.008*** (0.002)					
$W_{Exec}$ Currency Crises in $J$ (row std.)						-0.149*** (0.042)				
$W_{Trade}$ Currency Crises in $J$ (no row std.)							-0.000** (0.000)			
$W_{Trade}$ Currency Crises in $J$ (row std.)								-0.308** (0.152)		
Major Cabinet Change in $i$									0.050* (0.027)	
Polity 2 Score	0.004 (0.003)	0.004 (0.003)	0.004 (0.003)	0.004 (0.003)	0.004 (0.003)	0.005 (0.003)	0.004 (0.003)	0.004 (0.003)	0.005* (0.003)	0.005** (0.002)
Imports (% GDP)	-0.003** (0.002)	-0.003** (0.002)	-0.003** (0.002)	-0.003** (0.002)	-0.004** (0.002)	-0.003** (0.002)	-0.003** (0.002)	-0.004** (0.002)	-0.002** (0.002)	-0.002** (0.001)
Trade Balance (Exports - Imports % GDP)	0.014*** (0.003)	0.014*** (0.003)	0.013*** (0.003)	0.013*** (0.003)	0.013*** (0.003)	0.013*** (0.003)	0.013*** (0.003)	0.013*** (0.003)	0.015*** (0.004)	0.009*** (0.002)
Central Bank Independence	0.018 (0.013)	0.019 (0.013)	0.017 (0.013)	0.018 (0.013)	0.018 (0.013)	0.018 (0.013)	0.019 (0.013)	0.018 (0.014)	0.019 (0.015)	0.009 (0.011)
Presidential System	0.110 (0.071)	0.112 (0.072)	0.109 (0.071)	0.110 (0.071)	0.115 (0.071)	0.129* (0.071)	0.108 (0.072)	0.108 (0.070)	0.093 (0.065)	0.028 (0.028)
GDP per capita (natural log)	-0.116** (0.053)	-0.116** (0.053)	-0.121** (0.052)	-0.122** (0.052)	-0.123** (0.053)	-0.127** (0.053)	-0.114** (0.052)	-0.116** (0.052)	-0.116* (0.062)	-0.060*** (0.012)
GDP growth	-0.006* (0.004)	-0.006* (0.004)	-0.006* (0.004)	-0.006* (0.004)	-0.006* (0.004)	-0.006* (0.004)	-0.006* (0.004)	-0.006* (0.004)	-0.007** (0.004)	-0.007** (0.004)
Population (natural log)	0.338** (0.160)	0.343** (0.159)	0.333** (0.162)	0.344** (0.162)	0.333** (0.162)	0.307* (0.164)	0.364** (0.158)	0.330** (0.162)	0.337 (0.225)	-0.012 (0.011)
Capital Account Openness	-0.005 (0.011)	-0.005 (0.011)	-0.005 (0.011)	-0.005 (0.011)	-0.006 (0.011)	-0.006 (0.011)	-0.004 (0.011)	-0.006 (0.011)	-0.013 (0.012)	-0.009 (0.006)
Currency Peg	0.010 (0.033)	0.011 (0.033)	0.010 (0.033)	0.012 (0.033)	0.010 (0.033)	0.013 (0.033)	0.010 (0.033)	0.007 (0.033)	0.031 (0.037)	-0.018 (0.019)
Time Trend	-0.001 (0.005)	-0.001 (0.005)	-0.001 (0.005)	-0.002 (0.005)	-0.000 (0.005)	-0.001 (0.005)	-0.001 (0.005)	-0.001 (0.005)	-0.000 (0.006)	0.003** (0.001)
Currency Crisis	-0.116*** (0.028)	-0.121*** (0.028)	-0.115*** (0.027)	-0.117*** (0.027)	-0.110*** (0.027)	-0.113*** (0.027)	-0.117*** (0.027)	-0.116*** (0.026)	-0.123*** (0.028)	-0.096*** (0.023)
Constant	-4.545 (2.794)	-4.625 (2.782)	-4.434 (2.838)	-4.508 (2.841)	-4.435 (2.834)	-3.895 (2.864)	-4.981* (2.770)	-4.376 (2.836)	-4.560 (3.949)	0.681*** (0.236)
Observations	1790	1790	1790	1790	1789	1789	1789	1789	1479	1790

Country clustered standard errors in parentheses

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$



Table 3: Robustness of the effect of Changes in Effective Executive in Similarly Autocratic/Democratic Countries

