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REGIONAL HETEROGENEITY IN THE RELATIONSHIP BETWEEN
FISCAL IMBALANCES AND FOREIGN EXCHANGE MARKET PRESSURE

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SUMMARY

The relationship between fiscal imbalances and other macroeconomic variables is complex and multifaceted. However, it remains important to understand it, not least in order to facilitate the design of appropriate policy. One central issue is whether the relationship varies across countries or groups of countries. If it does, an implication is that policy will also have to be differentiated. This paper empirically explores the relationship between fiscal imbalances and pressures in the foreign exchange (FX) market in Latin America & Caribbean (LAC) and East Asia & the Pacific (EAP) regions. Using panel data over 1970-2000, it finds that fiscal imbalances have a significant effect on FX pressures in LAC but not in EAP.

1. INTRODUCTION

Two issues of central importance to developing and emerging economies relate to the macroeconomic effects of fiscal deficits and the choice of exchange rate regime. A key element in the Washington Consensus was that large fiscal deficits have severe deleterious effects and need to be reduced or eliminated, while another element of it focused on the need to avoid currency misalignment.ⁱ In principle, these issues may be connected in as much as the monetary implications of fiscal deficits are inflationary and, in the context of pegged exchange rates, lead to a loss of competitiveness. Indeed the first generation currency crisis model built on this connection to show how fiscal deficits could cause current account balance of payments deficits, a loss of international reserves and financial crisis.ⁱⁱ At the same time currency misalignment may have implications for the fiscal balance as, for example, the revenues from trade taxes are affected.

Theoretical analysis suggests that the impact of fiscal deficits will vary according to a range of factors that are likely to differ across countries. It is therefore unsafe to assume that they will have any one particular set of effects. Empirical studies have tended to confirm this supposition (see, for example, Easterly and Schmidt Hebbel, 1994).

Part of the difficulty in assessing the effects of fiscal deficits is that they can materialise in various ways; some direct and some indirect. Moreover, the diverse effects may be offsetting. This creates a daunting challenge for any study that seeks to estimate their detailed macroeconomic consequences. This paper has a much more modest objective. It concentrates on the relationship between fiscal

deficits and pressures in the foreign exchange market. Do countries with larger fiscal deficits experience more foreign exchange market pressures? Furthermore, does the nature of the relationship differ across groups of countries? To test this, we commence with what has almost become a stylised fact; namely that fiscal deficits have constituted a more significant problem for Latin American than for Asian economies. This idea found succinct summary amongst those who criticised the IMF's initial response to the economic crisis in East Asia in 1997/98. Here, critics claimed that the Fund adopted a conventional and fiscally contractionary approach to dealing with foreign exchange crises that had little to do with fiscal excesses. Is the evidence consistent with the suggestion that Latin America and Asia differ when it comes to the association between fiscal deficits and foreign exchange markets?ⁱⁱⁱ

The paper is organised in the following way. Section 2 reviews descriptive statistics relating to fiscal imbalances in Latin America and Asia. These imply that the effects of fiscal deficits may indeed be expected to be different across the two regions. Section 3 explains the methodology used to estimate more formally the relationship between fiscal deficits and foreign exchange market pressures as well as to explore the relevance of the exchange rate regime as classified by Reinhart and Rogoff (2004). Our methodology has a number of advantages over that adopted in much of the existing literature on currency crises since it allows us to map pressures in the foreign exchange market as a continuous variable. The least squares dummy variables method is used to estimate the panel. The section then goes on to present and interpret our findings. Section 4 briefly examines some of the broader policy implications of our results for the design of fiscal policy in the two regions. Section 5 offers a few concluding remarks and points to some of the limitations of the research reported in the paper.

2. DESCRIPTIVE STATISTICS

Both theory and empirical evidence suggest that the macroeconomic consequences of fiscal deficits may vary across countries. If there are differences in private sector saving-investment imbalances, in the structure of domestic financial markets, in the degree of capital mobility and confidence amongst capital markets and in the nature of exchange rate regimes, there are also likely to be differences in the effects of fiscal deficits. Focusing on foreign exchange market pressures, it may be assumed that these will be more strongly related to fiscal deficits where private sector saving is low, where current account deficits are high, where external debt is large and where, perhaps as a consequence, the confidence of capital markets is low. Confidence may also be affected by the perceived strength of any commitment to defend the exchange rate and by the general reputation of policy makers for sound economic management. Those countries that have a history of failed attempts to stabilise exchange rates and a track record of weak economic management may find it more difficult to sustain fiscal deficits by means of capital inflows with the result that such imbalances lead to greater foreign exchange market pressure.

Table 1 presents comparative data relating to the factors that theory and empiricism suggest may have a bearing on the relationship between fiscal deficits and foreign exchange market pressures. We present this at a high level of aggregation. While recognising that cross-country variations within regions may be important and interesting and that these differences will be concealed by looking at regional averages, our objective in this paper is to explore whether there is evidence of regional variation between Latin America and Asia.

