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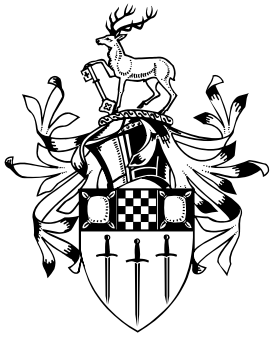

Discussion Papers in Economics

EXPLAINING IMF ARRANGEMENTS: WAS ASIA DIFFERENT?

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Explaining IMF Arrangements: Was Asia Different?

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Claims have been made that capital account crisis (CAC) countries are discernibly different in terms of the characteristics that lead them to borrow from the IMF. This paper tests these claims. It uses a conventional model of IMF lending to estimate the probability of countries having an IMF arrangement on the basis of key economic circumstances. In particular it examines countries that have been identified by the Fund as capital account crisis countries but it also looks at a number of comparator countries. The findings suggest that there are some regional differences between CAC countries, but also differences within regions. Broadly speaking the findings confirm that Asian economies around the time of the 1997/98 crisis tended to turn to the IMF for financial support more quickly than would have been anticipated.

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1. **Introduction**

In seeking to explain the probability of countries negotiating arrangements with the International Monetary Fund (IMF) the claim has sometimes been made that capital account crisis (CAC) countries are different. The implicit assumption is that, whereas countries have traditionally chosen to turn to the IMF when they encounter current account deficits associated with fiscal and monetary excesses or external terms of trade shocks, CAC countries have been pushed towards the Fund by a loss of market confidence which strategically weakens the capital account. The implication is that these arrangements would not have been predicted on the basis of fiscal imbalances or current account imbalances, or more broadly on the basis of conventional models of the determinants of IMF lending.

In recent reports the IMF has itself sought to distinguish between countries in terms of the economic circumstances in which they turn to it for assistance (IMF, 2004). The Fund classifies its clients as 'classic', 'capital account crisis' and 'low income' countries. The inference is that there are discernible differences between each of these categories. The 'classic' country borrower is one that encounters current account balance of payments difficulties largely as a consequence of fiscal deficits that are either financed by rapid monetary expansion leading to inflation, or excessive debt accumulation. These countries tend to have 'twin' fiscal and current account deficits. 'Low income' countries also tend to borrow from the IMF as a result of current account deficits. But although macroeconomic disequilibria may have a part to play in explaining IMF arrangements in these cases, they may also be significantly associated with adverse trade shocks.

In contrast, it is suggested that capital account crisis countries may have only relatively modest fiscal imbalances and current account deficits. What drives them to the Fund is a relatively sudden loss of market confidence. Although this may be reflected by a sudden fall in reserves, and while low holdings of reserves is a conventional reason for countries to turn to the IMF, the suggestion is that a conventional model of IMF arrangements which focuses on fiscal deficits, monetary expansion and current account deficits alongside reserve levels will do a less good job in predicting IMF arrangements in CAC countries. Some empirical studies have suggested that in attempting to explain IMF programs during the 1990s an 'Asian dummy' is significant, and is needed to capture the experience of these countries (Anderson et al, 2006). The implication is that while Asia is different, CAC countries in general are not.

The purpose of this paper is to test this assertion. To what extent can the drawings made during the 1990s by countries identified by the IMF as capital account crisis (CAC) countries be explained by a standard model of IMF arrangements. Or, to put it another way, is a standard model less successful at explaining IMF arrangements with capital account crisis countries than with other countries? Or is it just less successful in the case of Asia? Although related to a range of other issues the paper does not set out to explain economic and financial crises or to test the extent to which the model of IMF arrangements broke down in the 1990s.

The paper is organised in the following way. Section 2 briefly summarises the existing literature on the determinants of IMF arrangements. Section 3 goes on to present an econometric model of IMF programs which focuses on a number of key

economic characteristics designed to reflect domestic economic imbalances as well as external factors. The model is in the tradition of other attempts to explain drawings on the IMF. It is then applied to calculate the probability that countries defined by the IMF as capital account crisis countries would have had IMF programs at the times that they did. As a point of comparison, it also explores the estimated probability of countries having programs with the Fund that did not in fact draw from it. In particular, while, in the context of the Asian crisis in 1997/98, Thailand, Korea and Indonesia negotiated programs with the IMF, Malaysia did not, nor did China. Can these differences be explained in terms of conventional economic characteristics? Section 4 briefly offers some concluding remarks.