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Lag of Log Reserves	0.820*** (0.035)	0.820*** (0.035)	0.818*** (0.035)	0.817*** (0.035)	0.818*** (0.035)	0.818*** (0.035)	0.821*** (0.035)	0.819*** (0.034)	0.812*** (0.040)	0.896*** (0.022)
$W_{Polity}$ Major Cabinet Changes in $J$	0.161 (0.137)	0.154 (0.136)	0.291** (0.144)	0.200 (0.135)	0.310** (0.144)	0.129 (0.134)	0.278* (0.148)	0.284* (0.164)	0.081 (0.184)	0.198 (0.121)
$W_{Distance}$ Currency Crises in $J$ (no row std.)	-0.008 (0.011)									
$W_{Distance}$ Currency Crises in $J$ (row std.)	0.005 (0.044)									
$W_{Polity}$ Currency Crises in $J$ (no row std.)			-0.000*** (0.000)							
$W_{Polity}$ Currency Crises in $J$ (row std.)				-0.159** (0.065)						
$W_{Exec}$ Currency Crises in $J$ (no row std.)					-0.007*** (0.002)					
$W_{Exec}$ Currency Crises in $J$ (row std.)						-0.145*** (0.042)				
$W_{Trade}$ Currency Crises in $J$ (no row std.)							-0.000* (0.000)			
$W_{Trade}$ Currency Crises in $J$ (row std.)								-0.291* (0.148)		
Change in Effective Executive in $i$									0.055** (0.027)	
Polity 2 Score	0.004 (0.003)	0.004 (0.003)	0.004 (0.003)	0.004 (0.003)	0.004 (0.003)	0.005 (0.003)	0.004 (0.003)	0.004 (0.003)	0.005* (0.003)	0.004** (0.002)
Imports (% GDP)	-0.003** (0.002)	-0.003** (0.002)	-0.004** (0.002)	-0.004** (0.002)	-0.004** (0.002)	-0.004** (0.002)	-0.003** (0.002)	-0.004** (0.002)	-0.002 (0.002)	-0.002** (0.001)
Trade Balance (Exports - Imports % GDP)	0.014** (0.003)	0.014** (0.003)	0.013*** (0.003)	0.013*** (0.003)	0.013*** (0.003)	0.013*** (0.003)	0.014*** (0.003)	0.013*** (0.003)	0.015*** (0.004)	0.009*** (0.002)
Central Bank Independence	0.018 (0.109)	0.019 (0.111)	0.017 (0.108)	0.017 (0.109)	0.017 (0.113)	0.017 (0.127*)	0.018 (0.107)	0.017 (0.106)	0.019 (0.102)	0.008 (0.025)
Presidential System	0.109 (0.072)	0.111 (0.072)	0.108 (0.071)	0.109 (0.072)	0.113 (0.072)	0.127* (0.072)	0.107 (0.072)	0.106 (0.071)	0.102 (0.065)	0.025 (0.028)
GDP per capita (natural log)	-0.118** (0.053)	-0.119** (0.053)	-0.125** (0.053)	-0.124** (0.053)	-0.128** (0.054)	-0.128** (0.054)	-0.119** (0.053)	-0.121** (0.053)	-0.115* (0.063)	-0.062*** (0.012)
GDP growth	-0.006* (0.004)	-0.006* (0.004)	-0.006* (0.004)	-0.006* (0.004)	-0.006* (0.004)	-0.006* (0.004)	-0.006* (0.004)	-0.006* (0.004)	-0.007** (0.004)	-0.007** (0.004)
Population (natural log)	0.342** (0.158)	0.346** (0.157)	0.337** (0.160)	0.349** (0.160)	0.336** (0.160)	0.317* (0.162)	0.364** (0.157)	0.331** (0.160)	0.339 (0.219)	-0.012 (0.011)
Capital Account Openness	-0.005 (0.011)	-0.005 (0.011)	-0.005 (0.011)	-0.005 (0.011)	-0.006 (0.011)	-0.007 (0.011)	-0.004 (0.011)	-0.006 (0.011)	-0.012 (0.012)	-0.009 (0.006)
Currency Peg	0.010 (0.033)	0.012 (0.033)	0.010 (0.033)	0.012 (0.033)	0.010 (0.033)	0.013 (0.033)	0.010 (0.033)	0.008 (0.033)	0.028 (0.036)	-0.018 (0.019)
Time Trend	-0.000 (0.005)	-0.000 (0.005)	0.000 (0.005)	-0.001 (0.005)	0.001 (0.005)	-0.001 (0.005)	-0.000 (0.005)	-0.000 (0.005)	-0.000 (0.006)	0.003** (0.001)
Currency Crisis	-0.116*** (0.028)	-0.121*** (0.028)	-0.115*** (0.027)	-0.116*** (0.027)	-0.110*** (0.027)	-0.112*** (0.027)	-0.117*** (0.027)	-0.116*** (0.027)	-0.124*** (0.029)	-0.095*** (0.023)
Constant	-4.566 (2.767)	-4.638* (2.758)	-4.433 (2.813)	-4.547 (2.811)	-4.431 (2.815)	-4.014 (2.837)	-4.920* (2.759)	-4.349 (2.814)	-4.611 (3.849)	0.730*** (0.228)
Observations	1790	1790	1790	1790	1789	1789	1789	1789	1479	1790

