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Fear of Declaring: Do Markets Care What Countries Say About Their Exchange Rate Policies?[1]

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ABSTRACT: Beginning with the influential studies by Calvo and Reinhart (2002) and Levy-Yeyati and Sturzenegger (2001), there has been a growing recognition of a disconnect between what emerging economies say they do in exchange rate policy (words), and what they do in practice (deeds). More specifically, a "fear of floating" behavior has been identified, whereby countries classify themselves as floating exchange rate regimes, yet intervene quite vigorously over time. While many convincing arguments have been offered as why countries intervene, the questions remains as to why intervening-countries would continue to classify their regimes as floating. That is, there is no explanation as to why countries do not align their words with their (quite legitimate) deeds. Thus, concurrently with fear of floating, there seems to be a "fear of declaring". In this study, we examine one possible reason for fear of declaring: that international capital markets reward countries that are classified toward the flexible end of the spectrum. Based on an initial sample of 32 countries for which the JP Morgan EMBI spread is available, we use a panel data approach that exploits both time and cross-country variability. We find that spreads are lower in countries that have a fixed exchange rate regime, whether *de jure* or *de facto*, with some qualifications. We find no evidence that markets punish fear of floating, thus identifying a puzzle: why do countries intervene but say that they don't, even though markets appear to be, at a minimum, indifferent to intervention? One possible explanation arises from the result that *de jure* floating regimes may fare better in crisis situations.

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I. INTRODUCTION

Following a large body of work on the effects on economic outcomes of different exchange rate regimes, the discussion has recently been broadened in an attempt towards identifying and explaining the disconnect between what countries say their exchange rate policy is (words), and what they actually do in practice (deeds). A prominent strand of the literature has focused on emerging markets and has noted that while there has been an important move away from fixed exchange rates and towards more flexible regimes, in practice countries have found good reasons to resist both upward and downward exchange rate fluctuations. In practice, exchange rates float less (in both directions) than what the regime label would otherwise suggest.

While the literature has identified important reasons why countries might find it in their own best interest to deviate from the exchange rate regime they have announced, to the best of our knowledge not much clarity has been provided on why countries do not align their words with their (quite legitimate) deeds. Thus, concurrently with fear of floating, there seems to be a "fear of declaring"; a reluctance to admit that frequent and (often) sizable intervention is indeed occurring.

In this study, we examine one possible reason for countries fearing to declare what their true exchange rate regime actually is: that international capital markets reward countries that are classified toward the flexible end of the spectrum. There are several possible hypotheses as to why this might be: (i) a "flexible" classification may signal to markets that the likelihood of an ill-advised defense of an unsustainable peg would be lower, and thus speculative attacks less likely; (ii) markets might not always distinguish effectively between words and deeds, so countries that signaled a certain macroeconomic policy framework when they switched to a floating regime, are keen to insist that this policy framework is still in place; and (iii) although floating regimes per se may not have appreciable advantages over other regimes, markets could have a subjective bias against fixed exchange rates. Such bias might stem in part from the experience of the more recent international crises generally erupting in

countries with fixed exchange rates, or from the current proliferation of inflation targeting strategies[2], which presuppose that the exchange rate is allowed to float.

The paper is organized as follows. In the second section we briefly review some of the most relevant literature on exchange rate regime classification; on why there might be fear of floating; on the determinants of emerging market sovereign spreads --including the possible role of transparency--; and, on the efficacy of exchange rate intervention. In the third section we describe the data set. The fourth section presents summary statistics and results. The fifth section concludes.

II. Literature review

A. Deeds *versus* Words

The IMF classifies countries´ exchange rate regimes based on a taxonomy that has evolved through time[3]. Since 1998 a country's exchange rate regime is frequently assessed by Fund staff based on both quantitative and qualitative analysis. When in the opinion of the Fund there is a deviation between the prevalent classification and the actual exchange rate and/or the authorities' intervention policy, a reclassification ensues. Once undertaken,

[2] Rose (2007) reports that as of June 2006, inflation targeting countries accounted for over a quarter of world GDP. These include 14 of the 30 OECD countries, plus 10 developing countries.

[3] Six taxonomies have been in place since 1944. Prior to 1998, countries were classified according to the regimes they formally announced. The latest taxonomy dates from 1998, when Fund staff began using a de facto classification system which groups regimes according to both actual exchange rate variability and policy actions that affect the exchange rate. The current classification has three main categories and several sub-categories, as follows: (i) hard pegs (i.e. arrangements with no separate legal tender and currency boards); (ii) soft pegs (i.e. conventional fixed peg and intermediate pegs, including pegs within horizontal bands, crawling pegs and crawling bands); and (iii) floating regimes (i.e. managed floating with no predetermined path for the exchange rate and independently floating, when the exchange rate is market determined).

reclassifications are communicated through a variety of channels, including the *Annual Report on Exchange Arrangements and Exchange Restrictions* (AREAER).

Evidently, because of changes in intervention practices, the IMF's taxonomy may become outdated and, more importantly, the Fund might not always find itself in a position to actually reclassify a country's regime, if the member country has strong reasons to object to such re-classification. Furthermore, reclassifications, even if opportune, are by their nature more concerned with the present than with the past. Not surprisingly, academics have often found the Fund's exchange rate regime classification ill-suited for economic analysis.

Early attempts at reclassifying regimes include Obstfeld and Rogoff (1995), Gosh *et al* (1997) and Bubula and Otker-Robe (2002)[4]. Recently, a few contributions have produced quite comprehensive data sets. The two most widely cited are those of Levy-Yeyati and Sturzenegger (2002 and 2003, LYS for short) and Reinhart and Rogoff (2004, RR for short).

LYS provides a new classification of exchange rate regimes for 156 countries during 1974-2000. Regimes are classified into 4 main categories (flexible, dirty float, crawling peg, and fixed) –in addition to a category for inconclusive results-- by using cluster analysis of the monthly percentage changes in the nominal exchange rate, the relative volatility of exchange rate levels, and the volatility of reserves.

RR motivate their work on the fact that countries' official classification of exchange rates are only "a little better than random". An interesting innovation in their classification is that they take into account the likely existence of parallel exchange rate markets: dual (or multiple) markets are typically legal, whereas parallel markets may or may not be legal. Their taxonomy includes 14 refined and 5 coarse classification regimes, with monthly observations for 153 countries during 1940-2001.

[4] The latter apply the 1998 IMF methodology retroactively to 1990.

Following Alesina and Wagner (2003), it seems fair to describe Shambaugh (2003) as somewhat of an intermediate methodology between RR –which base their classification solely on analyzing the behavior of the exchange rate—and LYS, which focus on the official exchange rate. More recently, Dubas *et al* (2005) have modeled regimes as the outcomes of a multinomial logit choice problem conditional on the level and volatility of both the exchange rate and international reserves. Observations (per country and per year for 1971-2002) are then assigned to that regime which exhibits the highest predictive probability.

Different classification methodologies produce quite distinct results. For example, the IMF (2006) has recently estimated a correlation coefficient of 0.54 between the RR and LYS classifications during 1990-2000. This correlation is not much higher than the one observed (0.48) between RR and the IMFs *de jure* classification. Dubas *et al* (2005), on the other hand, report a 0.53 correlation between their classification and the one provided in RR.

B. Fear of floating

There is a growing literature which classifies exchange rate regimes both from both the standpoint of what countries say they do (words) and also on account of what they actually do (deeds). Beginning with the influential studies by Hausmann *et al* (2001), Calvo and Reinhart (2002) and Levy-Yeyati and Sturzenegger (2001), the literature has identified a disconnect between deeds and words, particularly in the case of emerging economies. More specifically, Calvo and Reinhart identify a "fear of floating" behavior, whereby countries classify themselves as having floating exchange rate regimes, yet intervene quite vigorously over time, resisting market forces on the determination of their exchange rates.

Emerging economies are shown to have good reasons to behave this way on account of the high costs associated with:

- Devaluations, which may lead to lost access to capital markets, disruptive balance sheet effects when certain sectors of the economy have built up liabilities in foreign currency,

pass-through effects on inflation, and possible adverse effects on trade (Hausmann *et al* (2001); and

- Appreciations, which can cause Dutch-Disease type of phenomena which might hinder growth in the tradable sectors. Levy-Yeyati and Sturzenegger (2007) revisited exchange rate policy in recent years and found that interventions to resist currency *appreciations* are becoming more prevalent than those aimed at preventing depreciations.

While these papers explain why a country with the label of floater might opt to intervene under certain circumstances, they shed no light on why a country that finds it in its best interest to intervene would insist on maintaining a label of floater. Alesina and Wagner (2003) come closer to addressing this issue, in a set-up in which intervention is used as a signaling device. They argue that since countries with poor levels of institutional quality are often unable to sustain an exchange rate peg, those with reasonably solid institutions limit the extent to which they allow their exchange rate to float in order to signal that they are indeed different from countries that are forced to renege on their promises of monetary stability.

Still, if fear of floating is indeed a signaling device, an obvious follow-up to Alesina and Wagner (2003) seems to be whether markets to indeed value such a signal. And that is precisely where our research aims at. A natural starting point in this effort is to have a baseline model of the determination of sovereign spreads, adding to it, in different dimensions, the fact that countries often mischaracterize their true exchange rate regime.

C. Determinants of emerging market sovereign borrowing costs

The literature on the determinants of spreads on emerging market sovereign debt is extremely rich and continues to grow. Papers differ on the period and countries covered as well as on the way models are specified and estimated. In general, they attempt to verify whether international financial conditions affect spreads and the extent to which credit ratings have an

impact beyond the influence stemming from a country's economic fundamentals[5]. Important variations from the most basic set-up include, among many, the following:

Eichengreen and Mody (2000) argue that focusing exclusively on the determinants of the pricing decision neglects the impact of those same factors on the decision to enter the market and may, therefore, be a source of selection bias. They suggest using a sample selection model in which two equations --one for the decision to issue a bond, another determining the spread, given that a bond has been issued—are jointly estimated by maximum likelihood and two-step procedures. They find that changes in spreads are mainly due to shifts in market sentiment rather than by changes in fundamentals.