2. The Determinants of IMF Arrangements: A Brief Review of the Literature

Empirical evidence does not allow factors affecting the demand for IMF arrangements to be distinguished from those affecting the supply of them. What is observed is either a program or no program, with these outcomes being the result of the interplay between demand and supply side factors.

Early research into IMF lending attempted to explain the *amount* of lending in terms of key economic variables, making little distinction between the demand and supply sides (Bird and Orme, 1981, Cornelius, 1987). Later research, while continuing to emphasise the economic determinants, used probability approaches which sought to explain whether or not countries had programs rather than to explain the amount of lending involved in them (Joyce, 1992, Conway, 1994, and Knight and Santaella, 1997). As studies multiplied and became more sophisticated, they also encompassed a

wider range of potential explanatory variables, although these continued to emphasise the economic dimensions of IMF borrowing and lending.

Over time areas of consensus emerged. There were some economic variables that appeared to be significant according to most studies (Bird, 1996). The mere existence of a current account balance of payments deficit certainly did not appear, in itself, to make it probable that a country would demand resources from the Fund. Beyond this, however, arrangements with the Fund did seem to be linked to low levels of reserves, overvalued exchange rates, a near-term record of past programs, and low levels of income and development. Some studies further suggested that programs were connected to external debt and terms of trade shocks.

While the studies certainly identified important relationships and regularities, the within sample and out-of-sample predictive capacity of the models was limited. More recent research has attempted to contribute to the literature by exploring the extent to which our ability to explain IMF programs is improved by incorporating a series of political variables that may influence the willingness of governments to turn to the IMF for financial assistance and the willingness of the Fund to respond positively (Rowlands, 1995, Thacker, 1999, Bird and Rowlands 2001, and Anderson et al 2006). It is probably premature to reach firm conclusions about the influence of political factors. While some studies find that there is a systematic 'US influence' (Thacker, 1999, Anderson et al, 2006) others conclude that, while individual political factors appear to be significant on occasions, the inclusion of political variables – and institutional variables as well – does not significantly improve our overall systematic ability to explain IMF programs (Bird and Rowlands, 2001, 2002).

3. Methodology, Results and Interpretation

3.1 Method and results

In order to examine the probability of signing an agreement with the Fund we use a probit model in which the binary dependent variable indicates the signing of an IMF agreement (under the Standby, EFF, SAF, ESAF, or PRGF facilities) and the explanatory variables reflect a country's general aggregate economic performance, basic external balance conditions, and recent IMF activity. The explanatory variables are all lagged one year from the signing, so that the model effectively generates within-sample predictions of a country's probability of signing an agreement in the following year. This lag appears appropriate given the time taken to negotiate agreements. It is the predicted probabilities of signing that are of interest to us here, as they indicate the degree to which an IMF program is expected based on the economic circumstances of a country, as captured by our econometric model summarised in Table 1 (and explained more fully in the Appendix).

The model used has been derived from earlier research (summarised in Bird and Rowlands, 2001) which also tested for a range of additional determinants. It therefore represents a preferred parsimonious model. Thus, for example, the exclusion of terms of trade and monetary variables reflects the fact that their inclusion did not improve the explanatory power of the model. At the same time, the model used here does accommodate various real and monetary factors that may lead to a loss of balance of payments sustainability that then motivates countries to seek financial assistance from the IMF. The model incorporates measures of indebtedness, debt difficulties and reserve adequacy as well as the size of current account imbalances. It also takes into

account the nature of the exchange rate regime and the extent of exchange rate adjustment.

While the model has shortcomings in terms of predictive power, as is the case with all such models (Bird and Rowlands, 2001, 2002), it performs reasonably well. Although we collected a large amount of data for several countries over many years, some observations, including those prior to 1977, are suppressed due to missing data. In addition, countries that were not clearly eligible to sign agreements (since they were already operating under an IMF program) were also removed from the sample. Consequently the model is estimated using an unbalanced panel of 1195 observations on 94 low and middle-income countries from 1977-2000. Table 1 presents the estimation results.