Country clustered standard errors in parentheses  
\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Table 4: Robustness of the effect of Major Cabinet Changes in Similarly Presidential/Non-Presidential Countries

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Lag of Log Reserves	0.821*** (0.035)	0.821*** (0.034)	0.818*** (0.034)	0.818*** (0.035)	0.819*** (0.034)	0.819*** (0.034)	0.822*** (0.035)	0.820*** (0.034)	0.813*** (0.039)	0.895*** (0.022)
$W_{Exec}$ Major Cabinet Changes in $J$	0.210*** (0.073)	0.208*** (0.073)	0.264*** (0.075)	0.219*** (0.073)	0.217*** (0.075)	0.164** (0.078)	0.266*** (0.079)	0.252*** (0.078)	0.199*** (0.094)	0.206*** (0.066)
$W_{Distance}$ Currency Crises in $J$ (no row std.)	-0.008 (0.011)									
$W_{Distance}$ Currency Crises in $J$ (row std.)	0.006 (0.045)									
$W_{Polity}$ Currency Crises in $J$ (no row std.)			-0.000*** (0.000)							
$W_{Polity}$ Currency Crises in $J$ (row std.)				-0.163** (0.066)						
$W_{Exec}$ Currency Crises in $J$ (no row std.)					-0.006*** (0.002)					
$W_{Exec}$ Currency Crises in $J$ (row std.)						-0.110** (0.043)				
$W_{Trade}$ Currency Crises in $J$ (no row std.)							-0.000** (0.000)			
$W_{Trade}$ Currency Crises in $J$ (row std.)								-0.323** (0.133)		
Major Cabinet Change in $i$									0.047* (0.028)	
Polity 2 Score	0.005* (0.003)	0.005* (0.003)	0.006** (0.003)	0.005* (0.003)	0.006** (0.003)	0.006* (0.003)	0.006** (0.003)	0.006* (0.003)	0.006** (0.003)	0.006*** (0.002)
Imports (% GDP)	-0.003** (0.002)	-0.003** (0.002)	-0.004** (0.002)	-0.004** (0.002)	-0.004** (0.002)	-0.004** (0.002)	-0.004** (0.002)	-0.004** (0.002)	-0.002** (0.001)	-0.002** (0.001)
Trade Balance (Exports - Imports % GDP)	0.013*** (0.003)	0.013*** (0.003)	0.013*** (0.003)	0.013*** (0.003)	0.013*** (0.003)	0.013*** (0.003)	0.013*** (0.003)	0.013*** (0.003)	0.015*** (0.004)	0.009*** (0.002)
Central Bank Independence	0.018 (0.014)	0.019 (0.014)	0.016 (0.014)	0.018 (0.014)	0.017 (0.014)	0.018 (0.014)	0.018 (0.014)	0.017 (0.014)	0.020 (0.015)	0.009 (0.012)
Presidential System	0.053 (0.079)	0.055 (0.080)	0.036 (0.081)	0.050 (0.080)	0.054 (0.081)	0.079 (0.080)	0.034 (0.083)	0.038 (0.081)	0.039 (0.077)	-0.022 (0.035)
GDP per capita (natural log)	-0.124** (0.053)	-0.125** (0.053)	-0.130** (0.053)	-0.130** (0.053)	-0.127** (0.053)	-0.130** (0.053)	-0.122** (0.053)	-0.124** (0.053)	-0.123* (0.062)	-0.062*** (0.012)
GDP growth	-0.006* (0.004)	-0.006* (0.004)	-0.006* (0.004)	-0.006* (0.004)	-0.006* (0.004)	-0.006* (0.004)	-0.006* (0.004)	-0.006* (0.004)	-0.007** (0.004)	-0.007** (0.004)
Population (natural log)	0.369** (0.162)	0.373** (0.162)	0.389** (0.162)	0.383** (0.164)	0.386** (0.163)	0.347** (0.165)	0.422*** (0.158)	0.381** (0.162)	0.341 (0.224)	-0.011 (0.011)
Capital Account Openness	-0.006 (0.011)	-0.006 (0.011)	-0.007 (0.011)	-0.007 (0.011)	-0.008 (0.011)	-0.007 (0.011)	-0.006 (0.011)	-0.008 (0.011)	-0.014 (0.012)	-0.010 (0.006)
Currency Peg	0.009 (0.033)	0.011 (0.033)	0.010 (0.033)	0.011 (0.033)	0.010 (0.033)	0.012 (0.033)	0.010 (0.033)	0.007 (0.033)	0.028 (0.037)	-0.017 (0.020)
Time Trend	-0.000 (0.005)	-0.000 (0.005)	-0.001 (0.005)	-0.002 (0.005)	-0.000 (0.005)	-0.001 (0.005)	-0.001 (0.004)	-0.001 (0.005)	0.001 (0.006)	0.003** (0.001)
Currency Crisis	-0.114*** (0.028)	-0.119*** (0.028)	-0.110*** (0.027)	-0.114*** (0.027)	-0.109*** (0.027)	-0.113*** (0.027)	-0.112*** (0.027)	-0.112*** (0.027)	-0.120*** (0.029)	-0.093*** (0.023)
Constant	-5.046* (2.830)	-5.102* (2.824)	-5.298* (2.836)	-5.134* (2.865)	-5.274* (2.846)	-4.570 (2.885)	-5.894** (2.758)	-5.173* (2.833)	-4.691 (3.918)	0.654*** (0.237)
Observations	1790	1790	1790	1790	1789	1789	1789	1789	1479	1790