Kamin and von Kleist (1999) differentiate spreads on loans from spreads on bonds, and take account of the currency denomination of liabilities, using a dataset for 1991-97. While spreads on bonds are found to be systematically higher than spreads on loans, the responses of spreads on both types of liabilities to changes in their (common) determinants are very similar. The authors could not identify a robust, statistically significant relationship between various measures of industrial country interest rates and emerging market spreads.

Herrera and Perry (2000) examine the determinants of spreads in Latin America using a methodology that allows for differentiation between the long-run effects and the short-run dynamics of returns on different types of assets. They report that short run changes in the US Federal Funds rate have a significant and positive effect on Latin American spreads and that, during the adjustment process, US corporate spreads are positively and significantly associated with the latter.

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[5] An often cited early paper not restricted to emerging markets is Cantor and Packer (1996), who analyze the determinants of spreads on sovereign bonds for 49 countries in 1995, using as explanatory variables domestic fundamentals, a country's default history and credit ratings. They conclude that ratings appear to provide additional information beyond that contained in the standard macroeconomic country statistics.

Kaminsky and Schmukler (2002) analyze the possible cross-country and security-market spillover-effects of credit rating changes for 16 emerging markets during 1990-2000. They find evidence that rating changes significantly affect bond and stock markets; that rating changes contribute to regional contagion; and that fragile economies are more severely affected by changes in U.S. interest rates.

Diaz Weigel and Gemmill (2006) estimate the distance-to-default of bonds issued by Argentina, Brazil, Mexico and Venezuela during 1994-2001. They report that a small set of variables explains up to 80% of the variance of the estimated distance-to-default for each country. While country-specific variables account for only about 8% of the explained variance, regional factors explain 45% and global conditions 25%. More than half of what remains unexplained is due to another common (albeit unidentified) factor.

A paper by Powell and Martínez (2007) shows that the recent decline in emerging market spreads has gone way beyond what is suggested by the positive evolution of country fundamentals and that, in fact, global liquidity conditions play an equally important role. By making use of the fact that changes in credit ratings are not synchronized across agencies, they show that the opinions of the agencies indeed play a role in the determination of spreads.

Similarly, Ciarlone *et al* (2007) apply factor analysis to study the evolution of bond spreads of emerging economies during 1998-2006. They find that a common factor, related to global financial conditions, has been a major determinant of spreads throughout the study period. Furthermore, they identify several variables that are correlated with the common factor: the US 10-year Treasury yield, the VIX index of future stock market volatility, and a commodity price index. Certain idiosyncratic or country-specific economic fundamentals, on the other hand, are also found to be relevant determinants of spreads, but do not fully explain the decline in spreads over the last four years of the study period.

D. Transparency and spreads

Although more limited, there have been a few studies on the role of transparency in the determination of emerging market sovereign spreads. From a theoretical point of view, transparency is generally found to have an ambiguous effect. According to Furman and Stiglitz (1998), the benefits stemming from more transparency –and associated with the reduction in the impact that additional information might have on markets—might be compensated by market overreaction on account of the fact that in more transparent markets the quality and value of new information is particularly high. Also from a theoretical point of view, Best (2005) emphasizes the potential advantages of ambiguity, in contrast to the rigidity inherent in a fully transparent system.

The limited empirical literature tends to support the view that transparency is beneficial for emerging markets. Studying the asset allocation of equity funds, Gelos and Wei (2002) found that during 1996-2000 funds held fewer assets of those countries deemed to be less transparent –where transparency is proxied by an index that includes the provision to markets of timely financial information and publication of the IMF Reports on Observance of Standards and Codes. They also note that herding was less of a concern in more transparent countries and that the reaction by equity funds to macroeconomic news is lessened in countries in which transparency is low.

Along similar lines, Glennerster and Shin (2004) found that during the 1999-2002 period, emerging markets which disseminated the reports resulting from their relationship with the IMF –i.e. the Article IV surveillance report and the Reports on Observance of Standards and Codes-- and which subscribed to the Fund's Special Data Dissemination Standards observed a reduction in their financing costs. Finally, Andritzky *et al* (2005) analyze the reaction of bond markets to announcements –i.e. the release of macroeconomic data—in 12 emerging markets during 1998-2004. They find that although data releases do not seem to directly affect spreads, they generally do reduce volatility. Interestingly, data releases seem to matter less in countries deemed to be more transparent. In none of these studies does the definition

of transparency explicitly incorporate the possible discrepancy between *de facto* and *de jure* exchange rate regimes.

E. Recent empirical results on exchange rate intervention

Some recent empirical studies find support for potential benefits of exchange rate intervention. The Powell and Martínez (2007) study described above finds that real exchange rate volatility tends to lower country ratings and these, in turn, have a significant upward effect on spreads. To the extent that greater exchange rate intervention is associated with lower real exchange rate volatility[6], this is indirect evidence that intervention might contribute to lower spreads. Using an asset pricing approach to jointly estimate the return on bank deposits, bonds, and equity in emerging markets, Diez de los Ríos (2007) finds evidence that currency risk premia demanded by foreign investors is lower for countries that intervene more heavily[7] in foreign exchange markets.[8] Finally, Levy-Yeyati and Sturzenegger (2007) examine the recent interventions aimed at resisting currency appreciation. They find that these actions are effective in preventing real appreciation, and also find preliminary evidence pointing to positive effects on economic growth.

Thus, consistent with the original fear of floating argument, there is reason to believe that there are valid reasons why an emerging economy might decide to intervene in foreign exchange markets. What then, is the rationale for declaring otherwise, maintaining an official or de jure classification that suggests greater flexibility? In contrast to the above studies, we will focus specifically on the impact of what countries declare, while making sure to control

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[6] Using a separate de facto classification scheme, Rogoff *et.al*. (2004) show that average real exchange rate volatility is noticeably higher in both managed float and free floating categories, relative to regimes with greater fixity.

[7] Those countries classified as fixed exchange rate regimes according to Levy-Yeyati and Sturzenegger (2002).

[8] Paradoxically, however, this study also finds that these countries are not able to significantly lower real exchange rate volatility.

for deeds (actual intervention) and for other relevant domestic and international factors that are expected to have an effect on spreads.

III. Data Description

To measures the risk premium markets place on countries, we use the spread of the Emerging Market Bond Index-Global. (EMBI-G) This measures the premium above US Treasury securities in basis points for dollar denominated sovereign debt. The period observed runs from Q4 1997 to Q2 2006. These spreads are observed, end of period, both quarterly and monthly. In the present draft, we only make use of the quarterly observations. In the initial period the sample includes 22 countries, with further countries being added and dropped to the series over time, culminating in 31 countries at the end of the period.[9]

Our classifications for *de jure* exchange-rate regimes covers both a longer time frame, 1980-2006, and additional OECD countries.[10] For each country in each quarter, we turn to two different IMF classification systems. Both systems represent *de jure* classifications agreed upon between the countries and the Fund. The first classification is the 1982 taxonomy,[11] which used the following categories:

1. Pegged to a single currency
2. Pegged to a composite (including the SDR)

[9] Countries included in the EMBI-G are Algeria, Argentina, Brazil, Bulgaria, Chile, China, Colombia, Cote d'Ivoire, Croatia, Dominican Republic, Ecuador, Egypt, El Salvador, Greece, Hungary, Indonesia, Iraq, Korea, Lebanon, Malaysia, Mexico, Morocco, Nigeria, Pakistan, Panama, Peru, Philippines, Poland, Russia, Serbia, South Africa, Thailand, Tunisia, Turkey, Ukraine, Uruguay and Venezuela.

[10] These additional countries are: Australia, Austria, Belgium, Canada, Czech Republic, Denmark, Finland, France, Germany, Iceland, Ireland, Italy, Japan, Luxembourg, Netherlands, New Zealand, Norway, Portugal, Slovak Republic, Spain, Sweden, Switzerland and the United Kingdom.

[11] See SM/82/44, February 24, 1982.

3. Flexibility limited vis-à-vis a single currency
4. Flexibility limited vis-à-vis a cooperative arrangement
5. Adjusted according to a set of indicators
6. Other managed floating
7. Independently floating

This system covered all countries in our sample from January 1982 to March 1998.

The second system is the 1998 taxonomy and covers the period from June 1997 to the present.[12] The categories for this system are:

1. Exchange arrangement with no separate legal tender
2. Currency board arrangement
3. Conventional pegged arrangement
4. Pegged exchange rate within horizontal bands
5. Crawling peg
6. Crawling band
7. Managed floating with no predetermined path for the exchange rate
8. Independently floating

This latter taxonomy was extended back to years prior to1997, but the exercise did not fully cover the entirety of our sample. In order to have a consistent measure across the whole sample, we created *aggregated categories*, assigning each category in the two taxonomies to one of three broader classifications: fixed, managed floaters and free floaters.[13]

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[12] See SM/97/160, June 24, 1997, and SM/98/172, July 7, 1998

[13] The *Fixed* category encompasses categories 1-5 of the 1982 taxonomy and categories 1-6 of the 1998 taxonomy. The *Managed Floaters* category encompasses category 6 in the 1982 taxonomy and category 7 in the 1998 taxonomy. Finally, the *Free Floaters* category encompasses category 7 in the 1982 taxonomy and category 8 in the 1998 taxonomy.

To measure the level of intervention in the exchange rate undertaken by the monetary authority, we construct a measure,

$$INTERV = \frac{\left(\frac{\partial IR}{BM}\right)^2}{\left(\frac{\partial E}{E}\right)^2 + \left(\frac{\partial IR}{BM}\right)^2},$$

where IR are gross international reserves, BM is base money, and e is the nominal exchange rate (versus the US dollar). We calculate the national currency value of the change in gross international reserves using constant exchange rates.[14]

The intervention index measures the degree to which the monetary authorities intervene in the foreign exchange markets. In the case of a country with a completely pure float the numerator will be zero, and thus the index will be zero[15]. Alternatively, a country with a completely fixed exchange rate will have no variation its exchange rate. The intervention index in that case will equal one. All countries in the sample fall somewhere between these two extremes; the higher the index, the more intervention it reflects.

We include a number of control variables in our econometric specifications, namely:

- Year-on-year CPI inflation.

[14] Levy-Yeyati and Sturzenegger (2001) use the exchange rate in each period. Doing so will lead to reserves measured in national currency varying due to fluctuations in the exchange rates, even though stocks have remained constant. However, the indices calculated using the two methodologies are very highly correlated.