TABLE 1 ABOUT HERE

These results are generally quite sensible, and align with the findings of other studies. Focusing on the estimated coefficients that are statistically significant, the results indicate that countries are more likely to sign an agreement with the IMF in the following year if their current economic growth record is slow, they have relatively low reserves (compared to import needs), higher levels of debt and debt service payments, and if they have a record of recent debt re-schedulings. In addition, countries with tightly fixed or highly flexible exchange rate regimes are more likely to sign on to Fund programs (see Bird and Rowlands, 2005 for a fuller discussion of this issue). It should be noted that the addition of an indicator for the presence of capital account controls (as identified by the IMF) does not affect significantly the results reported here, though the measure is admittedly quite crude.

For our purposes the model summarised in Table 1 is adequate since we wish to examine whether the arrangements between the IMF and various CAC countries are less well explained by standard factors than arrangements with member countries in general.

To do this we estimate the predicted probabilities of signing an agreement based on these standard factors. The probabilities are calculated for a number of Asian and Latin American countries, as well as for Russia. The sample includes countries that signed programs, as well as some which did not, and contains all those countries identified as 'crisis countries' by the IMF (IMF, 2004) for the mid to late 1990s. This list includes Mexico (1995), Argentina (1995 and 2000), Thailand (1997), Korea (1997), Indonesia (1997), and Brazil (1998, 2001 and 2002).

We begin by examining the expected probabilities of signing an IMF agreement for the whole sample, for a sub-sample of Asian countries, and for a sub-sample of Latin American countries. These probabilities are presented in Table 2, and are divided into countries that signed agreements, and those that did not.

TABLE 2 ABOUT HERE

Three interesting results emerge. First, the tables are consistent with prior beliefs that the predicted probability of signing an agreement should be higher for countries that actually do sign than for those that do not. The model, therefore, certainly has some merit. Second, the average predicted probability of signing for the Asian and Latin American sub-samples is noticeably lower than for the sample as a whole. Countries in these regions that sign Fund agreements generally did so with significantly lower

average predicted probabilities than for the full sample. Therefore the data suggest that relative to the rest of the world, some countries in these two regions are rather quicker to ask for, and be awarded, a Fund arrangement. Finally, in the case of Latin America, the gap between the predicted probabilities of signing an agreement for countries that subsequently did sign one (0.278) and those that did not (0.241) is not particularly large. This last result suggests that program and non-program countries in Latin America do not differ dramatically in terms of the basic economic characteristics as captured by the model.

The predicted probabilities of signing an IMF agreement that are derived from the model are presented individually in separate tables below (Table 3) for each country of interest. The overall probabilities associated with the model allow for the fact that countries may be ineligible to draw resources from the Fund if they are in arrears, and that they may not sign a program in a particular year because they are already under an arrangement. The methodology adopted in this paper is different from others that have been used to test for region specific effects or effects pertaining to a particular time period where relevant dummy variables have usually been included. The advantage of our methodology is that it provides a richer source of information and is better suited to the research question that we pose. We are interested in country specific data and in the degrees of difference that our estimated probabilities allow us to investigate.

TABLE 3 ABOUT HERE

Tables (3a-3k) show the evolution of the probabilities of an IMF agreement for a number of years around the ‘crises’ experienced either by the country itself or its

regional neighbours. The second column of Table 3 shows the predicted probabilities of countries signing an agreement in the next year based on data from the current year, for the ten year period from 1991-2000. The third column identifies whether in fact an agreement was signed in the following year (indicated by the entry '1') or not (identified by a '0'). The fourth column shows whether or not the country was 'eligible' to sign an agreement in the following year. An entry of '0' means that a country was not 'eligible' to sign an agreement in the sense that it was already operating with a Fund arrangement for most of the year. Thus, for example, on the basis of economic characteristics in 1994, Mexico was expected to sign an agreement in 1995 with a probability of 0.344, and it did so. The equivalent probability based on 1995 characteristics was 0.458, but it did not sign one. At this time it was already operating with the agreement from the previous year.

