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CHOOSING (AND RENEGING ON) EXCHANGE RATE REGIMES

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**ABSTRACT**

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# Choosing (and renegeing on ) exchange rate regimes\*

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## Abstract

We use data on announced and actual exchange rate arrangements to ask which countries follow *de facto* regimes different from their *de iure* ones, that is, do not do what they say. Our results suggest that countries with poor institutional quality have difficulty in maintaining pegging and abandon it more often. In contrast, countries with relatively good institutions display fear of floating, i.e. they manage more than announced, perhaps to signal their differences from those countries incapable of maintaining promises of monetary stability.

## 1 Introduction

Why do certain countries announce an exchange rate regime (say floating) and then deviate from it (say they peg)? What prevents countries from delivering what they promised, a situation which is rather common especially in non-OECD countries?

There are two aspects of this question. One, which is more well known, is why countries do not hold announced pegs and devalue. Recently, a different type of deviation from announcements has been quite common: Calvo and Reinhart (2002) show that while many countries claim to be floating, in fact they peg, experiencing what has been labeled “fear of floating.” Our goal is to identify what institutional characteristics of countries make them “fearful” of following through with

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actions what they announce in words, thus reneging on announcements of exchange rate regimes. We show below that different forces that lead to announce a peg and then float and viceversa.

We begin, first, by analyzing the choice of exchange rate regimes, that is why certain countries choose to float or to peg, building upon a small recent literature which discusses empirically why countries adopt certain arrangements or others. Recent contributions in this area include Frieden et al. (2000), Levy-Yeyati, Sturzenegger and Reggio (2002), Obstfeld and Taylor (2002) amongst others.<sup>1</sup> Explaining the choice of exchange rate regimes is difficult from the start, since a classification of regimes is problematic. The IMF has traditionally offered a classification which is “*de iure*,” that is, it is essentially based on what the countries say that they do. As a result, for example in certain periods certain countries are classified as floating even though their exchange rate never moves vis-a-vis, say, the US dollar. Several attempts have been made to adjust this classification or to offer altogether new ones. Some studies adjust the IMF classification;<sup>2</sup> Recently, Reinhart and Rogoff (2003) have taken a more radical approach: they classify regimes based upon a statistical analysis of the observed behavior of exchange rates, and consider explicitly the fact that many countries - even in the developed world - have or had dual exchange rate markets. We use the difference between the *de iure* classification of the IMF and the *de facto* classification of RR as an indicator of the discrepancy between announced behavior and actual behavior.

Our results can be summarized as follows. First, the major determinant of choosing to fix is the level of foreign denominated liabilities. More liabilities lead countries to prefer fixing. Second, countries (and periods) with relatively poor political institutions (more corruption, less protection of property rights etc.) are less able to stick to their announcements of fixing; they end up floating more than what they announce and often break commitments to pegging. Probably this reflects an inability of “poor quality” governments to maintain macroeconomic stability which is a precondition for holding pegs. Third, countries that display fear of floating (i.e. that announce floating but then have a fixed exchange rate) tend to have relatively good institutions. We interpret this result as reflecting a signalling device at work: since reneging on a commitment

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<sup>1</sup>A much larger literature studies the effects of different exchange rate regimes on the economy and, in fact, an immense literature debates the pros and cons of alternative arrangements. See Obstfeld and Rogoff (1999) for an overview.

<sup>2</sup>See Ghosh et al. (1997), Frieden et al. (2000). Levy-Yeyati and Sturzenegger (2003) have offered a classification based on data on exchange rates and international reserves. Shambaugh (2003) offers another classification based on statistical analysis of the exchange rate itself.

of fixing is associated with poor quality of institutions and of policies, more "virtuous" countries tend to avoid floating to raise their credibility and instead try to signal "rigor" .

Our paper is organized as follows. Section 2 reviews some theoretical considerations that form the basis of our empirical investigation. Section 3 describes the data sets that we use and in particular it describes the criteria used for different classifications. It also provides some discussions of basic correlations. Section 4 present our results on the politico-economic determinants of the choice of exchange rate regimes. Sections 5 and 6 discuss the determinants of deviations from announced exchange rate arrangements. The last section concludes.

## 2 Our hypotheses

Let us briefly review some key theoretical issues relevant for our empirical investigation. The "classic" view is that exchange rate regime choice should be determined by optimal currency area considerations, as in the celebrated work by Mundell (1961). The extent of mobility of factors and the flexibility of relative price adjustments were critical determinants of the optimality of a currency area. Later on, fixing the exchange rate was viewed as a device to create a precommitment to monetary stability, threatened by time inconsistency problems, as in Barro and Gordon (1983). For instance Giavazzi and Giovannini (1989) argue that certain governments could gain anti-inflationary credibility by fixing their exchange rate to a nominal anchor and argued that this was one of the original motivations for weak currencies in Europe to peg to the German mark. A vast literature that we cannot even begin to review made similar arguments for Latin American countries and others, such as Israel in times of high inflation.

Alesina and Barro (2002) have examined the question of optimal currency areas, trade, precommitment and stabilization policies in an integrated real and monetary model of endogenous formation of areas of common currency. Countries which trade a lot and have economies closely integrated with a large partner are likely candidates to peg their currencies or even to adopt the currency of the partner. Also, and this is especially relevant for our purposes here, countries with difficulties in making and maintaining a commitment to monetary stability should view pegging (or monetary unions) as a useful commitment device. Alesina, Barro and Tenreyro (2003) discuss the empirical implications of this analysis for the formation of areas of common currencies linked to a few main anchors.<sup>3</sup>An additional important set of issues has to do

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<sup>3</sup>Gale and Vives (2002) discuss related issues of monetary commitment for the

with the denomination of liabilities of a country. Foreign denominated liabilities appreciate in local currency if the latter depreciates. This creates an incentive to hold the value of the domestic currency.<sup>4</sup> Cespedes, Chang and Velasco (2002) (see also many references cited therein) discuss in detail the relationship between these balance sheets effects and exchange rate arrangements.<sup>5</sup> For a systematic compilation of other arguments put forward as explaining exchange rate regime choice, we refer the reader to Levy-Yeyati, Sturzenegger and Reggio (2002).

Empirically, we should observe that countries that peg are those who need an anchor, in particular, for our purposes here, those countries who do not have domestic institutions capable of guaranteeing macroeconomic stability; the countries that break a peg are those that not only do not have domestic institutions capable of guaranteeing stability, but also cannot even maintain conditions compatible with pegs. Note that breaking a peg is less politically and economically costly than reinstating a country's own currency after the country has joined a common currency areas, so breaking up pegs is much more common than breaking monetary unions.

Therefore the hypothesis that we test is that the countries more likely to announce pegs and then break them have poor institutional quality which is related to poor macroeconomic performance and inability to maintain monetary and fiscal stability. The link between poor government quality and poor economic policy has been documented extensively<sup>6</sup>.