Country clustered standard errors in parentheses  
\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Table 5: Robustness of the effect of Changes in Effective Executive in Similarly Presidential/Non-Presidential Countries

Countries	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Lag of Log Reserves	0.821*** (0.034)	0.821*** (0.034)	0.818*** (0.034)	0.818*** (0.034)	0.818*** (0.034)	0.819*** (0.034)	0.821*** (0.034)	0.819*** (0.034)	0.814*** (0.040)	0.896*** (0.022)
$W_{Exec}$ Major Cabinet Changes in $J$	0.323*** (0.104)	0.325*** (0.106)	0.415*** (0.107)	0.350*** (0.104)	0.331*** (0.108)	0.232* (0.120)	0.414*** (0.110)	0.402*** (0.115)	0.417*** (0.159)	0.297*** (0.089)
$W_{Distance}$ Currency Crises in $J$ (no row std.)	-0.007 (0.011)									
$W_{Distance}$ Currency Crises in $J$ (row std.)	0.010 (0.044)									
$W_{Polity}$ Currency Crises in $J$ (no row std.)			-0.000*** (0.000)							
$W_{Polity}$ Currency Crises in $J$ (row std.)				-0.169** (0.065)						
$W_{Exec}$ Currency Crises in $J$ (no row std.)					-0.006*** (0.002)					
$W_{Exec}$ Currency Crises in $J$ (row std.)						-0.109** (0.048)				
$W_{Trade}$ Currency Crises in $J$ (no row std.)							-0.000** (0.000)			
$W_{Trade}$ Currency Crises in $J$ (row std.)								-0.324** (0.132)		
Change in Effective Executive in $i$									0.061** (0.028)	
Polity 2 Score	0.005* (0.003)	0.005* (0.003)	0.006* (0.003)	0.005* (0.003)	0.006* (0.003)	0.005* (0.003)	0.006* (0.003)	0.005* (0.003)	0.006* (0.003)	0.005*** (0.002)
Imports (% GDP)	-0.003** (0.002)	-0.003** (0.002)	-0.004** (0.002)	-0.004** (0.002)	-0.004** (0.002)	-0.003** (0.002)	-0.004** (0.002)	-0.004** (0.002)	-0.002 (0.002)	-0.002** (0.001)
Trade Balance (Exports - Imports % GDP)	0.014*** (0.003)	0.014*** (0.003)	0.013*** (0.003)	0.013*** (0.003)	0.013*** (0.003)	0.014*** (0.003)	0.014*** (0.003)	0.013*** (0.003)	0.015*** (0.004)	0.010*** (0.002)
Central Bank Independence	0.018 (0.014)	0.018 (0.014)	0.015 (0.014)	0.017 (0.014)	0.016 (0.014)	0.017 (0.014)	0.017 (0.013)	0.016 (0.014)	0.020 (0.015)	0.008 (0.012)
Presidential System	0.093 (0.073)	0.094 (0.074)	0.085 (0.074)	0.090 (0.074)	0.095 (0.074)	0.111 (0.073)	0.084 (0.075)	0.085 (0.073)	0.079 (0.069)	0.006 (0.031)
GDP per capita (natural log)	-0.133** (0.055)	-0.134** (0.055)	-0.141** (0.055)	-0.139** (0.055)	-0.136** (0.055)	-0.135** (0.055)	-0.133** (0.055)	-0.135** (0.055)	-0.131** (0.065)	-0.063*** (0.012)
GDP growth	-0.006 (0.004)	-0.006 (0.004)	-0.006 (0.004)	-0.006 (0.004)	-0.006 (0.004)	-0.006* (0.004)	-0.006 (0.004)	-0.006* (0.004)	-0.007** (0.004)	-0.007** (0.004)
Population (natural log)	0.316* (0.164)	0.319* (0.164)	0.320* (0.166)	0.326* (0.166)	0.331** (0.165)	0.309* (0.166)	0.351** (0.162)	0.314* (0.162)	0.286 (0.223)	-0.012 (0.011)
Capital Account Openness	-0.006 (0.011)	-0.005 (0.011)	-0.007 (0.011)	-0.006 (0.011)	-0.007 (0.011)	-0.007 (0.011)	-0.005 (0.011)	-0.008 (0.011)	-0.013 (0.012)	-0.010 (0.006)
Currency Peg	0.011 (0.032)	0.013 (0.032)	0.012 (0.032)	0.013 (0.032)	0.011 (0.032)	0.013 (0.033)	0.012 (0.032)	0.009 (0.032)	0.024 (0.036)	-0.018 (0.019)
Time Trend	0.001 (0.005)	0.001 (0.005)	0.001 (0.005)	-0.000 (0.005)	0.001 (0.005)	0.000 (0.005)	0.000 (0.005)	0.001 (0.005)	0.003 (0.006)	0.003** (0.001)
Currency Crisis	-0.114*** (0.028)	-0.119*** (0.028)	-0.110*** (0.027)	-0.113*** (0.027)	-0.109*** (0.027)	-0.113*** (0.027)	-0.112*** (0.027)	-0.111*** (0.026)	-0.119*** (0.028)	-0.092*** (0.023)
Constant	-4.122 (2.865)	-4.170 (2.865)	-4.098 (2.906)	-4.129 (2.908)	-4.313 (2.882)	-3.900 (2.908)	-4.665 (2.833)	-4.016 (2.901)	-3.771 (3.914)	0.698*** (2.227)
Observations	1790	1790	1790	1790	1789	1789	1789	1789	1479	1790

Country clustered standard errors in parentheses  
\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Table 6: Robustness of the Decomposed Effect of Major Cabinet Changes in Similarly Presidential/Non-Presidential Countries