3.2 Interpretation

How should we interpret the findings reported in Tables 3a-3k? First, our ability to explain IMF programs remains limited. There are many potential economic and political factors that may idiosyncratically help determine the incidence of programs and no one standard model is likely to capture all the nuances that will vary from case to case. Expectations should not be set too high. Case studies may be required to fully capture the complexities of individual IMF programs.

Second, and despite the previously mentioned difficulty, our findings do suggest a potentially interesting systematic story. Taking two extremes in our sample, our model predicted that over the period studied China would not have warranted a program on the basis of the economic factors captured by our analysis. And no program was signed. At the other extreme, and relative to the mean level at which

programs are put in place (0.365), Russia would have been expected to have a program in each and every year. In fact, Russia did indeed negotiate an Extended Fund Facility program with the IMF in March, 1996.

From amongst the capital account crisis countries as identified by the IMF, there is a somewhat different picture for those in Latin America than for those in Asia. As noted earlier, in the case of Mexico a program became increasingly likely from 1993 until 1995. It would certainly have been predicted by our model for 1996 and would have been very close to being predicted in 1995 when it was actually signed. For Brazil similarly, the probability of an IMF program rose sharply from 1997 to 2000. Whilst our model would have predicted it in 2000, the program was actually signed in December 1998. For Argentina our model scores a direct hit, predicting clearly the program that was signed in April 1996. It does a little less well, however, in predicting Argentina's precautionary EFF in 1998 or its stand-by arrangement in March, 2000. It is interesting to note that Argentina was one of the few IMF members to consider signing precautionary programs, which are not anticipated to be drawn on and which may therefore be adopted under quite different circumstances than agreements for which there is an associated immediate resource need.

The two other Latin American countries reported in Table 3 tell a contrasting story. Chile would not have been predicted to have a program on the basis of its economic circumstances, and didn't. Uruguay, on the other hand, entered into programs even though these were usually not predicted by the economic factors in our model. As in the case of Argentina in 1998, Uruguay has a history of adopting precautionary IMF programs and its government may have been looking to them to transmit a positive signal about the commitment to economic reform. Alternatively, it might have been

that governments involved the Fund in order to tip the domestic political balance in favour of reform or to be able to use the Fund as a scapegoat to blame for unpopular reform measures.

Relative to what might have been expected, our model therefore performs reasonably well in explaining Latin American programs. In the context of Latin America it does not appear that crisis countries are substantially different from other countries in the region in terms of the status of key economic variables when it comes to arranging programs with the Fund.

This is less the case when we turn to the Asian countries in our sample around the time of the 1997/98 crisis. For Indonesia a program might have been anticipated in 1999, but in fact was signed earlier in November, 1997. For Thailand, and again relative to the full-sample mean, our model would not have predicted a program. Having said this, it is evident that the probability of a program rose sharply between 1995 and 1997. What this increase implies is that, while fundamentals were weakening and were gradually pushing Thailand closer to an IMF program, there was some other factor not captured by our model that pushed it that much faster and further, resulting in the signing of a program in August 1997. For Korea, the negotiation of an agreement with the Fund in December 1997 is even more of a surprise according to our model. If anything, the economic variables in our model would have more likely anticipated a program in 1999. Again something else, not adequately represented by the model, seems to have pushed Korea into an agreement with the IMF, and certainly into one earlier than might have been anticipated. For example, for both Korea and Indonesia the earlier than anticipated signing of a program could have been associated with contagion effects from crisis in Thailand,

not reflected in the standard model. The tendency for some important CAC countries to turn to the IMF earlier than predicted by the model seemed to strengthen as the 1990s progressed.

Our results seem to be broadly supportive of those who claim that it was the region's financial crisis that resulted in some Asian economies Thailand and Korea turning to the Fund in circumstances when underlying economic variables, including conventional measures of reserve adequacy, would have suggested that they might have escaped the need for IMF programs.