[15] Strictly speaking, since IR can change because of valuation reasons, it is conceivable that in practice a fully floating exchange rate regime will in fact be characterized by an intervention index higher than zero.

- Chicago Board Options Exchange (CBOE) S&P 100 Volatility Index (VIX), which measures expectations of future volatility in US equities markets, as a proxy for overall world market volatility.[16]
- Real exchange-rate volatility, calculated as the standard deviation of the real bilateral exchange rate *vis-à-vis* the US over the previous two years.
- Current account as a percentage of GDP.
- Overall general government fiscal balance as a percentage of GDP.
- International reserves minus gold as a percentage of GDP.
- External government debt, as a percentage of GDP.

Quarterly GDP is unavailable for all of the countries in the sample during the period considered. Therefore, for the variables measuring current account, overall fiscal balance and international reserves minus gold, the denominator is annual GDP divided by 4. All the control variables were taken from the IMF's International Financial Statistics (IFS).

Debt is taken from the World Bank's Global Development Finance Data Base and covers public and publicly guaranteed external debt, outstanding and disbursed. The debt data is in US dollars and is recorded annually. In order to include this variable in our quarterly regressions, we have imputed the quarterly values of the debt stock as follows: we have taken the annual debt measured in dollars and multiplied it by the exchange-rate prevailing end-of-quarter, then divided this by annual GDP measured in national currency.

Finally, we construct a number of different indices to assess the degree to which a country is experiencing exchange market pressure. Looking at the period of 1980-2006, we consider two indices:

$$EMP_{\frac{\partial IR}{IR}} = \alpha\left(\frac{\partial RE}{RE}\right) - (1-\alpha)\left(\frac{\partial IR}{IR}\right)$$

[16] For data and detailed description, see www.cboe.com/VXO.

$$EMP_{\frac{\partial IR}{BM}} = \alpha\left(\frac{\partial RE}{RE}\right) - (1-\alpha)\left(\frac{\partial IR}{BM}\right)$$

where *RE* is the real exchange rate.[17] The weights between the variation of the real exchange rate and the variation of international reserves, α, was chosen such that $\alpha^2\sigma^2_{\frac{\partial RE}{RE}} = (1-\alpha)^2\sigma^2_{\frac{\partial IR}{IR}}$ in the first case, and $\alpha^2\sigma^2_{\frac{\partial RE}{RE}} = (1-\alpha)^2\sigma^2_{\frac{\partial IR}{BM}}$, in the second case. The variance, σ^2, may be calculated in two different ways. First, the observations for all countries and periods can be considered together and the variance calculated on the entire sample. Second, different variances can be calculated over the sample period for each individual country, with α's chosen as above, but each only applied to its corresponding country. For brevity, we only report estimations in which the variance is calculated for the entire sample.

Using these indices, we construct dummy variables to measure whether a country is either currently experiencing a crisis, has so recently, or is about to experience a crisis in the near future. Specifically, the CRISIS dummies take a value of one if the respective index exceeds a threshold of two standard deviations above the mean within a five-quarter window centered around quarter t. In other words, if the threshold is exceeded within two quarters before and two quarters after the current period, CRISIS takes a value of one[18]. The variable CRISIS1 is constructed using $EMP_{\frac{\partial IR}{IR}}$, while CRISIS2 is constructed using $EMP_{\frac{\partial IR}{BM}}$.

Finally, given the manner in which the CRISIS variable is constructed, the public debt variable is lagged. Specifically, the public debt ratio tends to be sensitive to the exchange rate, particularly so in times of turbulence. Therefore, it was necessary to separate the volume

[17] We also calculated these indices using the nominal exchange rate, but in the regressions we only report those using the real exchange rate, as this measure deals more appropriately with episodes of hyper-inflation.

[18] In previous drafts, we presented results using a crisis measure that only accounted for *lagged* episodes. However, it also seemed reasonable that spreads would begin to widen during the run-up to a currency crisis. Indeed, the measures based on a centered window tended to perform better in the regressions than the lagged measures.

effect of the stock of public debt from that arising from exchange rate fluctuations. Indeed, for estimations in which debt and crises are measured contemporaneously, we find the two variables to be collinear and rarely are both significant. Lagging public debt – outside the five-quarter window defining the crisis variable – would allow the stock effect to have an impact on spreads while reducing its sensitivity to current exchange rate fluctuations. Thus, the regressions reported in the following section use a lag of three quarters for public debt.[19]

IV. Summary Statistics and Results

Table 1 reports the number of countries in each aggregated *de jure* category: fixed, managed floaters and free floaters. Table 2 reports the same for only EMBI-G countries. In both sets, there appears to be a modest trend towards more flexible exchange rates during the sample period. Table 3 reports the number of switches observed and whether each switch was towards a more fixed or more flexible regime. The switches are measured using both the aggregated and disaggregated categories. Switches are much greater in number using the disaggregated categories rather than the aggregated ones. Table 4 reports the same data for EMBI-G countries only. In contrast, there is little difference between the shifts measured with the aggregated and disaggregated categories, indicating that switches for these countries tended to be more dramatic; for example, moving from fixed to managed float, instead of moving from one form of fixed to another form of fixed.

Table 5 reports the mean intervention indices, both over the whole sample period and by decade, for all of the countries in the sample. Recall that he higher the index, the more intervention there is. Figure 1 plots the average intervention index of all the countries in each aggregated *de jure* category. *A priori*, one would expect the intervention index for the fixers to be consistently higher than for the managed floaters, and that of the managed floaters to be consistently higher than that of the free-floaters. As can be observed in the figure, this is not

[19] In unreported estimations we also used longer lags (four quarters) for public debt, with similar results.

the case. On the whole, fixers tend to have higher intervention indices than managed floaters, which in turn tend to have higher indices than free floaters. However, the means for each category intersect in many periods.

To highlight this fact, Figure 2 plots the difference between the mean of the intervention indices for fixers versus managed floaters. In principle, this difference should always be positive, yet it is not. Comparing Fixers and Free-Floaters reveals that in some periods Free-Floaters have intervened more, as can be seen in Figure 3, with great variation in the difference over the sample period. Figure 4 reveals similar variation for the difference between managed floaters and free floaters.

Turning now to the econometrics, and as it is standard in the literature, we regress the EMBI spreads against a set of explanatory variables that reflect both domestic fundamentals and external financial conditions. We then incorporate additional controls that directly address the specific concerns raised in the previous sections with regard to the potential roll of *de jure* and *de facto* exchange rate regimes. Domestic fundamentals always include inflation, the current account balance, the general government balance, the level of international reserves (minus gold), and the external public debt ratio. We proxy external financial conditions with the VIX volatility index, as well as with year dummies, for which we report the results of the joint significance test. Finally, we control for additional country-specific characteristics through country fixed effects.

Basic Results

In Table 6 we report the most basic specification. Consistently, the general government balance, international reserves, public debt (lagged by three quarters), and volatility are statistically significant and have the expected sign. In particular, spreads decline with improvements in the fiscal balance and with the level of reserves, increase with expectations of volatility in US markets and with increases in the stock of debt. The coefficient on inflation is positive but not significant and, as has been reported previously in the literature, the current account balance has the "wrong" sign, although it is not significant. Both crisis

measures are associated with significant increases in spreads, by between 1,215 and 1,336 basis points.

Interestingly, spreads are significantly lower in countries with a de jure fixed regime, while de jure managed floating regimes have spreads that are roughly comparable to those in countries that claim to float. Similarly, the intervention index is always negative (and significantly so), thereby re-enforcing the view that, if anything, exchange rate fixity –either de jure or de facto— brings about lower spreads. The negative impact of exchange rate fixity on spreads persists after controlling for real exchange rate volatility –i.e. markets value, in terms of reduced spreads, the fixity of an exchange rate regime *beyond* the fact that these regimes are typically expected to deliver lower levels of real exchange rate volatility. The negative coefficient also persists after controlling for crisis episodes in regressions (5) and (6), thus this result does not appear to be driven by a exits from fixed to flaoting regimes in the aftermath of a curency crisis.

Extensions and Robustness Checks

In Table 7 we introduce interaction terms between the crisis dummies and the *de jure* regimes. Although spreads are generally higher for *de jure* floating regimes during tranquil or normal times, there is evidence that during crises these regimes are punished significantly less by capital markets. While de jure fixed and managed floating regimes face an increase in spreads on the order of 1,900 basis points, for free floating regimes this increase is between 180 and 380 basis points, depending on the CRISIS variable used.

In Table 8, we include a dummy variable for Argentina during 2005:2 to account for a sharp and discrete fall in the reported EMBI-G spread (from close to 5,000 to around 450), associated with what appears to be a recalculation of the spreads for Argentina in the wake of its debt restructuring and the issuing of new debt instruments. While this dummy variable is highly significant, the most salient results from Tables 6 and 7 continue to hold: among country fundamentals, public debt, reserves, and the government balance are all significant explanatory variables for spreads; the volatility index continues to have a positive and

significant coefficient; *de jure* fixity is associated with lower spreads; and *de facto* fixity in the form of greater intervention is also associated with lower spreads. Interestingly, once the Argentine adjustment as well as crises have been accounted for, year dummies cease to be significant.

Table 9 drops Argentina from the sample completely, with three major impacts on the results. First, only one definition of the crisis variable continues to be significant at a 10 percent level. Second, exchange rate intervention, while still negative does not achieve signifcance at the 10 percent level. Third, in some regressions the *de jure* managed floating regimes now appear to have significantly lower spreads than the free floating regimes.

So far, the results indicate that actual exchange rate intervention is associated with lower spreads. However, a related and key question is whether this is true for all *de jure* regimes. For *de jure* fixed regimes, intervention can be viewed as the action required to maintain whatever exchange rate commitment the authorities have made, whereas in floating regimes intervention can be viewed as a measure of disconnect between words and deeds, i.e., a measure of fear of floating. It is quite possible that markets would view intervention differently in the two cases. For this reason, we also ran regressions in which only the two *de jure* floating regimes are included (Table 10), or only the free floating regimes (Table 11). Indeed, in both cases the negative relation between intervention and spreads ceases to be statistically significant. It then follows that only for *de jure* fixers does intervention produce lower spreads. However, it is also worth noting that intevervention under *de jure* floating regimes – fear of floating – does not appear to be punished by markets. Finally, the results indicate that for the smaller sample of *de jure* free floating regimes, most country fundamentals cease to be significant, the sole exception being the current account, which enters with the expected negative sign.