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Lag of Log Reserves	0.822*** (0.035)	0.822*** (0.035)	0.819*** (0.035)	0.819*** (0.035)	0.819*** (0.035)	0.819*** (0.034)	0.822*** (0.035)	0.820*** (0.034)	0.813*** (0.040)	0.895*** (0.022)
$W_{Pres}$ Major Cabinet Changes in $J$	0.269** (0.116)	0.264** (0.116)	0.294** (0.118)	0.272** (0.118)	0.275** (0.123)	0.256** (0.123)	0.290** (0.119)	0.279** (0.118)	0.241* (0.124)	0.214** (0.104)
$W_{NonPres}$ Major Cabinet Changes in $J$	0.145 (0.095)	0.147 (0.095)	0.228** (0.092)	0.162* (0.094)	0.158 (0.096)	0.057 (0.106)	0.235** (0.095)	0.220** (0.098)	0.115 (0.143)	0.197** (0.084)
$W_{Distance}$ Currency Crises in $J$ (no row std.)	-0.008 (0.011)									
$W_{Distance}$ Currency Crises in $J$ (row std.)		0.003 (0.044)								
$W_{Polity}$ Currency Crises in $J$ (no row std.)			-0.000*** (0.000)							
$W_{Polity}$ Currency Crises in $J$ (row std.)				-0.161** (0.066)						
$W_{Exec}$ Currency Crises in $J$ (no row std.)					-0.006*** (0.002)					
$W_{Exec}$ Currency Crises in $J$ (row std.)						-0.126*** (0.047)				
$W_{Trade}$ Currency Crises in $J$ (no row std.)							-0.000** (0.000)			
$W_{Trade}$ Currency Crises in $J$ (row std.)								-0.311** (0.129)		
Major Cabinet Change in $i$									0.046* (0.028)	
Polity 2 Score	0.006* (0.003)	0.006* (0.003)	0.006** (0.003)	0.005* (0.003)	0.006** (0.003)	0.006* (0.003)	0.006** (0.003)	0.006** (0.003)	0.006** (0.003)	0.006*** (0.002)
Imports (% GDP)	-0.004** (0.002)	-0.003** (0.002)	-0.004** (0.002)	-0.004** (0.002)	-0.004** (0.002)	-0.004** (0.002)	-0.004** (0.002)	-0.004** (0.002)	-0.002** (0.001)	-0.002** (0.001)
Trade Balance (Exports - Imports % GDP)	0.013*** (0.003)	0.013*** (0.003)	0.013*** (0.003)	0.013*** (0.003)	0.013*** (0.003)	0.013*** (0.003)	0.013*** (0.003)	0.013*** (0.003)	0.015*** (0.002)	0.009*** (0.002)
Central Bank Independence	0.019 (0.014)	0.019 (0.014)	0.016 (0.014)	0.018 (0.014)	0.017 (0.014)	0.018 (0.014)	0.018 (0.014)	0.017 (0.014)	0.020 (0.015)	0.009 (0.012)