Our results also lend some support to the claim that Malaysia opted for the alternative of not entering into an IMF program when economic factors suggested that a program was probable. Only *some* support, however, since the model predicts that a program would have been relatively unlikely from 1996-1998. It is only in 1999 that the economic variables contained in our model would have predicted a program. Within our Asian sample we therefore have cases where a program was predicted but did not occur (Malaysia) and cases where a program was not predicted but did occur, or occurred earlier than anticipated (Thailand and Korea).

While broadly consistent with the claim that some countries in Asia were different inasmuch as they negotiated IMF arrangements when they would not have been expected on the basis of conventional determinants, our results are inconsistent with the suggestion that there is a larger distinct group of capital account crisis countries incorporating not only Asian economies but also Latin American ones, where standard explanations of arrangements perform less well.

Three additional points of interest may be identified from our results. First, it may be the case that annual data are just too crude to capture the dynamics of an unfolding crisis. We do, however, have measures of percentage change over the course of a year for such variables as reserves-to-imports and real exchange rate movements which ought to reflect these events, if only imperfectly. Second, the fact that IMF arrangements are not foreshadowed by the data on key economic variables provides some support for the argument that such events are inherently difficult to predict. Third, the economic variables in our model continued to worsen in many of the countries after they had signed an IMF agreement. This casts some doubt on the ability of the Fund to quickly restore economic stability in client countries, as reflected by the increasing probability of IMF programs, and may contain an implicit message about the effectiveness of conditionality.

4. Concluding Remarks

This study investigates the claim that the determinants of IMF arrangements in capital account crisis countries are empirically distinct from those in other countries, It also explores the extent to which, during the 1990s, there was a specific and unpredictable Asian effect on IMF lending.

While no single equation is particularly successful at explaining IMF arrangements, we can test whether the standard model used in the literature performs less well in explaining arrangements in the CAC countries identified by the IMF than elsewhere.

Our findings are mixed. For Thailand, Indonesia and Korea our analysis suggests that there were factors that contributed to the arrangements with the Fund that are relatively poorly captured by the standard model of IMF lending. But, even in Asia, the model hints at the increasing probability of programs on the basis of deteriorating economic circumstances. Although our results are not inconsistent with other research that has claimed that there was a significant Asian effect, our methodology allows us to identify important intra regional differences. While we observe some differences between the Latin American countries in our sample and the Asian ones, there are also differences within the two regions.

As with most research, our findings raise a number of important questions that warrant further investigation. For example, while low levels of reserves may make it more probable that countries will borrow from the Fund, to what extent are declining reserves caused by different factors in different groups of countries? In one group, it may be a fall in export revenue, while in another it may be reduced capital inflows that lead to the decline in reserves. However, the key finding of the research reported here is that across a relatively wide range of countries classified by the IMF as being different, and as not displaying the classic symptoms associated with referral to the Fund, conventional models of IMF arrangements do in fact do a reasonable job of predicting them. It is only for a much smaller sub-set of Asian economies that programs were arranged at a time when they would not have been anticipated on the basis of conventional economic circumstances. In some cases the premature resort to IMF programs in the mid to late 1990s occurred in countries that have shown a particular reluctance to use the IMF again as exhibited by their accumulation of owned reserves.

If there is a subset of countries that are different from conventional users of IMF resources in the sense that they turn to the Fund earlier than standard economic determinants would suggest, this raises the question of the appropriate policy response. Perhaps greater flexibility is required in responding quickly to circumstances as they arise. The IMF's Contingent Credit Lines scheme was an attempt to provide such support but it was ill designed and abandoned having never been used. Yet if the IMF cannot devise a suitable facility for rapidly responding to somewhat unanticipated requests for help, it may be unsurprising that countries opt to provide self-insurance by building up their own reserves or by negotiating reserve pooling schemes outside the IMF.