While theory suggests fairly clear arguments for why certain countries may abandon pegs, it is less obvious why certain countries announce floating arrangements and then peg (fear of floating). Calvo and Reinhart (2002) explain it through the effect of nominal volatility on risk premia paid on borrowing.<sup>7</sup> Monetary and exchange rate volatility would affect the credibility of the country not in terms of first moments (average inflation) but in the variance of risk premia.

A different but not mutually exclusive argument may have to do with signalling. Devaluations may be perceived by the market as an indicator of turbulence and monetary fragility for the reasons discussed above. Thus, even countries that have not promised a peg may be induced to actually peg (or in the case where there is no dual market at least

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case of banking crises.

<sup>4</sup>See the discussion in Krugman (1999).

<sup>5</sup>The balance sheet effect generalizes to an open economy the analysis by Bernanke and Gertler (1989)

<sup>6</sup>See Persson (2001) for an overview and the volumes by Persson and Tabellini (2003) and Drazen (2000).

<sup>7</sup>For related work see also Calvo and Guidotti (1993)

to manage their exchange rate to a greater extent than announced) to avoid signaling weakness to the markets by letting the exchange rate devalue. Thus fear of floating may be viewed as a signaling device to create confidence in the country.

This argument raises the following question: If a “good” country wants to signal ability to keep a stable rate, than why announce a float and then peg rather than simply announce a peg and stick to it? One answer is that announcing a float allows some room to maneuver. For instance, in relatively “calm” periods with no exchange rate crises the fear of floating may be not to high so this hypothetical country may use a bit of the flexibility allowed by floating. On the other hand in turbulent periods it may be especially important to “signal” and keep the exchange rate constant, that is the fear of floating is especially high.

If this is true we should then find that countries with ”poor” institutions should find it difficult to hold on to pegs, while countries with ”good” institutions should experience fear of floating. We now turn to the data to test these hypotheses.

### 3 The data

Our data consist of three parts: exchange rate classifications (for 1974 to 2000) are our dependent variable. Institutional quality indices form our explanatory variables of central interest. To capture the economic effects discussed above, we also employ a set of control variables. Table 1 in the appendix contains descriptive statistics for all these variables.

#### 3.1 Exchange rate regimes classifications

***De jure versus de facto classifications.*** The “traditional” classification of exchange rate regimes is provided by the IMF. The official classification is given in the IMF’s Annual Report on Exchange Rate Arrangements and Exchange Restrictions, which, until recently, asked member states to self-declare their arrangement as belonging to one of four categories. So, for instance if a country says that in year x it is adopting a floating regime the IMF classifies this country year as floating even if in practice the country pegs its currency tightly to, say, the US dollar.

Deviations of actual behavior from announcements are rather common. In fact the empirical work on the effects (and the more limited amount of work on the determinants) of exchange rate regimes was frustrated by these significant deviations from actually behavior from announced behavior. Early studies had extended the four-way official classification into a more informative taxonomy (see Gosh et. al. (1997)). In recent years a number of scholars have used statistical methods to

regroup country practices and provide “*de facto*” classifications of exchange rate arrangement: one such “natural classification” is provided by Reinhart and Rogoff (2003) (RR) and a different *de facto* classification is given by Levi-Yeyati and Sturzenegger (2003) (LYS). The two classifications have in common the fact that they look at what countries actually do rather than what they say they do. Both classifications have their own merits, but for our purpose the RR classification is more appropriate. The main reason for this is that the key difference between RR and LYS is that RR look at actual exchange rates, while LYS base their algorithm on the official exchange rates. RR find that dual, or multiple rates, and parallel markets have prevailed quite frequently. While in the industrial countries, dual rates typically disappeared after the 1940s and 1950s, in the developing world, such practices remained commonplace through the 1980s and 1990s and into the present. Since we are more interested in what the real exchange rate development of a country is (as opposed to what countries do to influence the official exchange rate), it is more natural for us to use the RR classification as the benchmark.

There are other reasons why we believe that the RR classification is more appropriate for our purposes<sup>8</sup>. (The LYS classification may be superior for other purposes, so we do not mean to pick a winner here!). The algorithm used by LYS also uses (besides the exchange rate) reserves and base money. As Calvo and Reinhart (2003) note, using reserves has considerable limitations. Most importantly, the use of reserves in the LYS classification gives rise to many cases of what they refer to as “one classification variable not available.”<sup>9</sup> In any case, our findings reported in the robustness section indicate that the basic results of our paper - the role of the quality of institutions for fear of floating and fear of pegging - remain the same when we instead use the LYS classification as our measure of the actual exchange rate regime.

We therefore proceed by using the RR classification in our main analysis. Their basic procedure is as follows: Starting from detailed country chronologies, they first ask whether there existed a unified rate or dual/multiple/parallel market rates. In the first case, they next check whether, in the case where there was an official announcement, the actual rate behavior passes a statistical verification test. If not, or if there was no announcement, they statistically classify the regime and give it the

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<sup>8</sup>One aspect which we are exploring as we continue to revise this paper is the issue of one-time devaluations.

<sup>9</sup>For example, their algorithm could not provide a classification for the United Kingdom until 1987. Some developing countries could not be classified for any year over their 1974-2000 sample.



label “de facto.” The same happens in the case of multiple rates. If the announcement is verified, the regime is labeled as “de iure.”

We employ the LYS classification in our robustness tests, and we also use a third, less well-known classification, by Shambaugh (2003). His classification in some respects is intermediate between the other two, because, on the one hand, it focuses solely on the behavior of the exchange rate (like the RR classification) and on the other hand, it uses the official exchange rate (like LYS). He focuses on whether the exchange rate stays within a band (see the following table). A country with a one-time realignment but percentage changes of zero in eleven out of twelve months is considered as fixed. For space reasons, we refer to his paper for further details.

In Table 2, we match all the classifications. We need to use RR’s “coarse” classification in order to be able to compare exchange rate regimes across different classifications<sup>10</sup>. RR point out that separating “freely falling” countries with other floaters is important. This is correct. However, for the purposes of our main exercise - the investigation of the relation between political factors and the propensity for countries to deviate from announcements -, this distinction is not crucial. Except for the table 2, we therefore aggregate RR’s categories 4 and 5 into one category 4.

**Measures of cheating.** Our basic approach to quantifying the extent of “broken promises” is simple but well-grounded in the comparability of the regime classifications. We take the difference between RR (or any of the other de facto classifications) and the IMF classification. Table 3 shows a cross tabulation of observations in the two classifications.

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<sup>10</sup>RR also provide a fine classification with fourteen categories. Category 1 of the coarse grid covers: no separate legal tender, pre announced peg or currency board arrangement, pre announced horizontal band that is narrower than or equal to +/- 2%, and de facto peg. Category 2 covers: pre announced crawling peg, pre announced crawling band that is narrower than or equal to +/- 2%, de facto crawling peg, de facto crawling band that is narrower than or equal to +/- 2%, pre announced crawling band that is wide than or equal to +/- 2%. Category 3 covers: de facto crawling band that is narrower than or equal to +/- 5%, moving band that is narrower than or equal to +/- 2% (i.e., allows for both appreciation and depreciation over time), managed floating.