As a further robustness check, we ran regressions in which we included the Reinhart-Rogoff (RR) de facto classification scheme in place of the *INTERV* variable. For each of the

aggregated categories[20] *j*, we created a dummy variable labelled *RRj*, with *j*=1...5, increasing with the degree of flexibility. We ran these regressions for the full sample of countries (Table 12), and for the *de jure* floating regimes only (Table 13). One consequence of this specification is that the sample size is reduced dramatically, as the RR regime classification is available only through 2001.

The results are less clear than in previous estimations. The signs on the de jure regimes are often the opposite of what was observed earlier, and are almost never statistically significant. Among the fundamentals, only reserves appear to be significant determinants of spreads, while external factors continue to be relavant, proxied by the volatility index and the year dummies. In comparison to free floating (*RR4*), there is some indication of lower spreads for the two most fixed regimes, *RR1* and *RR2*, while the free falling category seems to display higher spreads, but none of these relationships are significant at a 10 percent level. Finally, by focusing on the floating categories, the RR classification can also be used to measure the impact of fear of floating on spreads. For the subsample of *de jure* free floating regimes, initially it appears that *RR5* (free falling) countries face the highest spreads, but this effect disappears once crises are accounted for. Thus, free falling regimes are often regimes in crisis. Including both *de jure* flaoting categories together, it appears that some degree of fear of floating might be rewarded by markets; compared to the de facto most fixed regime (*RR1*), some flexibility (*RR3*) and particularly full flexibility (*RR4*) are associated with higher spreads, even when controlling for currency crises[21].

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[20] Reinhart and Rogoff initially created fourteen separate regime classifications, which were then consolidated into six. In terms of our dummy variables (which equal one if the country-quarter belongs to a given category, and zero otherwise): *RR1* encompasses four fixed categories, from no separate legal tender to a de facto peg; *RR2* corresponds to three crawling peg or narrow band categories; *RR3* includes four wider crawling or moving bands as well as managed floating; *RR4* corresponds to freely floating; *RR5* corresponds to freely falling; and *RR6* refers to a dual market in which parallel market data is missing. In our sample there is a negligible number of observations for *RR6*, so this category is dropped.

[21] In these specifications, Reinhart-Rogoff classifications replace the interventions indices as the measurement of *de facto* exchange-rate policy. To compare the two, we define *RR*, a variable which takes the values 1 to 5, corresponding to the Reinhart-Rogoff classification.

(continued)

V. CONCLUSION

This paper has examined why countries appear to exhibit a "fear of declaring," that is, a disconnect between their declared exchange rate policy and their actual level of exchange-rate intervention. We have considered one possible reason for fear of declaring: that international capital markets reward countries that are classified toward the flexible end of the spectrum. We have used the spreads of country's sovereign debt over US treasury bills as our measure of market perceptions of each country. Using a panel data approach that exploits both time and cross-country variability, we have considered compared the effect on these spreads of *de jure* regime choice and the actual degree of exchange-rate intervention, employing a range of other variables to control for underlying fundamentals.

Our basic results reach the opposite conclusion, that spreads tend to be lower in countries that have a fixed exchange rate regime, whether *de jure* or *de facto.* Even when controlling for episodes of currency crisis and for the volatility of the real exchange-rate, we find the *de jure* fixed regimes exhibit lower spreads and that exchange-rate intervention is associated with lower spreads as well.

However, these results are qualified in several ways as we incorporate extensions to the basic specifications. First, interacting crisis variable with the *de jure* regimes, we find that floating may have its advantages in times of extreme turbulence. Second, Argentina appears to be an outlier, driving a substantial portion of the effect of exchange-rate intervention on spreads. Third, when we consider only *de jure* floating regimes, we find that intervention, while still associated with a reduction in spreads, is no longer significant. Finally, when considering the Reinhart-Rogoff *(RR)* classification as an alternative measure of actual exchange-rate policy, the previously observed differences across *de jure* regimes no longer hold and the *RR* classifications themselves point more strongly to markets rewarding fear of floating.

Thus, this paper identifies a puzzle: why are countries which intervene reluctant to openly declare that they are doing so, given that markets do not generally reward either *de facto* or *de jure* floaters? One

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Recalling that *RR* is increasing in the degree of flexibility, we find that its correlation with *INTERV* is -0.34 and is significant, indicating that both variables measure *de facto* intervention, but do not contain identical information.

possible reason may be reflected in our findings *de jure* floating may be advantageous in times of crisis. It might be conceivable that countries opt for declaring flexibility even though it may entail costs during normal times in order to reap the benefits of lower spreads in turbulent times. Thus, flexibility may act as an insurance policy. Furthermore, once this "flexibility" is announced, there appears to be no punishment for fear of floating.

TABLES AND FIGURES

Table 1: Percentage of Counties in Aggregated Exchange Rate Categories

All countries	1980s	1990s	2000s	Whole period
Fixers	50.13	41.60	37.42	42.21
Managed floaters	26.53	28.75	30.21	28.71
Free floaters	23.34	29.67	32.36	29.08

Table 2: Percentage of EMBI-G Countries in Aggregated Exchange Rate Categories

EMBI countries	1980s	1990s	2000s	Whole period
Fixers	41.11	30.25	28.50	32.18
Managed floaters	39.50	44.67	42.07	42.66
Free floaters	19.39	25.07	29.44	25.18

Table 3: Switches Between Exchange Rate Regimes, 1985-2006, All Countries

All countries	Switches at aggregate level			Switches at disaggregate level		
	Towards flex	Towards fix	all	Towards flex	Towards fix	all
1980s	13	8	21	14	9	23
1990s	22	22	44	25	34	59
2000s	8	7	15	8	8	16
Whole period	43	37	80	47	51	98

Table 4: Switches Between Exchange Rate Regimes, 1985-2006, EMBI-G Countries

EMBI countries	Switches at aggregate level			Switches at disaggregate level		
	Towards flex	Towards fix	all	Towards flex	Towards fix	all
1980s	11	6	17	12	7	19
1990s	16	17	33	18	18	36
2000s	7	6	13	7	6	13
Whole period	34	29	63	37	31	68

Table 5: Intervention Index

Whole period		1980s		1990s		2000s	
Country	Mean interv. index	Country	Mean interv. index	Country	Mean interv. index	Country	Mean interv. index
Japan	0.304	Poland*	0.075	Japan	0.163	Japan	0.350
Brazil*	0.431	Cote d'Ivoire*	0.097	Uruguay*	0.348	United Kingdom	0.417
Uruguay*	0.483	Japan	0.178	Brazil*	0.400	South Africa*	0.422
Poland*	0.495	Turkey*	0.246	Cote d'Ivoire*	0.457	Dominican Republic*	0.540
United Kingdom	0.501	Brazil*	0.250	United Kingdom	0.475	Canada	0.542
Cote d'Ivoire*	0.505	Argentina*	0.260	Ukraine*	0.519	Brazil*	0.545
Turkey*	0.549	Hungary*	0.279	Australia	0.541	Indonesia*	0.557
Switzerland	0.572	Uruguay*	0.334	Turkey*	0.550	Switzerland	0.573
South Africa*	0.613	Peru*	0.365	Switzerland	0.571	Sweden	0.595
Sweden	0.624	Algeria*	0.367	Russia*	0.573	Colombia*	0.626
Morocco*	0.629	Mexico*	0.371	Poland*	0.589	Poland*	0.630
Colombia*	0.630	Morocco*	0.462	Colombia*	0.590	Czech Republic	0.632
Peru*	0.633	United Kingdom	0.487	Algeria*	0.602	Morocco*	0.636
Algeria*	0.642	Sweden	0.507	Peru*	0.603	Iceland	0.655
Argentina*	0.645	South Africa*	0.519	South Africa*	0.627	Hungary*	0.656
Hungary*	0.651	Switzerland	0.528	Pakistan*	0.664	Egypt*	0.680
Australia	0.663	Iceland	0.566	Dominican Republic*	0.665	Turkey*	0.707
Czech Republic	0.672	Colombia*	0.579	Morocco*	0.669	Chile*	0.727
Iceland	0.682	Nigeria*	0.581	Denmark	0.688	Australia	0.729
Indonesia*	0.711	Lebanon*	0.606	Bulgaria*	0.697	Cote d'Ivoire*	0.736
Mexico*	0.713	Australia	0.644	Czech Republic	0.715	Philippines*	0.739
Canada	0.722	Pakistan*	0.664	Philippines*	0.722	Croatia*	0.751
Ukraine*	0.741	Tunisia*	0.702	Hungary*	0.731	Uruguay*	0.771
Lebanon*	0.742	China*	0.712	Indonesia*	0.742	Mexico*	0.789
Croatia*	0.747	Canada	0.742	Croatia*	0.743	Tunisia*	0.794
Bulgaria*	0.757	Norway	0.763	Slovak Republic	0.753	Thailand*	0.807
Chile*	0.764	Indonesia*	0.798	Venezuela*	0.754	Denmark	0.812
Pakistan*	0.767	Chile*	0.816	Sweden	0.776	Bulgaria*	0.820
Dominican Republic*	0.768	Dominican Republic*	0.818	Iceland	0.781	Serbia*	0.830
Tunisia*	0.770	Denmark	0.829	Tunisia*	0.781	Peru*	0.836
Russia*	0.783	Korea*	0.846	China*	0.805	Norway	0.851
Norway	0.786	Philippines*	0.846	Lebanon*	0.809	Slovak Republic	0.854
Denmark	0.791	New Zealand	0.848	Malaysia*	0.810	New Zealand	0.856
Philippines*	0.798	Malaysia*	0.860	Thailand*	0.826	Pakistan*	0.859
Slovak Republic	0.806	Thailand*	0.902	Mexico*	0.830	Argentina*	0.867
Nigeria*	0.821	Venezuela*	0.919	Korea*	0.842	Korea*	0.897
Serbia*	0.830	Egypt*	0.973	Norway	0.853	Venezuela*	0.898
China*	0.851	El Salvador*	0.976	Nigeria*	0.854	Nigeria*	0.917
Malaysia*	0.869	Ecuador*	0.985	Canada	0.855	Algeria*	0.946
New Zealand	0.870	Panama*	1.000	Chile*	0.887	Ukraine*	0.948
Korea*	0.873			New Zealand	0.907	Russia*	0.952
Thailand*	0.885			Argentina*	0.934	China*	0.995
Venezuela*	0.892			Egypt*	0.947	Malaysia*	0.998
Egypt*	0.901			El Salvador*	0.966	El Salvador*	1.000
El Salvador*	0.984			Ecuador*	1.000	Panama*	1.000
Ecuador*	0.996			Panama*	1.000	Lebanon*	1.000
Panama*	1.000					Ecuador*	1.000

* denotes countries included in the EMBI-G.