Table 1: Probit results for explaining the signing of an IMF agreement in the following year[#]

Explanatory variable	Estimated coefficient	Normal test statistic
Constant	0.0932	0.35
GNP per capita	-0.0000176	-0.43
GDP growth	-0.0330***	-3.77
Reserve-to-import ratio	-0.700*	-2.27
% change in reserves-to-imports	-0.000893	-1.82
Current Account Balance/GDP	0.684	0.83
% change in the current account	0.0000382	1.01
Real exchange rate depreciation	-0.000683	-1.56
Debt service-to-exports ratio	0.557*	1.96
% change in the debt-service ratio	0.000336*	2.29
Public external debt –to-GDP ratio	0.129	1.13
Current rescheduling	-0.190	-1.13
Reschedulings in past years	0.334***	3.23
Exchange rate regime	-0.378*	-2.04
Square of the exchange rate regime	0.0657*	2.24
Inflation	0.0000351	0.41
Number of observations	1195	
Pseudo-R squared	0.078	

The estimation was run on Stata using the robust probit estimation procedure with countries identified as the cluster.
***, **, * refer to statistical significance at the 1%, 2%, and 5% levels for two-tailed tests, respectively.

Table 2: Expected probabilities of signing IMF agreements: sample averages

Sample	Countries that did sign	Countries that did not sign
Full sample	0.365	0.296
Asian sample	0.276	0.222
Latin American Sample	0.278	0.241

Table 3: Expected probabilities of selected countries signing an IMF agreement in the next year. **Bold** = above regional sample average for signing countries, ***Bold italics*** = above full sample average for signing countries.

a) Mexico

Year	Predicted probability of signing next year	Indicator of signing next year	Eligible to sign next year
1991	0.200	0	0
1992	**0.282**	0	1
1993	0.267	0	1
1994	**0.344**	1	1
1995	***0.458***	0	0
1996	0.261	0	1
1997	0.216	0	1
1998	0.214	0	1
1999	0.234	1	1
2000	0.209	0	1

b) Brazil

Year	Predicted probability of signing next year	Indicator of signing next year	Eligible to sign next year
1991	**0.322**	1	1
1992	0.164	0	1
1993	0.205	0	1
1994	0.244	0	1
1995	**0.287**	0	1
1996	0.171	0	1
1997	**0.279**	1	1
1998	0.269	0	0
1999	***0.442***	0	0
2000	**0.336**	1	1

c) Argentina

Year	Predicted probability of signing next year	Indicator of signing next year	Eligible to sign next year
1991	0.121	1	1
1992	0.136	0	0
1993	0.131	0	0
1994	**0.285**	0	0
1995	***0.400***	1	1
1996	0.196	0	0
1997	0.202	1	1
1998	0.233	0	0
1999	**0294**	1	1
2000	**0.299**	0	0

d) Chile

Year	Predicted probability of signing next year	Indicator of signing next year	Eligible to sign next year
1991	0.187	0	1
1992	0.127	0	1
1993	0.103	0	1
1994	0.083	0	1
1995	0.090	0	1
1996	0.110	0	1
1997	0.086	0	1
1998	0.120	0	1
1999	0.151	0	1
2000	0.116	0	1

e) Uruguay

Year	Predicted probability of signing next year	Indicator of signing next year	Eligible to sign next year
1991	0.169	1	1
1992	0.237	0	1
1993	0.259	0	1
1994	0.231	0	1
1995	**0.347**	1	1
1996	0.174	1	1
1997	0.180	0	0
1998	0.177	1	1
1999	0.237	1	1
2000	0.227	0	0

f) Thailand

Year	Predicted probability of signing next year	Indicator of signing next year	Eligible to sign next year
1991	0.189	0	1
1992	0.199	0	1
1993	0.189	0	1
1994	0.184	0	1
1995	0.176	0	1
1996	0.204	1	1
1997	**0.357**	0	0
1998	**0.340**	0	0
1999	0.183	0	1
2000	0.203	0	1

g) Korea

Year	Predicted probability of signing next year	Indicator of signing next year	Eligible to sign next year
1991	0.172	0	1
1992	0.204	0	1
1993	0.203	0	1
1994	0.154	0	1
1995	0.150	0	1
1996	0.167	1	1
1997	0.218	0	0
1998	**0.311**	0	0
1999	0.188	0	0
2000	**0.332**	0	1

h) Indonesia

Year	Predicted probability of signing next year	Indicator of signing next year	Eligible to sign next year
1991	0.169	0	1
1992	0.186	0	1
1993	0.188	0	1
1994	0.187	0	1
1995	0.216	0	1
1996	0.214	1	1
1997	0.249	1	1
1998	***0.419***	0	0
1999	**0.310**	1	1
2000	***0.464***	0	0