**Table 2: De iure and de facto exchange rate regime classifications**

	<b>IMF</b>	<b>Reinhart-Rogoff</b>	<b>LYS</b>	<b>Shambaugh</b>
1	Pegged to: single currency, composite of currencies	No separate legal tender UP TO De facto peg	Fix	Zero percent change in the exchange rate, realignment, but zero change in 11 of 12 months
2	Flexibility limited	Pre announced crawling peg UP TO De facto crawling band that is narrower than or equal to +/- 2%	Dirty/Crawling peg	stays within 1% bands
3	Managed floating	De facto crawling band that is narrower than or equal to +/- 5% UP TO Managed floating	Dirty	stays within 2% bands
4	Independent floating	Freely floating or freely falling	Float	no peg

**Table 3: The prevalence of deviations from announcements**

	<b>Announcement (IMF)</b>					<b>Total</b>
	<b>Peg</b>	<b>Limited</b>	<b>Managed</b>	<b>Float</b>	<b>Inconcl.</b>	
<b>Actual (RR)</b>						
<b>Peg</b>	803	94	80	33	5	1015
<b>&lt;2%</b>	257	81	226	145	2	711
<b>&lt;5%</b>	54	0	110	140	0	304
<b>Float</b>	12	25	9	125	1	172
<b>Free fall</b>	484	37	251	157	2	931
<b>Inconcl.</b>	0	0	0	1	0	1
<b>Total</b>	1610	237	676	601	10	3134

The message of Table 3 is striking: A large percentage of observations in the sample period (1974 to 2000) indicates deviations of actual policies from announced policies. It is noteworthy that there are deviations on both sides of the diagonals of the table, pointing to the fact that some

countries peg more than they announce and others float more than they announce.

Before we come to our definitions of the dependent variables, we point out that there has been some confusion in terms in the emerging literature on the relation between de iure and de facto exchange rate regimes. Calvo and Reinhart (2002), for example, define fear of floating as de iure floaters who do something to smooth the fluctuations of the nominal rate. Levy-Yeyati, Sturzenegger and Reggion (2002) define fear of pegging as having a de facto peg but claiming another regime. Thus, they really talk about fear of *announcing* a peg. In other words, the two terms, even though they sound similar, take different viewpoints. The two different notions can be represented in the following graph:

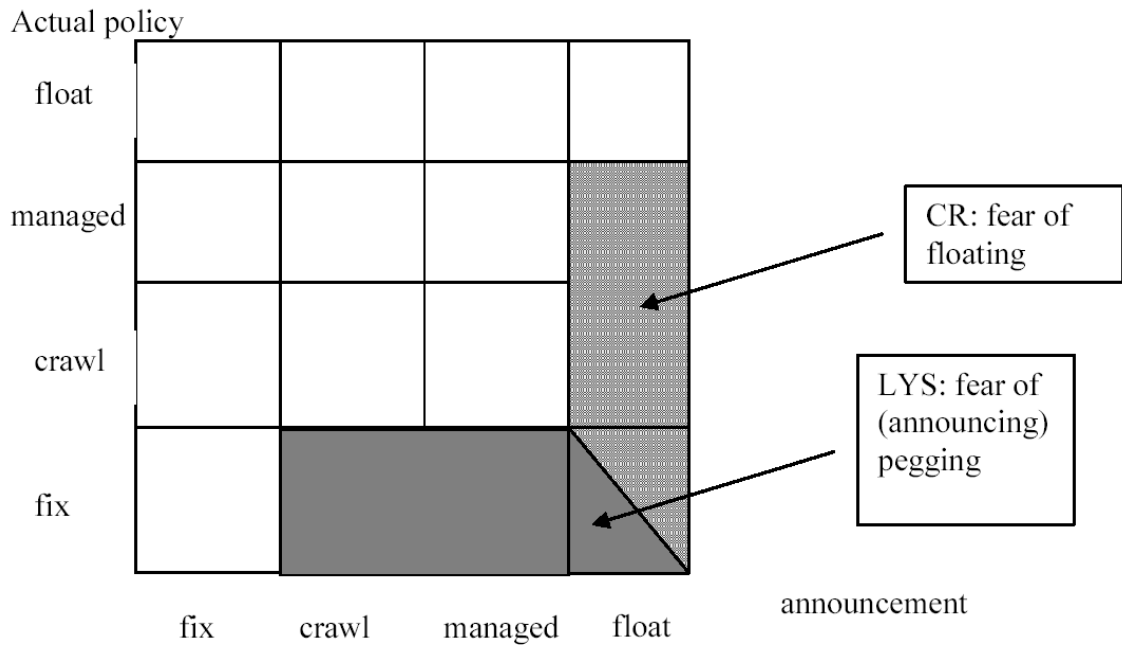


Figure 1: Fear of floating (Calvo-Reinhart 2002) and fear of announcing pegging (Levy-Yeyati, Sturzenegger and Reggion 2002)

Our main interest in this paper is in situations where actions do not correspond with (previous) announcements. The following figure therefore highlights those observations which we will subsume under the terms “fear of floating” and “fear of pegging.”