Figure 1: Mean Intervention Index for the Three Exchange Rate Categories, 1985-2006

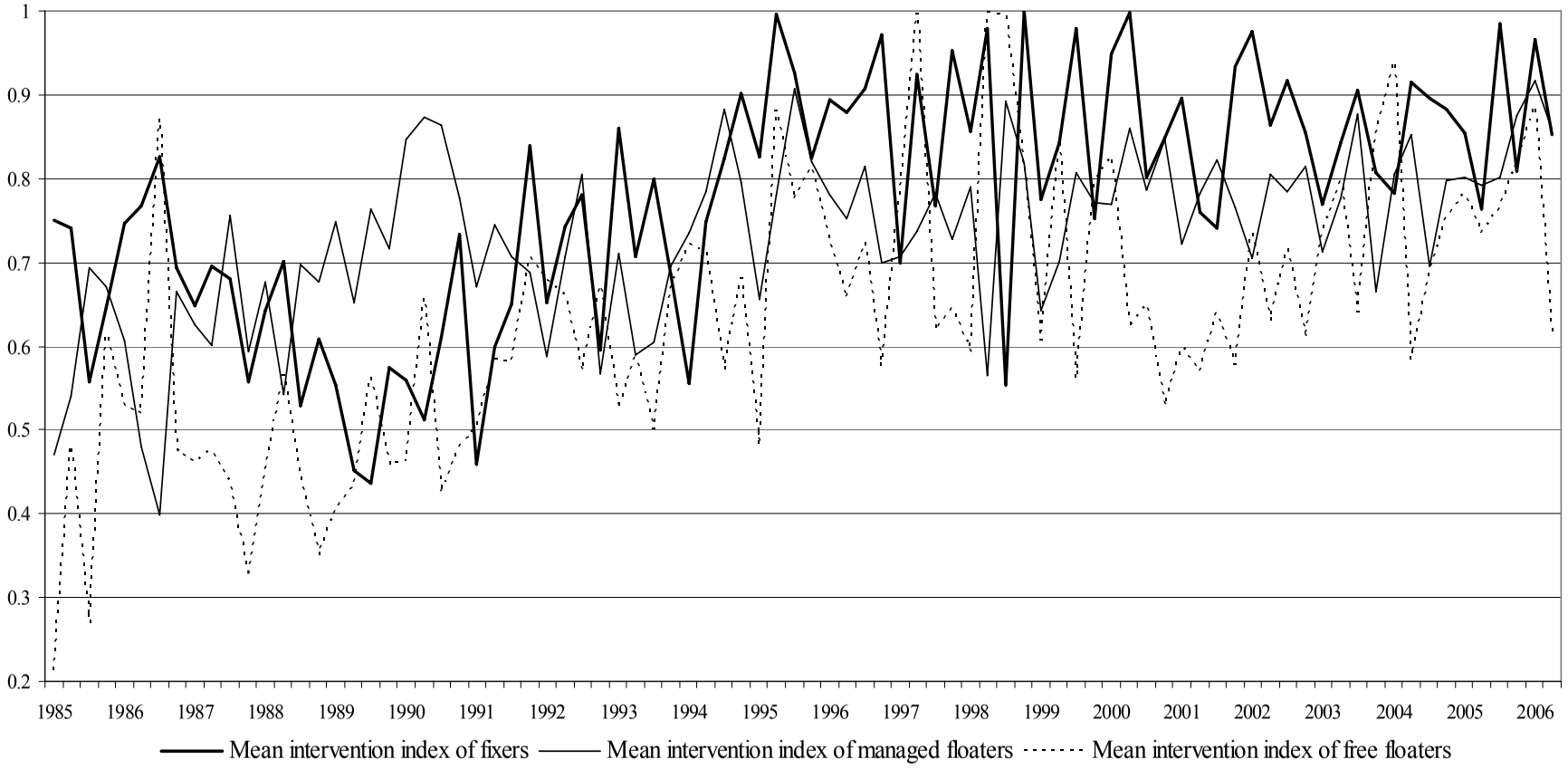

Figure 2: The Difference Between the Mean Intervention Index of Fixers and of Managed Floaters, 1985-2006

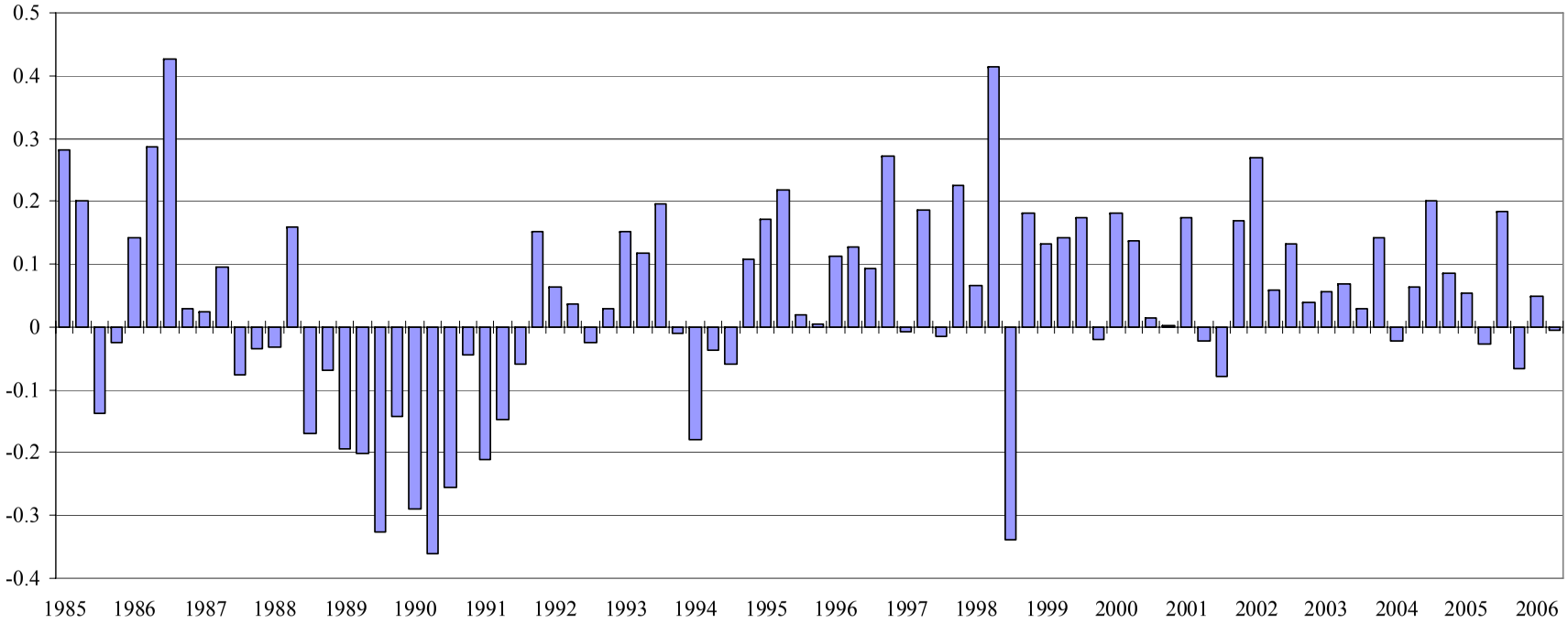

Figure 3: The Difference Between the Mean Intervention Index of Fixers and of Free Floaters, 1985-2006

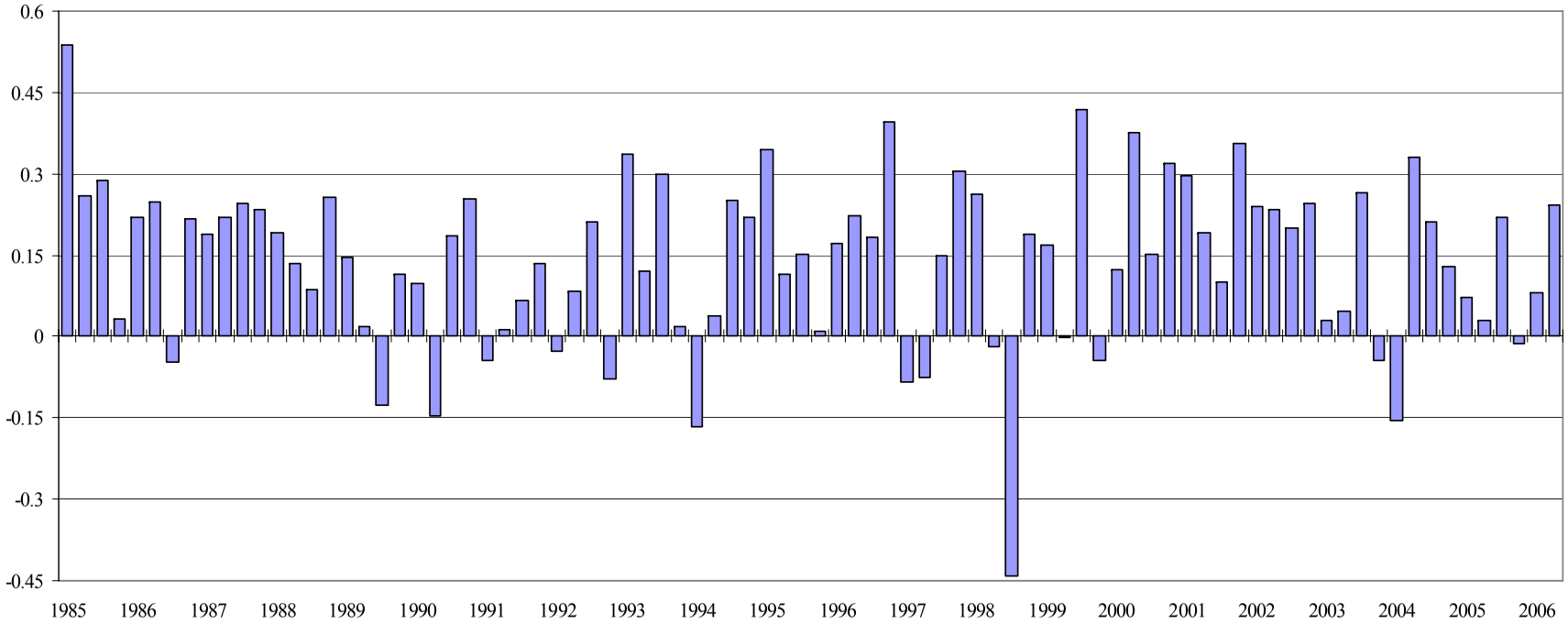

Figure 4: The Difference Between the Mean Intervention Index of Managed Floaters and of Free Floaters, 1985-2006