Presidential System	-0.025 (0.143)	-0.019 (0.142)	-0.005 (0.143)	-0.020 (0.144)	-0.020 (0.147)	-0.044 (0.151)	0.000 (0.142)	0.001 (0.141)	-0.035 (0.153)	-0.033 (0.096)
GDP per capita (natural log)	-0.125** (0.053)	-0.126** (0.053)	-0.130** (0.053)	-0.130** (0.053)	-0.128** (0.053)	-0.132** (0.053)	-0.123** (0.053)	-0.125** (0.053)	-0.125** (0.062)	-0.062** (0.012)
GDP growth	-0.006* (0.004)	-0.006* (0.004)	-0.006* (0.004)	-0.006* (0.004)	-0.006* (0.004)	-0.006* (0.004)	-0.006* (0.004)	-0.006* (0.004)	-0.007** (0.004)	-0.007** (0.004)
Population (natural log)	0.384** (0.159)	0.387** (0.160)	0.396** (0.160)	0.396** (0.161)	0.400** (0.161)	0.368** (0.162)	0.427** (0.157)	0.388** (0.160)	0.353 (0.222)	-0.011 (0.011)
Capital Account Openness	-0.006 (0.011)	-0.006 (0.011)	-0.007 (0.011)	-0.007 (0.011)	-0.008 (0.011)	-0.008 (0.011)	-0.006 (0.011)	-0.008 (0.011)	-0.014 (0.012)	-0.010 (0.006)
Currency Peg	0.008 (0.033)	0.009 (0.033)	0.009 (0.033)	0.010 (0.033)	0.008 (0.033)	0.009 (0.033)	0.009 (0.033)	0.006 (0.033)	0.028 (0.037)	-0.017 (0.020)
Time Trend	-0.000 (0.005)	-0.000 (0.005)	-0.001 (0.005)	-0.002 (0.005)	-0.000 (0.005)	-0.001 (0.005)	-0.001 (0.005)	-0.001 (0.005)	0.001 (0.006)	0.003** (0.001)
Currency Crisis	-0.114*** (0.028)	-0.119*** (0.028)	-0.111*** (0.027)	-0.114*** (0.027)	-0.109*** (0.027)	-0.113*** (0.027)	-0.112*** (0.027)	-0.112*** (0.027)	-0.121*** (0.029)	-0.093*** (0.023)
Constant	-5.254* (2.776)	-5.299* (2.779)	-5.404* (2.801)	-5.322* (2.814)	-5.476* (2.798)	-4.837* (2.832)	-5.959** (2.735)	-5.271* (2.797)	-4.830 (3.876)	0.660*** (0.235)
Observations	1790	1790	1790	1790	1789	1789	1789	1789	1479	1790

Country clustered standard errors in parentheses  
\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Table 7: Robustness of the Decomposed Effect of Changes in Effective Executive in Similarly Presidential/Non-Presidential Countries