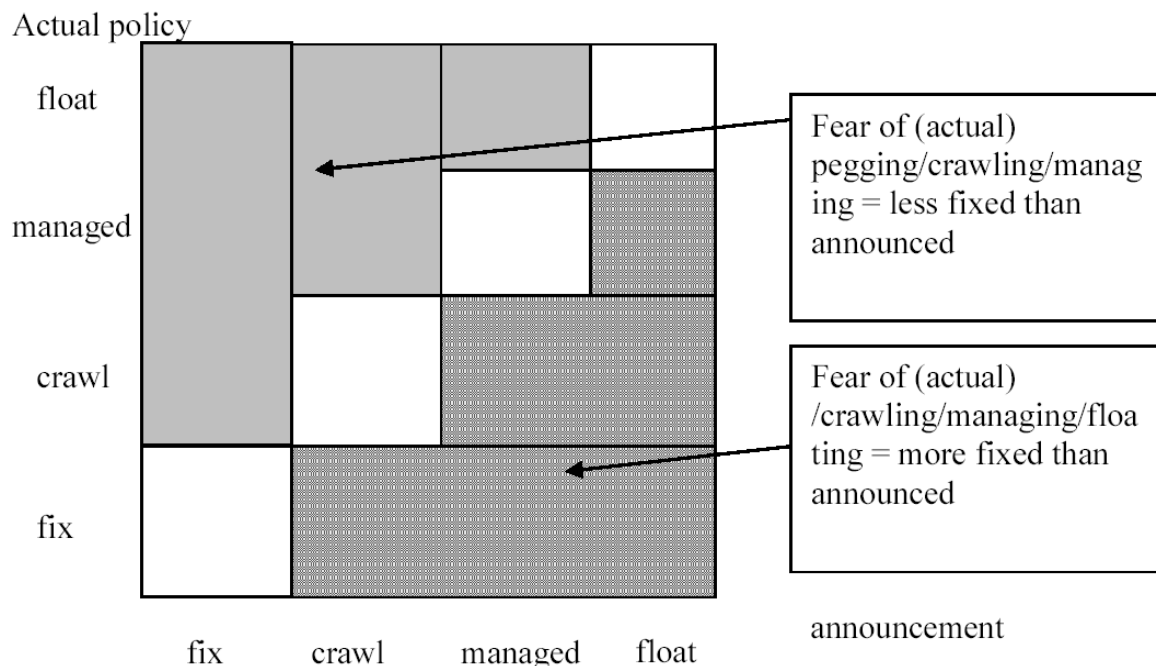


Figure 2: Fear of pegging (more floating than announced) and fear of floating (more managing than announced)

Our dependent variable “FEAROFFLOAT” is a dummy variable equal to 1 whenever the observation is in the lower right triangle of the graph (i.e. when RR minus IMF is negative) ; otherwise it is 0. Conversely, “FEAROFPEG” is 1 whenever we observe a country-year in the top left corner of the graph (i.e. when RR minus IMF is positive); otherwise it is 0.

### 3.2 Institutional data

We use a vast array of institutional quality data. A key challenge in employing political data is that often, researchers have available observations only at one point in time; on the other hand, when data are time-varying, they often cover only smaller set of countries. We also face this trade-off in the present paper. We have chosen to use two sets of institutional measures: proprietary data from BERI (which is available for about 50 countries from 1980 to the present) and data from the Composite Indicator Dataset (Kaufmann et al. 2002), provided by the World Bank. The latter dataset has very wide coverage (about 180 countries), but is available only for part of the 1990s.

From the well-known BERI dataset, we employ three separate measures and a composite indicator. The Operations Risk Index (ORI) aims to gauge the operations climate for foreign businesses. It measures a) the degree to which nationals are given preferential treatment and b) the general quality of the business climate, including bureaucratic and policy continuity. The Political Risk Index (PRI) focuses on socio-political conditions in a country; it considers internal causes of political risk (like the fractionalization of the political spectrum), external causes of political risk (like regional political forces) and symptoms of risk (like demonstrations, strikes, and street violence). The purpose of the R-factor instead is to estimate a country's capacity and willingness for private foreign companies to convert profits and capital in the local currency to foreign exchange and transfer the funds and have access to convertible currency to import components, equipment, and raw materials. The BERI composite index combines the three subindices.

Kaufmann, Kraay and Zoido-Lobaton (1999a, 1999b, 2002) provide a set of governance indicators for a wide range of countries. Their data is a statistical compilation of perceptions of the quality of governance of a large number of survey respondents in industrial and developing countries, as well as non-governmental organizations, commercial risk rating agencies, and think-tanks. The six indicators employed here include Voice and Accountability, Political Stability, Government Effectiveness, Regulatory Quality, Rule of Law, and Control of Corruption. The terms are self-explanatory, but in the appendix we provide some more detail on the construction of these variables. These data are available for 2000/01 and 1997/1998. Because it is usually assumed that institutional quality changes relatively slowly, we use the 1998 data for 1995 to 1998 and the 2001 data for 1999 and 2000 (the final year of our sample)<sup>11</sup>.

### 3.3 Economic variables

As control variables, we use data readily available from the IMF and other sources<sup>12</sup>. We use the lagged ratio of foreign liabilities to money to control for the balance sheet effect discussed above. Our controls for openness include the lagged ratio of (exports+imports)/2 over GDP, the lagged share of trade with the largest trading partner (measured as exports to the largest trading partners as a share of total exports), and the standard deviation of the logarithm of terms of trade over the

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<sup>11</sup>As Kaufmann, Kraay and Zoido-Lobaton (2002) point out, for some indices, governance quality does appear to shift relatively quickly. However, our qualitative results are unchanged if we use the 1998 data only for 1998 and the 2001 data only for 2000. However, the number of observations is obviously reduced.

<sup>12</sup>We thank Federico Sturzenegger for sharing his dataset of these data.

previous five years adjusted by openness. We also use log GDP as well as a dummy variable for the economic cycle (which is 1 if the GDP growth rate in the preceding period is above long-run growth).

### 3.4 Some basic correlations

Table 4 shows some simple correlations between many of the variables of interest. We only need to point out a few regularities. First, all the political variables show a fairly high positive correlation between themselves. As is well known in the empirical literature on the effects of institutional quality on the economy, many features of “good institutions” go hand in hand in many countries. However, these correlations are not perfect and in some cases are as low as 0.5, suggesting that using many different measures of institutional quality has some value added. Interestingly the variable “democracy” (from the Polity IV dataset) displays some relatively low correlations with variable capturing good economic institutions. For instance, the correlation between democracy and protection of property rights, rule of law and political stability is below 0.5. The correlation between democracy and control of corruption is barely above 0.5. On the other hand, property rights and rule of law are highly correlated with each other since they capture similar institutional features even after the clustering procedure employed by Kaufmann, Kraay and Zoido-Lobaton (1999).

Second, as is also well known, the level of development captured by GDP per capita is positively correlated with quality of institutions. The correlation of log of GDP per capita with institutional quality is in the order of 0.5.

Third, the patterns of correlations of political variables with our exchange rate measure paint the following picture<sup>13</sup>. On the one hand, the correlation between having a fixed rate and quality of institutions is generally positive but small. That is, countries with “superior” institution seem to slightly prefer fixed rates. On the other hand, we observe a striking difference with respect to our deviation measures: fear of pegging is negatively correlated with quality of institution and fear of floating is positively correlated with quality of institutions. This switch in sign is quite suggestive. As we will discuss below these patterns of correlations survive deeper statistical analysis.

Finally, it is important to note the positive correlation between foreign denominated liabilities and quality of institutions which suggest that countries with superior institution are capable of borrowing more even

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<sup>13</sup>Since the exchange rate measure is a categorical variable, calculating the simple correlation is not statistically rigorous, but for the purposes of this first look, we leave aside this issue. In the next section, the correct statistical procedure is employed.

though the correlations are not extremely high.

## 4 The choice of exchange rate regimes

Although our emphasis is on explaining deviations from officially announced behavior we begin with a brief analysis of the choice of actual exchange rate arrangement, an analysis that sets the stage for what follows.

Table 5 displays some logit regressions where the dependent variable captures whether the country in question, in a certain year adopts a fixed rate regime or not according to the Reinhart-Rogoff classification. So a country is classified as 1 for having a fixed exchange rate regime regardless of whether it says so and actually maintains its announcements or says otherwise but in practice adopts a fixed rate system<sup>14</sup>.