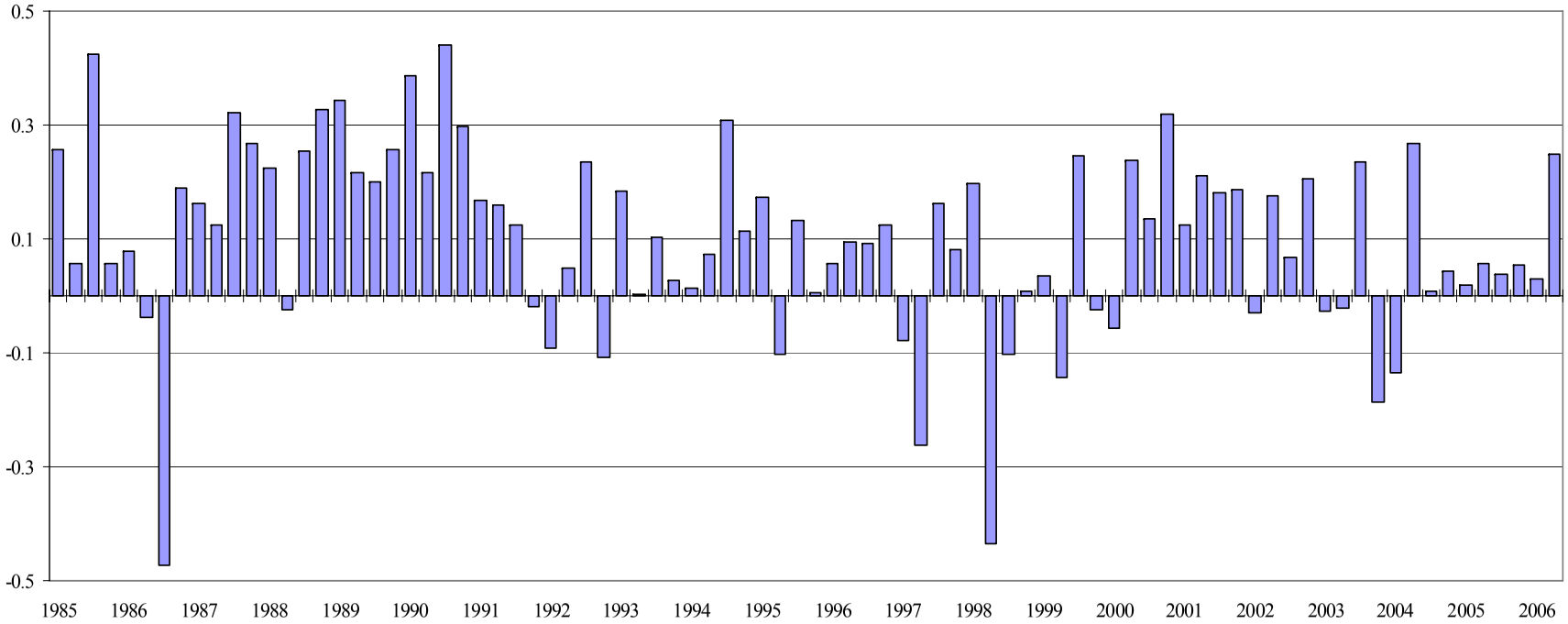

Table 6. Determinants of EMBI-G Spreads, All Countries

	Dependent Variable: EMBI-G Spread					
	(1)	(2)	(3)	(4)	(5)	(6)
Inflation	0.95	1.2	1.16	0.91	0.61	0.49
	[0.54]	[0.62]	[0.63]	[0.52]	[0.39]	[0.32]
Current Account	6.8	9.82	9.92	9.99	4.9	3.85
	[0.93]	[1.24]	[1.26]	[1.28]	[0.96]	[0.78]
General Government Balance	-18.94	-17.32	-16.82	-16.95	-9.44	-12.16
	[1.86]*	[1.88]*	[1.87]*	[1.91]*	[1.60]	[1.88]*
Reserves Minus Gold	-20.27	-32.79	-30.43	-33.04	-27.82	-20.81
	[1.62]	[2.70]**	[2.64]**	[2.85]***	[2.59]**	[2.12]**
Public Debt (t-3)	29.55	24.41	24.78	22.97	29.12	30.54
	[2.87]***	[3.83]***	[4.08]***	[3.22]***	[3.20]***	[3.47]***
Volatility Index	14.6	10.18	10.23	10.14	8.31	8.93
	[4.15]***	[3.90]***	[4.08]***	[4.10]***	[3.67]***	[4.09]***
De Jure Fixed		-668.71	-640.12	-677.85	-641.42	-581.91
		[2.23]**	[2.18]**	[2.38]**	[2.23]**	[2.10]**
De Jure Managed Floaters		3.03	2	-0.22	-50.96	-32.18
		[0.03]	[0.02]	[0.00]	[0.54]	[0.35]
Intervention Index			-226.59	-224.71	-197.72	-192.62
			[2.08]**	[2.05]*	[2.54]**	[2.48]**
RER Volatility				0.11		
				[2.25]**		
CRISIS1 (t-2, t+2)[1]					1,336.05	
					[2.05]*	
CRISIS2 (t-2, t+2)[1]						1,215.37
						[2.20]**
Constant	-930.7	-316.95	-158.7	-51.91	-36.31	-326.87
	[1.79]*	[0.86]	[0.47]	[0.15]	[0.11]	[0.90]
Joint significance test for year dummies (*Ho*: $\gamma t = 0$, for all t)						
Test statistic	F(9,24)=2.33	F(9,24)=2.03	F(9,24)=2.24	F(9,24)=1.91	F(9,23)=1.61	F(9,23)=1.07
P-value	Pr>F=0.047	Pr>F=0.081	Pr>F=0.056	Pr>F=0.100	Pr>F=0.170	Pr>F=0.419
Number of observations	739	705	704	704	672	670
Number of countries	25	25	25	25	24	24
R-squared	0.38	0.43	0.44	0.44	0.51	0.51

Robust t statistics in brackets

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

1/ Crisis dummy variable equals one when the exchange market pressure indicator (EMP) exceeds a threshold determined by its mean plus two standard deviations within a five-quarter window centered at t. That is, when EMP exceeds the threshold at any time between two quarters before and two quarters after the current period. CRISIS1 is based on a definition of EMP that incorporates percentage changes in reserves, whereas for CRISIS2 reserves are scaled by the monetary base.

Table 7. Determinants of EMBI-G Spreads, All Countries

	Dependent Variable: EMBI-G Spread			
	(1)	(2)	(3)	(4)
Inflation	0.43	0.44	0.23	0.24
	[0.30]	[0.30]	[0.18]	[0.18]
Current Account	5.69	5.67	2.38	2.37
	[1.14]	[1.14]	[0.59]	[0.58]
General Government Balance	-9.14	-9.16	-9.79	-9.8
	[1.93]*	[1.92]*	[1.73]*	[1.72]*
Reserves Minus Gold	-23.35	-23.35	-15.59	-15.59
	[2.17]**	[2.17]**	[1.55]	[1.55]
Public Debt (t-3)	30.35	30.36	33.62	33.62
	[2.98]***	[2.98]***	[3.62]***	[3.62]***
Volatility Index	8.13	8.23	7.94	8.01
	[3.97]***	[3.92]***	[4.15]***	[4.07]***
De Jure Fixed	-838.58	-839.99	-519.3	-520.47
	[2.77]**	[2.76]**	[2.07]*	[2.06]*
De Jure Managed Floaters	-296.8	-296.21	-91.66	-91.36
	[2.48]**	[2.49]**	[0.64]	[0.64]
Intervention Index	-194.01	-194.66	-183.02	-183.49
	[2.73]**	[2.72]**	[2.63]**	[2.63]**
RER Volatility		-0.35		-0.25
		[0.41]		[0.30]
CRISIS1 (t-2, t+2)[1]	1,818.04	1,821.00		
	[5.61]***	[5.56]***		
CRISIS2 (t-2, t+2)[1]			388.91	389.69
			[2.49]**	[2.48]**
Interactions between De Jure Regimes and the Respective Crisis Definition				
De Jure Fixed · CRISIS	0	0	123.67	124
	[.]	[.]	[0.24]	[0.24]
De Jure Managed Floating · CRISIS	182.69	178.82	1,563.45	1,561.89
	[0.35]	[0.35]	[2.54]**	[2.54]**
De Jure Floating · CRISIS	-1,649.42	-1,651.24	0	0
	[4.99]***	[4.97]***	[.]	[.]
Constant	91.21	95.84	-353.76	-350.31
	[0.27]	[0.28]	[0.91]	[0.91]
Joint significance test for year dummies (*Ho*: $\gamma t = 0$, for all t)				
Test statistic	F(9,23)=2.02	F(9,23)=2.08	F(9,23)=2.71	F(9,23)=2.77
P-value	Pr>F=0.084	Pr>F=0.075	Pr>F=0.026	Pr>F=0.023
Number of observations	672	672	670	670
Number of countries	24	24	24	24
R-squared	0.54	0.54	0.54	0.54

Robust t statistics in brackets

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

1/ Crisis dummy variable equals one when the exchange market pressure indicator (EMP) exceeds a threshold determined by its mean plus two standard deviations within a five-quarter window centered at t. That is, when EMP exceeds the threshold at any time between two quarters before and two quarters after the current period. CRISIS1 is based on a definition of EMP that incorporates percentage changes in reserves, whereas for CRISIS2 reserves are scaled by the monetary base.