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Lag of Log Reserves	0.821*** (0.034)	0.821*** (0.034)	0.818*** (0.034)	0.818*** (0.034)	0.818*** (0.034)	0.819*** (0.034)	0.821*** (0.034)	0.819*** (0.034)	0.814*** (0.040)	0.896*** (0.022)
$W_{Pres}$ Effective Executive Changes in $J$	0.388** (0.158)	0.377** (0.157)	0.442*** (0.159)	0.403** (0.158)	0.368** (0.163)	0.306* (0.171)	0.430*** (0.161)	0.430** (0.162)	0.526** (0.221)	0.203 (0.147)
$W_{NonPres}$ Major Cabinet Changes in $J$	0.270* (0.143)	0.279* (0.146)	0.390*** (0.145)	0.304** (0.143)	0.300** (0.146)	0.166 (0.157)	0.399*** (0.147)	0.376** (0.152)	0.291 (0.223)	0.375*** (0.119)
$W_{Distance}$ Currency Crises in $J$ (no row std.)	-0.007 (0.011)									
$W_{Distance}$ Currency Crises in $J$ (row std.)	0.008 (0.044)									
$W_{Polity}$ Currency Crises in $J$ (no row std.)			-0.000*** (0.000)							
$W_{Polity}$ Currency Crises in $J$ (row std.)				-0.169** (0.065)						
$W_{Exec}$ Currency Crises in $J$ (no row std.)					-0.006*** (0.002)					
$W_{Exec}$ Currency Crises in $J$ (row std.)						-0.112** (0.048)				
$W_{Trade}$ Currency Crises in $J$ (no row std.)							-0.000** (0.000)			
$W_{Trade}$ Currency Crises in $J$ (row std.)								-0.321** (0.132)		
Change in Effective Executive in $i$									0.060** (0.028)	
Polity 2 Score	0.005* (0.003)	0.005* (0.003)	0.006** (0.003)	0.005* (0.003)	0.006* (0.003)	0.005* (0.003)	0.006* (0.003)	0.005* (0.003)	0.006** (0.003)	0.005*** (0.002)
Imports (% GDP)	-0.003** (0.002)	-0.003** (0.002)	-0.004** (0.002)	-0.004** (0.002)	-0.004** (0.002)	-0.004** (0.002)	-0.004** (0.002)	-0.004** (0.002)	-0.002** (0.002)	-0.002** (0.001)
Trade Balance (Exports - Imports % GDP)	0.014*** (0.003)	0.014*** (0.003)	0.013*** (0.003)	0.013*** (0.003)	0.013*** (0.003)	0.013*** (0.003)	0.014*** (0.003)	0.013*** (0.003)	0.015*** (0.004)	0.010*** (0.002)
Central Bank Independence	0.018 (0.014)	0.019 (0.014)	0.015 (0.014)	0.017 (0.014)	0.016 (0.014)	0.017 (0.014)	0.017 (0.014)	0.016 (0.014)	0.021 (0.015)	0.007 (0.012)
Presidential System	0.058 (0.113)	0.064 (0.112)	0.069 (0.112)	0.060 (0.113)	0.074 (0.113)	0.068 (0.114)	0.074 (0.112)	0.068 (0.111)	0.007 (0.132)	0.059 (0.071)
GDP per capita (natural log)	-0.134** (0.055)	-0.135** (0.055)	-0.141** (0.055)	-0.140** (0.055)	-0.136** (0.055)	-0.136** (0.055)	-0.134** (0.055)	-0.136** (0.055)	-0.133** (0.065)	-0.062*** (0.012)
GDP growth	-0.006 (0.004)	-0.006 (0.004)	-0.006 (0.004)	-0.006 (0.004)	-0.006 (0.004)	-0.006* (0.004)	-0.006 (0.004)	-0.006 (0.004)	-0.007 (0.004)	-0.007** (0.004)
Population (natural log)	0.328** (0.161)	0.329** (0.162)	0.325* (0.164)	0.336** (0.164)	0.338** (0.162)	0.323* (0.164)	0.354** (0.160)	0.320* (0.163)	0.316 (0.225)	-0.012 (0.011)
Capital Account Openness	-0.006 (0.011)	-0.005 (0.011)	-0.006 (0.011)	-0.006 (0.011)	-0.007 (0.011)	-0.007 (0.011)	-0.005 (0.011)	-0.008 (0.011)	-0.013 (0.012)	-0.010 (0.006)
Currency Peg	0.010 (0.032)	0.012 (0.032)	0.013 (0.032)	0.013 (0.032)	0.011 (0.032)	0.013 (0.032)	0.011 (0.032)	0.008 (0.032)	0.023 (0.036)	-0.018 (0.019)
Time Trend	0.001 (0.005)	0.001 (0.005)	0.001 (0.005)	-0.000 (0.005)	0.001 (0.005)	-0.000 (0.005)	0.000 (0.005)	0.000 (0.005)	0.002 (0.006)	0.003** (0.001)
Currency Crisis	-0.114*** (0.028)	-0.119*** (0.028)	-0.110*** (0.027)	-0.113*** (0.027)	-0.109*** (0.027)	-0.113*** (0.027)	-0.112*** (0.027)	-0.111*** (0.027)	-0.120*** (0.028)	-0.092*** (0.023)
Constant	4.287 (2.820)	4.315 (2.832)	4.176 (2.864)	4.276 (2.861)	4.411 (2.841)	4.100 (2.865)	4.706* (2.801)	4.098 (2.857)	-4.205 (3.925)	0.668** (2.229)
Observations	1790	1790	1790	1790	1789	1789	1789	1789	1479	1790