All the regressions in this table and in all those that follow include year dummies. The first two columns suggest that superior institutions measured by the composite index of institutional quality described above are associated with fixed rates, but this correlation does not survive controlling for regional dummies or, more interestingly, controlling for (lagged) foreign liabilities. As Calvo and Reinhart (2002) note foreign liabilities are a key determinant of way debtor countries may fear exchange rate volatility and thus prefer pegs. Also, in Lahiri and Vegh (2001) preferences for fixed rates are explained with various cost associated with the presence of foreign liabilities<sup>15</sup>. Note that openness is insignificant after controlling for foreign liabilities suggesting that a financial motivation for avoiding volatility of foreign denominated liabilities dominates fear of exchange rate volatility on trade.

Table 6 reports only the coefficient on many determinants of quality of institutions obtained from the same regressions of Table 4 (the other coefficients of the regressions are not reported for brevity). The number of observations is about 900 for the BERI variables and about 500-600 for the World Bank data. The message from this table is quite clear: the same conclusions that can be drawn from Table 5 generalize to other measures of institutional quality - institutional quality does not have a strong and consistent effect. The coefficients on the other controls (not shown) of the regressions of Table 6 are very similar to those of Table 5.)

Thus, the bottom line is that fixed rates are preferred by countries

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<sup>14</sup>The qualitative results remain unchanged when we instead employ a categorical variables regression, using ordered logit.

<sup>15</sup>Note that the presence of foreign liabilities should explain a preference for fixed rates. It is much less clear why it should explain preferences for announcing floating and then fixing, that is, fear of floating.

with a lot of foreign denominated liabilities. Also countries with superior institutions can borrow more, but holding institutions constant, the size of foreign liabilities is a key determinant for a preference for fixed rates<sup>16</sup>.

## 5 Fear of floating and "fear of pegging"

We now move to the main focus of our analysis, namely an empirical analysis of why countries do not always do what they say they do.

Table 7 displays several logit regressions concerning the inability to keep a peg. Recall that for brevity and with an analogy with the notion of "fear of floating," we label this behavior "fear of pegging," a term that is a bit misleading, since it reflects more than a "fear:" it also reflects an "inability". Still, the analogy is too tempting and we use it.

As described in the data section, on the left hand side we have country years in which the country announces a regime that is more fixed than what is observed in practice. More precisely, we take the difference between the RR de facto classification and the IMF de iure classification and set the dependent variable equal to 1 whenever RR minus IMF is greater than 0. In table 7 we present four "representative" regressions, which all include year dummies, starting from a minimalist one and using two measures of institutional quality, the composite index and a measure of protection of property rights. The interesting finding is that in all regressions measures of institutional quality are inversely related to fear of pegging. That is, countries with superior institutions have less fear of pegging, that is they are more capable of keeping actual pegging when they announce it. Note that this result holds even after controlling for the level of development (which enters with the expected sign: richer countries keep promises more). We will show below that these results generalize to other measures of institutional quality.

We interpret this effect of institutions as reflecting a standard commitment problem: better institutions lead to being more able to keep macroeconomic policies consistent with nominal stability. More foreign liabilities reduce the tendency to abandon pegging (or another type of exchange rate management), a result that is again consistent with expectations. Measures of trade and openness do not seem to show consistent patterns. As we argued above these variables (foreign liabilities and openness) may themselves be endogenous to institutional quality, implying that it is uncertain whether one wants to control for them. In fact, the channel through which "poor" institutions lead to an inability to keep a peg ("fear of pegging") may have to do, at least in a large part, with

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<sup>16</sup>The data also show some regional pattern in the choice of exchange rate regimes (not shown in the tables), a result that is consistent with findings of Levy-Yeyati et al. (2002).



poor macroeconomic policies, leading to macroeconomic instability.

In Table 8, we provide some rough correlations between our measures of institutions and some key indicators of macroeconomic performance: inflation, debt over GDP, investment over GDP. These variables are especially closely linked to the ability of keeping a peg: inflation is obviously linked to exchange rate stability, accumulated debt may trigger runs against the currency, and investment over GDP captures whether borrowing is used for investment (linked to growth) or consumption. All the correlations (negative for the first two variables, positive for the latter) show that better institutional quality is associated with superior economic performance. The absolute magnitudes of these correlations vary but they have always the expected sign and they are often as high as 0.3/0.4 or more in absolute terms. The only political variable not strongly associated with these economic performance indicators is the variable “democracy,” a result that is consistent with the literature<sup>17</sup>. Obviously, in our analysis we focus on institutional quality rather than policy measures directly because the former are more exogenous. Exchange rate arrangements may have an effect on certain policy outcomes (inflation for instance) so one may run the risk of falling into reverse causality problems. Also bad policies may be the intermediate more proximate cause of departure from pegging, but bad institutions are the ultimate cause of the policies.

Table 9 presents results for the fear of floating country-years. Here, the dependent variable is equal to 1 if the difference between the RR classification and the IMF classification is smaller than 0, to capture countries that float less than announced. The regressions are organized in the same way as in Table 7, and also include year dummies. The results on the political variables are quite different from those of Table 7. In the case of property rights the results are the exact opposite as of Table 7. Now it looks like countries with superior institutions display fear of floating. In the case of the composite index, once one controls for foreign denominated liabilities the index of institutional quality loses significance, and once again more foreign liabilities lead to a preference for fixing. With even more control variables, the coefficient changes its sign, due to the strong correlation with foreign liabilities and openness (this is of course again just a reflection of the fact that the BERI indicators are closer to policy variables than the other institutional quality indicators).

In table 10 we present a summary of results using all the other measures of institutional quality. All the regressions are the same as those

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<sup>17</sup>See for instance Barro (1996). Note also that as pointed out before, the variable democracy had a relatively low correlation with other indicators of quality of institutions.

presented in tables 7 and 9 but for compactness we show only the coefficients and their statistical significance for the pollical variables. Even a cursory look at these numbers reveals that the patterns of results of Table 7 and 9 generalize to many other measures of institutional quality. On the right hand side of the table where we show result for fear of pegging most of the coefficient are negative (34 out of 44) and most of them statistically significant at the 10 per cent level or better. The results are especially strong for the composite indices of quality of institutions, for property rights protection and government effectiveness. On the contrary in the left-hand side of the table we have the fear of floating results. Here most of the coefficient are positive (39 out of 44) and most of them statistically significant. Results along these lines are especially strong for regulatory quality, rule of law control of corruption, government effectiveness property rights. They are more inconclusive for the composite indices.