Table 8. Determinants of EMBI-G Spreads, including Argentina June 2005 Dummy

	Dependent Variable: EMBI-G Spread					
	(1)	(2)	(3)	(4)	(5)	(6)
Inflation	1.15	1.45	1.41	1.14	0.84	0.72
	[0.64]	[0.72]	[0.73]	[0.62]	[0.50]	[0.45]
Current Account	8.04	11.95	12.04	12.13	7.51	6.57
	[0.98]	[1.29]	[1.30]	[1.32]	[1.10]	[0.98]
General Government Balance	-18.3	-16.14	-15.69	-15.82	-9.39	-11.92
	[1.90]*	[2.07]**	[2.05]*	[2.11]**	[1.70]	[1.99]*
Reserves Minus Gold	-18.8	-35.47	-33.28	-36.11	-30.66	-24.42
	[1.49]	[2.59]**	[2.53]**	[2.70]**	[2.66]**	[2.40]**
Public Debt (t-3)	30.44	23.95	24.31	22.35	27.93	29.19
	[2.86]***	[4.56]***	[4.89]***	[3.83]***	[3.85]***	[4.31]***
Volatility Index	14.33	9.67	9.73	9.63	7.9	8.46
	[3.96]***	[3.34]***	[3.47]***	[3.48]***	[3.06]***	[3.36]***
Argentina June 2005 Dummy	-2,363.20	-2,898.93	-2,883.47	-2,896.21	-2,729.62	-2,705.21
	[21.08]***	[8.39]***	[8.56]***	[8.46]***	[8.51]***	[8.91]***
De Jure Fixed		-818.35	-790.85	-832.26	-824.7	-770.22
		[1.86]*	[1.83]*	[1.96]*	[1.79]*	[1.70]
De Jure Managed Floaters		60.66	59.39	57.24	-3.34	13.26
		[0.40]	[0.39]	[0.38]	[0.03]	[0.12]
Intervention Index			-210.7	-208.6	-184.06	-178.6
			[2.18]**	[2.16]**	[2.68]**	[2.56]**
RER Volatility				0.12		
				[2.75]**		
CRISIS1 (t-2, t+2)[1]					1,213.29	
					[2.21]**	
CRISIS2 (t-2, t+2)[1]						1,095.29
						[2.40]**
Constant	-975.06	-248.29	-101.36	14.24	44.09	-217.84
	[1.75]*	[0.69]	[0.30]	[0.04]	[0.14]	[0.68]
Joint significance test for year dummies (*Ho*: $\gamma t = 0$, for all t)						
Test statistic	F(9,24)=2.62	F(9,24)=2.04	F(9,24)=2.31	F(9,24)=1.71	F(9,23)=1.79	F(9,23)=0.98
P-value	Pr>F=0.029	Pr>F=0.079	Pr>F=0.049	Pr>F=0.141	Pr>F=0.126	Pr>F=0.478
Number of observations	739	705	704	704	672	670
Number of countries	25	25	25	25	24	24
R-squared	0.45	0.53	0.53	0.54	0.6	0.61

Robust t statistics in brackets

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

1/ Crisis dummy variable is equal to one when the exchange market pressure indicator (EMP) exceeds a threshold determined by its mean plus two standard deviations within a five-quarter window centered at t. That is, when EMP exceeds the threshold at any time between two quarters before and two quarters after the current period. CRISIS1 is based on a definition of EMP that incorporates percentage changes in reserves, whereas for CRISIS2 reserves are scaled by the monetary base.

Table 9. Determinants of EMBI-G Spreads, excluding Argentina

	Dependent Variable: EMBI-G Spread					
	(1)	(2)	(3)	(4)	(5)	(6)
Inflation	1.84	1.93	1.89	1.55	1.42	1.34
	[0.96]	[0.94]	[0.94]	[0.85]	[0.83]	[0.80]
Current Account	2.07	4.04	4.09	4.41	0.23	-0.45
	[0.45]	[0.84]	[0.85]	[0.90]	[0.09]	[0.21]
General Government Balance	-8.63	-7.38	-7.15	-7.42	-3.62	-4.95
	[1.88]*	[2.16]**	[2.19]**	[2.50]**	[1.86]*	[2.32]**
Reserves Minus Gold	-26.46	-27.84	-26.53	-30.92	-29.42	-25.66
	[1.78]*	[2.19]**	[2.20]**	[2.60]**	[2.50]**	[2.42]**
Public Debt (t-3)	12.47	12.45	12.98	8.57	12.32	13.53
	[3.60]***	[4.33]***	[4.49]***	[2.40]**	[2.85]***	[3.14]***
Volatility Index	15.47	11.21	11.22	11.03	9.72	10.05
	[4.41]***	[4.50]***	[4.63]***	[4.67]***	[4.45]***	[4.78]***
De Jure Fixed		-348.27	-335.44	-401.4	-271.55	-235.9
		[2.14]**	[2.03]*	[2.24]**	[2.22]**	[2.08]**
De Jure Managed Floaters		-132.52	-129.94	-149.86	-146.45	-132.21
		[1.10]	[1.04]	[1.40]	[1.99]*	[1.74]*
Intervention Index			-125.51	-116.41	-111.34	-110.23
			[1.45]	[1.33]	[1.55]	[1.51]
RER Volatility				0.18		
				[4.75]***		
CRISIS1 (t-2, t+2)[1]					677.33	
					[1.56]	
CRISIS2 (t-2, t+2)[1]						616.73
						[1.83]*
Constant	140.89	6.2	411.78	582.28	459.89	95.79
	[0.55]	[0.02]	[1.44]	[2.29]**	[2.31]**	[0.46]
Joint significance test for year dummies (*Ho*: gt = 0, for all t)						
Test statistic	F(9,23)=2.53	F(9,23)=3.69	F(9,23)=3.91	F(9,23)=6.48	F(9,22)=7.27	F(9,22)=7.17
P-value	Pr>F=0.035	Pr>F=0.006	Pr>F=0.004	Pr>F=0.001	Pr>F=0.001	Pr>F=0.001
Number of observations	703	670	669	669	637	635
Number of countries	24	24	24	24	23	23
R-squared	0.4	0.42	0.43	0.46	0.49	0.5

Robust t statistics in brackets

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

1/ Crisis dummy variable is equal to one when the exchange market pressure indicator (EMP) exceeds a threshold determined by its mean plus two standard deviations within a five-quarter window centered at t. That is, when EMP exceeds the threshold at any time between two quarters before and two quarters after the current period. CRISIS1 is based on a definition of EMP that incorporates percentage changes in reserves, whereas for CRISIS2 reserves are scaled by the monetary base.

Table 10. Determinants of EMBI-G Spreads, De Jure Managed Floaters and Free Floaters Only

	Dependent Variable: EMBI-G Spread				
	(1)	(2)	(3)	(4)	(5)
Inflation	14.05	13.86	12.78	12.09	11.36
	[1.37]	[1.36]	[1.26]	[1.26]	[1.24]
Current Account	-0.54	-0.43	-1.86	-2.72	-2.53
	[0.17]	[0.13]	[0.68]	[0.93]	[0.96]
General Government Balance	-0.92	-0.91	-1.08	0.66	-0.6
	[0.62]	[0.61]	[0.67]	[0.36]	[0.35]
Reserves Minus Gold	-50.16	-49.51	-51.48	-50.73	-44.32
	[5.91]***	[5.94]***	[6.53]***	[6.32]***	[5.54]***
Public Debt (t-3)	7.45	7.62	6.86	9.58	12.18
	[1.69]	[1.72]	[1.58]	[2.42]**	[2.75]**
Volatility Index	11.7	11.74	11.52	11.07	10.87
	[3.58]***	[3.62]***	[3.65]***	[3.79]***	[3.65]***
Argentina June 2005 Dummy	-4,359.33	-4,345.51	-4,365.75	-4,289.49	-4,222.14
	[30.40]***	[30.10]***	[30.81]***	[32.42]***	[30.75]***
Intervention Index		-50.41	-52.25	-51.19	-51.79
		[0.87]	[0.89]	[0.96]	[0.99]
RER Volatility			0.41		
			[11.27]***		
CRISIS1 (t-2, t+2)[1]				443.3	
				[1.83]*	
CRISIS2 (t-2, t+2)[1]					583.97
					[1.99]*
Constant	185.73	220.58	356.29	391.83	250.65
	[0.93]	[1.14]	[3.22]***	[3.41]***	[1.68]
Joint significance test for year dummies (*Ho*: $\gamma t = 0$, for all t)					
Test statistic	F(9,20)=4.07	F(9,20)=4.12	F(9,20)=4.19	F(9,19)=4.67	F(9,19)=4.04
P-value	Pr>F=0.004	Pr>F=0.004	Pr>F=0.004	Pr>F=0.002	Pr>F=0.005
Number of observations	466	465	465	461	459
Number of countries	21	21	21	20	20
R-squared	0.77	0.78	0.8	0.82	0.83

Robust t statistics in brackets

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

1/ Crisis dummy variable is equal to one when the exchange market pressure indicator (EMP) exceeds a threshold determined by its mean plus two standard deviations within a five-quarter window centered at t. That is, when EMP exceeds the threshold at any time between two quarters before and two quarters after the current period. CRISIS1 is based on a definition of EMP that incorporates percentage changes in reserves, whereas in CRISIS2 reserves are scaled by the monetary base.