i) Malaysia

Year	Predicted probability of signing next year	Indicator of signing next year	Eligible to sign next year
1991	0.158	0	1
1992	0.158	0	1
1993	0.121	0	1
1994	0.154	0	1
1995	0.151	0	1
1996	0.159	0	1
1997	0.190	0	1
1998	**0.361**	0	1
1999	0.268	0	1
2000	missing	0	1

j) China

Year	Predicted probability of signing next year	Indicator of signing next year	Eligible to sign next year
1991	0.079	0	1
1992	0.140	0	1
1993	0.146	0	1
1994	0.139	0	1
1995	0.157	0	1
1996	0.161	0	1
1997	0.144	0	1
1998	0.139	0	1
1999	0.159	0	1
2000	0.177	0	1

k) Russia (probabilities compared against full sample average only)

Year	Predicted probability of signing next year	Indicator of signing next year	Eligible to sign next year
1991	Missing	1	1
1992	Missing	0	1
1993	Missing	0	1
1994	***0.686***	1	1
1995	***0.634***	1	1
1996	***0.645***	0	0
1997	***0.696***	0	0
1998	***0.793***	1	1
1999	***0.529***	0	0
2000	0.362	0	1

Appendix : Data definitions and sources.

'Signing of an IMF agreement in the following year'. A binary variable indicating that a high conditionality IMF agreement (Stand-by, EFF, SAF/ESAF/PRGF)is signed in the following calendar year, given that a country was eligible to sign one. Source: IMF, *Annual report*, various years.

'GNP per capita'. GNI per capita in thousands of $U.S., Atlas method (World Bank, *World Development Indicator*) deflated by U.S. consumer price index (IMF: *IMF Financial Statistics*).

'GDP growth'. Percentage change in GDP from the previous year (annual %). Source: World Bank, *World Development Indicators* NY.GDP.MKTP.KD.ZG.

'Reserves-to-imports'. Total foreign reserves divided by total imports of goods and services (both in current $US). Source: World Bank, *Global Development Indicators*.

'% change in reserves-to-imports'. The percentage change in the reserves-to-import ratio from the previous year to the current year, as a proportion of the previous year.

'Current Account Balance/GDP'. The current account balance divided by total GDP (both in current $US). Source: World Bank, *Global Development Indicators*.

'% change in the current account'. The percentage change in the current account balance from the previous year to the current year, expressed as a percentage of the previous year.
Source: World Bank, *Global Development Indicators*.

'Real exchange rate depreciation'. The official number of domestic currency units per $U.S. multiplied by the ratio of the U.S. consumer price index to the country's consumer price index. This number is calculated for the current year and for three years previously (adjusting for changes in base years) and the difference between the two is expressed as a proportion of the value from three years before. Source: World Bank, *World Development Indicators*.

'Debt-service ratio'. Total long-term debt service payments divided by total exports of goods and services (all in U.S. dollars). Source: World Bank, *World Development Indicators*.

'% change in the debt-service-ratio'. The percentage change in the total debt service payments-to- exports ratio from the previous year to the current year, expressed as a percentage of the previous year.

'Public external debt-to-GDP ratio'. The ratio of public and publicly guaranteed long-term debt expressed as a ratio of total GDP. Source: World Bank, *World Development Indicators*.

'Current rescheduling'. A binary indicator of whether or not the country had to reschedule some portion of its debt (principal or interest, official or private) in the

current year, which requires by convention an IMF agreement to be in place. Source: World Bank, *Global Development Finance*.

'Reschedulings in past years'. The number of years out of the previous two years in which a country rescheduled some portion of its official or private interest or principal repayments. Source: World Bank, *Global Development Finance*.

'Exchange rate regime'. The numerical category of exchange rate regime, on a scale from 1 to 5 moving from the least flexible to the most flexible. A sixth category was for unclassified regimes. Source: Reinhart and Rogoff (2004).

'Inflation'. Percentage annual increase in the consumer price index. Source: World Bank: *World Development Indicators*.

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