In addition to the statistical significance, we can also evaluate the economic significance of the findings. Since the model is a simple limited dependent variable model, we can directly gain insights regarding the importance of the effects from looking at the coefficients together with the descriptive statistics. For example, consider the role of property rights. Consider first the left half of Table 10, which gives the results for fear of floating. Let us focus on regression D, for example. The coefficient of 0.286 means that whenever the property rights variable goes up by one point, all else being equal, the probability that a country falls into the fear of floating category goes up by 28.6%, a quite significant effect. Since the property rights variable ranges from -5 to -1, such a one-point increase is not out of the question. Note that the effect is even bigger for fear of pegging. The same increase in property rights quality would result in a decrease in the probability of fear of pegging by more than 50%. Monte-Carlo simulations can be used to further evaluate these quantitative implications, but it is clear from this inspection that the impact of institutional quality, where statistically significant, is typically also economically significant. The difference in the patterns of coefficients between the two sides of the deviations from announcements is strong. The result that countries with superior institutions display fear of floating is less strong than the very strong result than countries with poor institutions display fear of pegging, but the difference in the results concerning the two sides of deviations is striking.

## 6 Alternative Classifications

We have rerun all our regressions of the previous section using the classification of exchange rate regimes proposed by Levy-Yeyati and

Sturzenegger (2003) and by Shambaugh (2003). As we have argued above in the data section, these classifications are less appropriate for our purposes. The reason is that these two rely on official exchange rates rather than market determined rates. That is in the many country years when there is both an official market rate and a dual one, only RR use the dual unofficial market rate in their classification. Since we are interested in the deviation from announced official policies and de facto behavior of the exchange rate, the RR measure is the most appropriate for our purposes.

Nevertheless, for the LYS classification, it turns out that broadly speaking our results still go through (results are available on request). That is, “fear of pegging” is associated with bad institutions and “fear of floating” with good ones. If we use the Shambaugh (2003) classification, the results are more murky. Given the different nature of the three classifications is, in a sense, comforting that our results are the strongest with the RR classification.

## 7 Conclusions

We have investigated why countries do not follow through with their plans regarding exchange rate arrangements. We found some interesting answers. Countries that display fear of pegging, i.e., do not keep to an announced peg tend to be those with poor institutions. The reason is, we think, clear: poor economic institutions are associated with poor economic management, and economic instability is incompatible with monetary stability and exchange rate pegs. By contrast, we find that by and large countries with “good” institutions display fear of floating, that is they float less than announced, or to put it differently they try to peg and limit exchange rate fluctuations despite not having said so in advance. Our explanation for this behavior is that these countries are afraid that wide exchange rate fluctuations (especially devaluations) will be taken by markets as an indication of poor economic management. In other words, these countries peg more than announced to signal stability.

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## 8 Appendix

### 8.1 Institutional data: a brief description

Kaufmann, Kraay and Zoido-Lobaton (1999a, 1999b, 2002) (KKZ) define governance broadly as the traditions and institutions by which authority in a country is exercised. They have compiled a large number of governance measures from a variety of sources into a governance database. The sources include international organizations, political and business rating agencies, think tanks, and non-governmental organizations<sup>18</sup>.

The two basic types of sources are polls and surveys. Polls are explicitly designed for cross-country comparability, but they are typically based on the opinions of only a few experts per country. Surveys, on the other hand, reflect the opinions of a larger number of respondents, but questions can be interpreted in context- or culture specific ways (see King 2003 for an approach to mitigating this problem). Also, surveys are much more costly and therefore typically cover a smaller set of countries. The main contribution of KKZ is to use unobserved variables techniques to flesh out six aggregate governance indicators from the large variety of partly overlapping governance indicator databases. These six indicators are the following:

*“Voice and Accountability”* is intended to capture the process by which those in authority are selected and replaced. Indicators measuring various aspects of the political process, civil liberties and political rights are included to measure the extent to which citizens of a country are able to participate in the selection of governments. KKZ also include in this category three indicators measuring the independence of the media, which serves an important role in monitoring those in authority and holding them accountable for their actions.

*“Political Instability and Violence”* combines several indicators which measure perceptions of the likelihood that the government in power will be destabilized or overthrown by possibly unconstitutional and/or violent means. This index captures the idea that the quality of governance in a country is compromised by the likelihood of wrenching changes in government, which has a direct effect on the continuity policies.

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<sup>18</sup>In particular, the work draws on quantitative measures of governance from BERI, the Wall Street Journal, Standard and Poor’s Country Risk Review, the EBRD’s Transition Report, the Economists’ Country Risk Service and Country Forecast, the Freedom House index, Gallup’s 50th Anniversary Survey, The Global Competitiveness Survey by the World Economic Forum, The Heritage Foundation Economic Freedom Index, Asia Intelligence by the Political Economic Risk Consultancy, the International Country Risk Guide (ICRG) by Political Risk Services, the World Competitiveness Yearbook, and the World Bank’s World Development Report.

In “*Government Effectiveness*” KKZ combine perceptions of the quality of public service provision, the quality of the bureaucracy, the competence of civil servants, the independence of the civil service from political pressures, and the credibility of the government’s commitment to policies.

“*Regulatory burden*” is more focused on the policies themselves. It includes measures of the incidence of market-unfriendly policies such as price controls or inadequate bank supervision, as well as perceptions of the burdens imposed by excessive regulation in areas such as foreign trade and business development.

The “*Rule of Law*” stands for several indicators which measure the extent to which agents have confidence in and abide by the rules of society. These include perceptions of the incidence of both violent and non-violent crime, the effectiveness and predictability of the judiciary, and the enforceability of contracts.

Finally, “*Control of corruption*” (or “Graft”) measures perceptions of how successful the country is in keeping the exercise of public power for private gain at a minimum. The presence of corruption is often a manifestation of a lack of respect of both the corrupter (typically a private citizen) and the corrupted (typically a public official) for the rules which govern their interactions, and hence represents a failure of governance.

The unobserved components model expresses the observed data in each cluster as a linear function of the unobserved common component of governance, plus a disturbance term capturing perception errors and/or sampling variation in each indicator. Formally, then, the estimate of governance for each country is the mean of the distribution of unobserved governance conditional on the observed data for that country. The assumptions of the model KKZ apply ensure that the distribution of governance in each country is normal, conditional on the data for that country. Even though in the present paper we employ the point estimates of the governance indicators (as is the usual procedure in work on the impact of institutional quality), it is noteworthy that KKZ find that the underlying governance concepts in each cluster are themselves not very precisely estimated. Still, although imprecise, each aggregate indicator provides a more precise signal of its corresponding broader governance concept than do any of its component indicators. For more details on the method, we refer the reader to the original papers.