Table 11. Determinants of EMBI-G Spreads, De Jure Free Floaters Only

	Dependent Variable: EMBI-G Spread				
	(1)	(2)	(3)	(4)	(5)
Inflation	4.2	4.08	3.98	4.08	4.3
	[1.05]	[1.00]	[0.99]	[1.00]	[1.06]
Current Account	-7.75	-8.25	-8.33	-8.25	-8.28
	[2.52]**	[2.33]**	[2.28]*	[2.33]**	[2.30]*
General Government Balance	-0.22	-0.37	-0.41	-0.37	-0.18
	[0.05]	[0.08]	[0.09]	[0.08]	[0.04]
Reserves Minus Gold	-1.76	-0.17	0.06	-0.17	1.14
	[0.19]	[0.02]	[0.01]	[0.02]	[0.11]
Public Debt (t-3)	8.02	8.27	8.32	8.27	8.04
	[1.31]	[1.27]	[1.27]	[1.27]	[1.27]
Volatility Index	12.36	12.2	12.2	12.2	12.24
	[2.35]**	[2.44]**	[2.44]**	[2.44]**	[2.45]**
Intervention Index		-56.34	-56.95	-56.34	-60.84
		[0.97]	[0.97]	[0.97]	[1.01]
RER Volatility			0.26		
			[0.99]		
CRISIS1 (t-2, t+2)[1]				0	
				[.]	
CRISIS2 (t-2, t+2)[1]					0
					[.]
Constant	98.14	-132.12	-138.25	-132.12	-138.92
	[0.35]	[0.57]	[0.58]	[0.57]	[0.60]
Joint significance test for year dummies (*Ho*: γt = 0, for all t)					
Test statistic	F(8,8)=65.75	F(8,8)=33.54	F(8,8)=152.25	F(8,8)=33.54	F(8,8)=46.86
P-value	Pr>F=0.001	Pr>F=0.001	Pr>F=0.001	Pr>F=0.001	Pr>F=0.001
Number of observations	221	220	220	220	218
Number of countries	9	9	9	9	9
R-squared	0.5	0.51	0.51	0.51	0.52

Robust t statistics in brackets

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

Table 12. Determinants of EMBI-G Spreads Using Reinhart-Rogoff Classification of Exchange Rate Regimes

	Dependent Variable: EMBI-G Spread			
	(1)	(2)	(3)	(4)
Inflation	1.16	0.74	0.22	0.12
	[1.32]	[1.37]	[0.96]	[0.58]
Current Account	23.05	16.7	13.89	11.22
	[1.44]	[1.49]	[1.38]	[1.25]
General Government Balance	8.35	6.75	6.19	4.26
	[1.12]	[0.95]	[0.87]	[0.56]
Reserves Minus Gold	-72.91	-60.2	-46.16	-48.27
	[2.68]**	[2.33]**	[2.42]**	[2.60]**
Public Debt (t-3)	11.63	1.9	6.29	8.86
	[0.85]	[0.20]	[0.93]	[1.62]
Volatility Index	10.57	9.26	8.71	10.11
	[4.29]***	[3.78]***	[3.78]***	[4.11]***
De Jure Fixed	896.25	357.73	230.94	112.46
	[1.80]*	[1.20]	[1.56]	[0.96]
De Jure Managed Floaters	23.85	-67.19	119.36	-17.97
	[0.25]	[0.77]	[1.43]	[0.24]
Reinhart-Rogoff De Facto Classification[1]				
RR1	-2,140.54	-2,118.34	-1,786.18	-1,564.97
	[1.35]	[1.30]	[1.19]	[1.02]
RR2	-1,823.48	-1,507.82	-997.32	-755.14
	[1.29]	[0.99]	[0.67]	[0.50]
RR3	110.24	1,032.54	1,719.41	1,575.21
	[0.06]	[0.66]	[1.38]	[1.28]
RR4	0	0	0	0
	[.]	[.]	[.]	[.]
RR5	499.46	1,321.19	1,810.46	1,838.46
	[0.31]	[0.89]	[1.63]	[1.67]
RER Volatility		0.6		
		[6.34]***		
CRISIS1 (t-2, t+2)[2]			769.59	
			[1.99]*	
CRISIS2 (t-2, t+2)[2]				1,026.98
				[2.73]**
Constant	1,501.33	1,505.76	710.93	581.61
	[1.27]	[1.11]	[0.59]	[0.48]
Joint significance test for year dummies (*Ho*: $\gamma t = 0$, for all t)				
Test statistic	F(4,20)=2.52	F(4,20)=4.04	F(4,19)=2.84	F(4,19)=2.84
P-value	Pr>F=0.074	Pr>F=0.015	Pr>F=0.053	Pr>F=0.053
Number of observations	267	267	252	252
Number of countries	21	21	20	20
R-squared	0.49	0.64	0.73	0.73

Robust t statistics in brackets

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

1/ The Reinhart-Rogoff classification used above corresponds to a condensed version of the fourteen regime categories originally created. RR1 encompasses four fixed categories, from no separate legal tender to a de facto peg; RR2 corresponds to three crawling peg or narrow band categories; RR4 includes four wider crawling or moving bands as well as managed floating; RR4 corresponds to freely floating; RR5 corresponds to freely falling; and RR6 refers to a dual market in which parallel market data is missing. In our sample there is a negligible number of observations for RR6, so this category is dropped.

2/ Crisis dummy variable is equal to one when EMP exceeds a threshold determined by its mean plus two standard deviations within a five-quarter window centered at t. That is, when EMP exceeds the threshold at any time between two quarters before and two quarters after the current period. CRISIS1 is based on a definition of EMP that incorporates percentage changes in reserves, whereas in CRISIS2 reserves are scaled by monetary base.

Table 12. Determinants of EMBI-G Spreads Using Reinhart-Rogoff Classification of Exchange Rate Regimes, De Jure Floaters Only

	Dependent Variable: EMBI-G Spread							
	Free Floaters Only				De Jure Managed Floaters and Free Floaters Only			
	(1)	(2)	(3)	(4)	(4)	(4)	(4)	(4)
Inflation	1.46	1.44	5.5	2	21.35	15.73	20.12	15.37
	[0.22]	[0.22]	[0.98]	[0.29]	[2.68]**	[3.13]***	[5.50]***	[2.57]**
Current Account	-3.6	-3.58	-4.55	-3.85	6.76	0.34	1.9	1.56
	[0.78]	[0.78]	[0.88]	[0.83]	[0.76]	[0.08]	[0.49]	[0.39]
General Government Balance	-7.25	-7.54	-7.57	-7.23	-12.59	-12.66	-10.48	-12.88
	[1.67]	[1.42]	[1.81]	[1.64]	[2.02]*	[1.76]*	[1.79]*	[1.89]*
Reserves Minus Gold	-1.31	-2.12	-4.95	-3.37	-44.82	-46.42	-51.83	-51.14
	[0.18]	[0.23]	[0.78]	[0.54]	[4.10]***	[3.56]***	[4.31]***	[4.44]***
Volatility Index	6.47	6.47	5.93	6.41	15.94	14.99	10.01	11.17
	[4.89]***	[4.88]***	[5.43]***	[4.79]***	[4.08]***	[4.40]***	[4.04]***	[4.10]***
Reinhart-Rogoff De Facto Classification[1]								
RR1	66.25	62.28	52.3	58.29	0	0	0	0
	[1.18]	[0.92]	[1.04]	[1.09]	[.]	[.]	[.]	[.]
RR2	0	0	0	0	221.66	129.34	118.9	152.09
	[.]	[.]	[.]	[.]	[2.17]**	[3.15]***	[2.72]**	[3.10]***
RR3	0	0	12.24	-32.13	397.02	525.89	504.39	610.48
	[.]	[.]	[0.22]	[1.92]*	[0.86]	[1.11]	[1.73]	[1.77]*
RR4	2.17	-4.25	106.94	17.53	912	1,233.91	1,543.07	1,852.73
	[0.02]	[0.05]	[1.12]	[0.22]	[1.55]	[2.19]**	[2.97]***	[2.48]**
RR5	187.57	186.55	0	0	739.31	885.1	413.52	664.14
	[5.76]***	[5.66]***	[.]	[.]	[1.68]	[1.96]*	[1.58]	[1.89]*
RER Volatility		-0.09				0.46		
		[0.23]				[12.02]***		
CRISIS1 (t-2, t+2)[2]			256.7				770.49	
			[4.89]***				[2.91]***	
CRISIS2 (t-2, t+2)[2]				185.22				836.38
				[5.41]***				[2.05]*
Constant	113.45	122.41	80.52	149.59	-485.18	-378.26	-20.66	-125.13
	[0.80]	[0.94]	[0.54]	[1.11]	[1.37]	[1.31]	[0.09]	[0.44]

(Continued on next page.)

Table 12. *continued*

Joint significance test for year dummies (*Ho*: $\gamma t = 0$, for all t)								
Test statistic	F(4,8)=3.30	F(4,8)=2.81	F(4,8)=4.76	F(4,8)=4.52	F(4,19)=7.10	F(4,19)=7.22	F(4,18)=5.96	F(4,17)= 6.81
P-value	Pr>F=0.071	Pr>F=0.100	Pr>F=0.029	Pr>F=0.033	Pr>F=0.001	Pr>F=0.001	Pr>F=0.003	Pr>F=0.002
Number of observations	111	111	111	111	231	231	224	223
Number of countries	9	9	9	9	20	20	19	18
R-squared	0.29	0.29	0.36	0.31	0.56	0.67	0.76	0.75

Robust t statistics in brackets

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

1/ The Reinhart-Rogoff classification used above corresponds to a condensed version of the fourteen regime categories originally created. RR1 encompasses four fixed categories, from no separate legal tender to a de facto peg; RR2 corresponds to three crawling peg or narrow band categories; RR4 includes four wider crawling or moving bands as well as managed floating; RR4 corresponds to freely floating; RR5 corresponds to freely falling; and RR6 refers to a dual market in which parallel market data is missing. In our sample there is a negligible number of observations for RR6, so this category is dropped.

2/ Crisis dummy variable is equal to one when the exchange market pressure indicator (EMP) exceeds a threshold determined by its mean plus two standard deviations within a five-quarter window centered at t. That is, when EMP exceeds the threshold at any time between two quarters before and two quarters after the current period. CRISIS1 is based on a definition of EMP that incorporates percentage changes in reserves, whereas in CRISIS2 reserves are scaled by the monetary base.

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