Country clustered standard errors in parentheses  
\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Table 8: Accounting for Spatial Dependence in the Level of Reserves

	(1)	(2)	(3)	(4)	(5)	(6)
	Major Cabinet Changes			Changes in Effective Executive		
$W_{Dist}$ Log Reserves	0.077*** (0.015)	0.073*** (0.015)	0.073*** (0.015)	0.077*** (0.015)	0.075*** (0.015)	0.075*** (0.015)
Lag of Log Reserves	0.807*** (0.019)	0.809*** (0.019)	0.809*** (0.019)	0.807*** (0.019)	0.808*** (0.019)	0.808*** (0.019)
$W_{Polity}$	0.116 (0.101)			0.165 (0.163)		
$W_{Exec}$		0.179** (0.070)			0.295*** (0.114)	
$W_{Pres}$			0.238** (0.103)			0.373** (0.173)
$W_{NonPres}$			0.113 (0.093)			0.228 (0.139)
Polity 2 Score	0.004 (0.003)	0.005** (0.002)	0.005** (0.002)	0.004 (0.003)	0.005* (0.002)	0.005* (0.002)
Imports (% GDP)	-0.003*** (0.001)	-0.004*** (0.001)	-0.004*** (0.001)	-0.004*** (0.001)	-0.003*** (0.001)	-0.004*** (0.001)
Trade Balance	0.013*** (0.002)	0.013*** (0.002)	0.013*** (0.002)	0.013*** (0.002)	0.013*** (0.002)	0.013*** (0.002)
Central Bank Independence	0.016 (0.013)	0.016 (0.013)	0.016 (0.013)	0.016 (0.013)	0.015 (0.013)	0.016 (0.013)
Presidential System	0.108** (0.047)	0.059 (0.051)	-0.020 (0.105)	0.107** (0.047)	0.092* (0.048)	0.047 (0.081)
GDP per capita (natural log)	-0.115*** (0.037)	-0.122*** (0.036)	-0.123*** (0.036)	-0.118*** (0.038)	-0.130*** (0.037)	-0.132*** (0.037)
GDP growth	-0.006** (0.003)	-0.006** (0.003)	-0.006** (0.003)	-0.006** (0.003)	-0.006** (0.003)	-0.006** (0.003)
Population (natural log)	0.253** (0.118)	0.285** (0.113)	0.300*** (0.115)	0.252** (0.119)	0.234** (0.116)	0.249** (0.118)
Capital Account Openness	-0.007 (0.009)	-0.008 (0.009)	-0.008 (0.009)	-0.007 (0.009)	-0.008 (0.009)	-0.008 (0.009)
Currency Peg	0.010 (0.022)	0.010 (0.022)	0.009 (0.022)	0.011 (0.022)	0.011 (0.022)	0.011 (0.022)
Time Trend	0.001 (0.003)	0.001 (0.003)	0.002 (0.003)	0.002 (0.003)	0.003 (0.003)	0.003 (0.003)
Currency Crisis	-0.116*** (0.024)	-0.114*** (0.024)	-0.114*** (0.024)	-0.115*** (0.024)	-0.113*** (0.024)	-0.114*** (0.024)
Constant	-3.864 (2.361)	-4.441* (2.270)	-4.688** (2.294)	-3.808 (2.378)	-3.419 (2.320)	-3.664 (2.355)
sigma						
Constant	0.278*** (0.008)	0.278*** (0.008)	0.278*** (0.008)	0.278*** (0.008)	0.278*** (0.007)	0.278*** (0.007)
Observations	1790	1790	1790	1790	1790	1790

Robust standard errors in parentheses

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$