## 8.2 Tables

**Table 1: Descriptive statistics**

Variable	Obs	Mean	Std. Dev.	Min	Max
IMF (4=float, 1=peg)	3132	2.09	1.22	1.00	4.00
RR	3203	2.48	1.26	1.00	4.00
LYS	3335	2.26	1.10	1.00	4.00
Sham	4183	2.75	1.32	1.00	4.00
RR minus IMF	3123	0.39	1.46	-3.00	3.00
FEARFLOAT (RR)	3123	0.23	0.42	0.00	1.00
FEARPEG (RR)	3123	0.36	0.48	0.00	1.00
LYS minus IMF	2463	0.32	1.05	-3.00	3.00
FEARFLOAT (LYS)	2463	0.16	0.37	0.00	1.00
FEARPEG (LYS)	2463	0.39	0.49	0.00	1.00
Sham minus IMF	2914	0.95	1.18	-3.00	3.00
FEARFLOAT (Sham)	2914	0.05	0.21	0.00	1.00
FEARPEG (Sham)	2914	0.59	0.49	0.00	1.00
Log GDP	4127	9.13	2.45	3.56	16.01
Lagged foreign liabilities / money	3644	2.33	15.05	-0.05	237.83
Openness	3202	0.37	0.22	0.00	1.52
Share of trade with largest partner	3834	0.28	0.16	0.00	1.00
Stdev. Terms of trade	2771	0.05	0.05	0.00	0.56
Economic cycle dummy	4237	0.50	0.50	0.00	1.00
Debt / GDP	1618	48.41	46.61	0.00	534.68
Inflation	3306	0.17	0.39	-3.87	5.48
Inv. / GDP	3175	0.22	0.08	0.02	0.66
BERI Composite	1071	52.14	13.02	23.87	189.03
BERI PRI	1071	50.22	12.67	11.00	78.00
BERI ORI	1071	53.30	13.39	19.80	85.00
BERI R	1071	52.94	19.02	26.00	480.00
Democracy	3195	1.13	7.59	-10.00	10.00
Property rights	714	-2.70	1.10	-5.00	-1.00
Voice and accountability	804	0.14	0.92	-1.93	1.73
Political stability	770	0.03	0.90	-2.59	1.69
Government effectiveness	774	0.04	0.91	-1.77	2.16
Regulatory quality	798	0.09	0.80	-2.78	1.82
Rule of law	798	0.04	0.93	-2.15	2.00
Control of corruption	768	0.04	0.95	-1.57	2.25



**Table 4: Partial correlations**

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	RRFIX	1.00																	
2	WIDEFEARPEG	-0.52	1.00																
3	WIDEFEARFLOAT	-0.04	-0.41	1.00															
4	LGDP	-0.26	-0.06	0.26	1.00														
5	FOREIGN LIABILITIES	0.08	0.00	0.03	-0.02	1.00													
6	OPENNESS	0.21	-0.01	0.01	-0.34	0.26	1.00												
7	BERI COMPOSITE	0.15	-0.25	0.07	0.51	0.44	0.28	1.00											
8	ORI	0.16	-0.27	0.09	0.54	0.46	0.27	0.90	1.00										
9	PRI	0.09	-0.20	0.04	0.46	0.41	0.24	0.85	0.83	1.00									
10	R	0.16	-0.23	0.07	0.36	0.37	0.27	0.85	0.60	0.50	1.00								
11	DEMOCRACY	-0.24	-0.10	0.22	0.44	0.08	0.06	0.38	0.41	0.39	0.27	1.00							
12	PROPERTY RIGHTS	0.10	-0.17	0.13	0.56	0.16	0.16	0.70	0.77	0.68	0.56	0.47	1.00						
13	VOICEAND	0.05	-0.15	0.12	0.47	0.14	0.14	0.62	0.67	0.61	0.48	0.83	0.68	1.00					
14	POLITICAL STABILITY	0.07	-0.02	0.09	0.48	0.17	0.21	0.79	0.77	0.83	0.64	0.47	0.65	0.75	1.00				
15	GOV. EFFECTIVE	0.09	-0.14	0.14	0.57	0.19	0.15	0.85	0.89	0.84	0.69	0.52	0.79	0.79	0.81	1.00			
16	REGULATORY QUAL	0.09	-0.24	0.21	0.50	0.14	0.17	0.68	0.74	0.68	0.52	0.62	0.75	0.75	0.68	0.78	1.00		
17	RULE OF LAW	0.07	-0.12	0.14	0.58	0.18	0.18	0.86	0.90	0.85	0.71	0.49	0.81	0.78	0.87	0.92	0.77	1.00	
18	CONTROL CORRUPTION	0.10	-0.13	0.11	0.52	0.18	0.16	0.82	0.86	0.81	0.65	0.53	0.76	0.79	0.78	0.93	0.72	0.91	1.00

Table 5: Dependent variable Rrfix = 1 if fixed according to RR, 0 otherwise.

	1	2	3	4
Composite	0.031	0.031	-0.002	0.009
	(5.20) <sup>***</sup>	(4.18) <sup>***</sup>	-0.21	-0.77
lgdp		-0.009	0.084	-0.034
		-0.13	-1.18	-0.33
Lagged foreign liabilities			0.553	0.564
			(5.89) <sup>***</sup>	(4.90) <sup>***</sup>
Lagged openness				0.187
				-0.21
Constant	-3.352	-3.714	-2.655	-1.817
	(6.21) <sup>***</sup>	(4.77) <sup>***</sup>	(3.26) <sup>***</sup>	-1.54
Observations	1014	1013	950	897

Robust z statistics in parentheses

\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

Table 6: Dependent variable Rfix = 1 if fixed according to RR, 0 otherwise.  
For a description of the specifications 1-5, see text.

	1	2	3	4
Composite	0.031	0.031	-0.002	0.009
	(5.20)***	(4.18)***	-0.21	-0.77
ORI	0.034	0.037	0.003	0.018
	(6.32)***	(5.23)***	-0.36	(1.74)*
PRI	0.018	0.014	-0.016	-0.012
	(3.09)***	(2.00)**	(1.91)*	-1.16
R	0.027	0.028	0.005	0.012
	(4.89)***	(4.00)***	-0.64	-1.38
Democracy	-0.074	-0.051	-0.06	-0.075
	(13.37)***	(8.15)***	(9.01)***	(10.36)***
Property	0.201	0.4	0.112	0.422
	(2.66)***	(3.90)***	-0.96	(3.10)***
Voice and Accountability	0.122	0.236	-0.122	-0.04
	-1.51	(2.35)**	-1.03	-0.29
Political Stability	0.171	0.282	-0.1	0.002
	(1.99)**	(3.06)***	-0.96	-0.02
Government Effectiveness	0.208	0.404	-0.052	0.221
	(2.50)**	(3.97)***	-0.42	-1.52
Regulatory Quality	0.245	0.46	0.032	0.228
	(2.49)**	(3.92)***	-0.24	-1.36
Rule of Law	0.148	0.349	-0.092	0.078
	(1.84)*	(3.62)***	-0.8	-0.57
Control of Corruption	0.222	0.368	-0.038	0.068
	(2.84)***	(3.89)***	-0.31	-0.49

Robust z statistics in parentheses

\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

**Table 7: Dependent variable: FEAROFPEG**

	A	B	C	D	A	B	C	D
Composite	-0.053	-0.031	-0.031	-0.027				
	(7.73)***	(3.97)***	(3.13)***	(1.89)*				
Property					-0.451	-0.509	-0.319	-0.519
					(4.62)***	(3.97)***	(2.15)**	(2.39)**
lgdp		-0.352	-0.338	-0.662		0.098	0.124	0.319
		(4.34)***	(4.03)***	(4.79)***		(1.68)*	(2.03)**	(3.35)***
Lagged foreign liabilities			-0.102	-0.59			-0.697	-2.409
			-0.85	(2.31)**			(1.69)*	(3.74)***
Lagged openness				0.564				2.308
				-0.4				-1.62
1974 trade with largest partner				-0.579				-2.414
				-0.98				(2.84)***
StdDev ToTrade				-13.34				-9.224
				(2.56)**				-1.64
dumci				0.348				0.144
				(1.74)*				-0.48
Constant	2.703	5.678	5.332	7.464	-2.359	-3.636	-3.938	-5.895
	(5.62)***	(6.22)***	(5.53)***	(4.63)***	(6.07)***	(4.04)***	(4.09)***	(3.30)***
Observations	980	979	918	753	699	688	651	430

Robust z statistics in parentheses

\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

**Table 8: Correlations of institutional quality with macroeconomic indicators**

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	DEBTGDP1	1.00														
2	INF	0.25	1.00													
3	INVGDP	-0.11	-0.14	1.00												
4	COMPOSIT	-0.09	-0.37	0.16	1.00											
5	PRI	-0.23	-0.28	0.14	0.85	1.00										
6	ORI	-0.03	-0.38	0.12	0.90	0.83	1.00									
7	R	0.01	-0.37	0.19	0.85	0.50	0.60	1.00								
8	DEMOCRACY	-0.10	0.00	0.00	0.38	0.39	0.41	0.27	1.00							
9	PROPERTY	-0.32	-0.28	0.05	0.70	0.68	0.77	0.56	0.47	1.00						
10	VOICEAND	-0.40	-0.26	0.04	0.62	0.61	0.67	0.48	0.83	0.68	1.00					
11	STABILITY	-0.44	-0.31	0.06	0.79	0.83	0.77	0.64	0.47	0.65	0.75	1.00				
12	GOV EFF	-0.27	-0.36	0.09	0.85	0.84	0.89	0.69	0.52	0.79	0.79	0.81	1.00			
13	REG QUAL	-0.39	-0.35	0.10	0.68	0.68	0.74	0.52	0.62	0.75	0.75	0.68	0.78	1.00		
14	RULE OF LAW	-0.37	-0.35	0.11	0.86	0.85	0.90	0.71	0.49	0.81	0.78	0.87	0.92	0.77	1.00	
15	CONT CORR	-0.24	-0.32	0.07	0.82	0.81	0.86	0.65	0.53	0.76	0.79	0.78	0.93	0.72	0.91	1.00

**Table 9: Dependent variable: FEAROFFLOAT**

	A	B	C	D	A	B	C	D
Composite	0.013	0.011	0.004	-0.018				
	(2.43)**	-1.54	-0.53	(1.73)*				
Property					0.234	0.21	0.185	0.286
					(3.42)***	(2.40)**	(2.01)**	(2.08)**
lgdp		0.033	0.048	0.268		-0.015	0.021	0.002
		-0.54	-0.76	(3.04)***		-0.34	-0.47	-0.04
Lagged foreign liabilities			0.236	0.432			0.018	0.023
			(3.00)***	(2.77)***			(2.35)**	(1.87)*
Lagged openness				1.448				-1.495
				-1.29				(2.21)**
1974 trade with largest partner				1.642				2.43
				(3.21)***				(3.65)***
StdDev ToTrade				-0.735				9.456
				-0.17				(2.98)***
dumci				-0.214				0.05
				-1.33				-0.24
Constant	-1.76	-2.03	-1.963	-3.136	0.435	0.504	0.033	-0.06
	(3.84)***	(3.05)***	(2.87)***	(3.13)***	-1.52	-0.79	-0.05	-0.06
Observations	980	979	918	753	699	688	651	430

Robust z statistics in parentheses

\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

**Table 10: Broken promises - both ways**

	Dependent variable: FearOfFloat				Dependent variable: FearOfPeg			
	A	B	C	D	A	B	C	D
Composite	0.013 (2.43)**	0.011 -1.54	0.004 -0.53	-0.018 (1.73)*	-0.053 (7.73)***	-0.031 (3.97)***	-0.031 (3.13)***	-0.027 (1.89)*
PRI	0.006 -1.13	0.001 -0.14	-0.005 -0.66	-0.013 -1.54	-0.035 (6.01)***	-0.012 (1.88)*	-0.01 -1.37	0.001 -0.06
ORI	0.015 (3.06)***	0.015 (2.39)**	0.008 -1.12	-0.017 (1.77)*	-0.055 (8.73)***	-0.038 (5.21)***	-0.039 (4.29)***	-0.038 (2.99)***
R	0.012 (2.46)**	0.01 -1.6	0.006 -0.91	-0.01 -1.24	-0.044 (7.02)***	-0.024 (3.52)***	-0.022 (2.68)***	-0.025 (2.05)**
property	0.234 (3.42)***	0.21 (2.40)**	0.185 (2.01)**	0.286 (2.08)**	-0.451 (4.62)***	-0.509 (3.97)***	-0.319 (2.15)**	-0.519 (2.39)**
Voice and Accountability	0.28 (3.59)***	0.154 (1.65)*	0.139 -1.41	0.342 (2.44)**	-0.422 (3.94)***	-0.308 (2.35)**	0.044 -0.3	-0.039 -0.22
Political Stability	0.214 (2.54)**	0.127 -1.29	0.122 -1.16	0.282 (1.85)*	-0.054 -0.57	0.117 -0.95	0.496 (3.42)***	0.58 (3.03)***
Government Effectiveness	0.312 (3.87)***	0.254 (2.46)**	0.24 (2.14)**	0.407 (2.71)***	-0.428 (3.79)***	-0.388 (2.51)**	0.065 -0.35	-0.022 -0.09
Regulatory Quality	0.581 (6.24)***	0.537 (4.62)***	0.478 (3.74)***	0.862 (3.66)***	-0.74 (6.37)***	-0.774 (5.03)***	-0.535 (2.89)***	-0.522 (2.02)**
Rule of Law	0.316 (4.11)***	0.245 (2.43)**	0.237 (2.21)**	0.363 (2.39)**	-0.335 (3.46)***	-0.283 (2.13)**	0.113 -0.71	0.44 (1.98)**
control of corruption	0.235 (3.04)***	0.178 (1.91)*	0.195 (1.94)*	0.434 (3.25)***	-0.384 (3.60)***	-0.34 (2.51)**	0.112 -0.64	0.154 -0.65

Robust z statistics in parentheses

\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

Note: For a description of the specifications A-D, see text.