INSERT TABLE 1 HERE

The table shows that over the period 1970-2000 fiscal deficits, as measured by their mean value, have been of similar magnitude in the two regions (they averaged 2.64 percent of GDP in Latin America and 2.60 percent in Asia). However, when we consider the median, which is not affected by extreme values, the overall budget balance is in fact lower for Latin America. The good news for LAC though stops here, as it is apparent from the data that the budget balance has been substantially less volatile in the EAP region. Furthermore, it needs to be noted that private savings are generally higher in Asia than in Latin America and this will tend to offset the macroeconomic effects of fiscal deficits.^{iv}

External indebtedness appears to be greater in Latin America (average 68.8%) than in Asia (50.5%). A given budget deficit implies a lower rate of debt build-up in Asia because growth rates are generally much higher than in Latin America in our sample period. But again, the median for Latin America is substantially lower than the mean -and of similar magnitude to the Asian median value- indicating that not all countries in the geographical area have maintained high debt-to-GDP ratios. The mean is affected by a few high-debt countries like Nicaragua, Bolivia and Panama. The year-on-year increases in external debt as a fraction of GDP over the sample period averaged about 1% in EAP and 1.5% in LAC. However, if we consider the median instead of the mean, the average increases were actually higher in Asia.

Despite this fact, capital markets have in general charged Latin American countries a 50 per cent higher interest rate for lending to them. Both the mean and median values indicate that they have treated the region as a whole more unfavourably than Asia. This has led debt service costs to be higher in LAC (5.4% of GNI) than in EAP (4.2%). The respective interest costs are 2.9 percent and 1.8

percent of GNI showing that the difference in interest costs between the two regions is more than 1 percentage point of gross national income. This implies that markets have had less confidence in Latin America, perhaps reflecting doubts about economic management.

Turning to the monetary sector, EAP had faster growing M2 as a percentage of GDP between 1970 and 2000. Despite this, inflation and its volatility have been substantially higher in LAC, again perhaps indicating that there have been problems of monetary policy credibility. Argentina, Bolivia, Brazil, Nicaragua, and Peru especially have all experienced hyper-inflation.

Do these differences in fiscal and monetary policies between Asia and Latin America translate into differential foreign exchange market behaviour? At the high level of aggregation we adopt, the answer is positive. Domestic currencies in Latin America depreciated faster than in Asia (20% compared to 7.1%) and nominal exchange rates have been twice as volatile. Shifts across different exchange rate regimes (the latter are classified in Reinhart and Rogoff, 2004) are also more frequent in Latin America. In addition, using a market pressure index, which we define in the next section, we find that pressures are less intense and the FX market is less volatile in Asia.

The descriptive data show that in our sample period the size of Latin American deficits (as a proportion of GDP) have not been excessive. However, they have been more volatile than EAP deficits and overall indebtedness has also been higher in the LAC region. Furthermore, Latin American countries have experienced more rapid inflation and more volatile foreign exchange markets than Asian countries. Given the overall economic picture, the data provide some, but certainly not conclusive,

prima facie evidence to suggest that fiscal deficits may have been more significant in causing pressures in the foreign exchange market in Latin America than in Asia.

It may be that with a poor economic record, even currently good performance is viewed as temporary; it may, therefore, have little effect on confidence in international capital markets. Either good or poor economic performance needs to be sustained in order to change market perceptions of ‘permanent’ policy.

In the context of Latin America, for example, reduced fiscal deficits in the early 1990s, may have failed to create strong market confidence if the perception was that there would be backsliding towards higher deficits in the future. At the same time, with a reputation for sound economic policy and budgetary prudence, increasing fiscal deficits in Asia would not necessarily lead to a loss of market confidence since the expectation would be that fiscal laxity would be corrected.^v

In the following section we move on to present a more formal empirical test of the relationship between fiscal deficits and foreign exchange market pressures across Latin America and Asia. However, the foregoing descriptive discussion leads us to anticipate a stronger connection between them in Latin America than in Asia.

3. FORMAL TESTS AND FINDINGS

In this section, we discuss our data, methodology and results concerning the association between budget imbalances and foreign exchange market pressures in both Latin America & Caribbean and East Asia & the Pacific. The data come from the *International Financial Statistics* and the *Global*

Development Finance databases of the IMF and the World Bank. The frequency is annual and the sample period is 1970-2000.

Our aim is to explain changes in FX pressures resulting from changes in fundamentals. More specifically, we test whether the same set of macroeconomic variables –especially fiscal imbalances– contribute significantly to FX pressures in both the EAP and LAC regions. The list of control variables is designed to capture the effects of domestic fiscal and monetary policies (e.g. the budget balance, the debt ratio, the share of short-term debt for the former and the ratio of M2 to GDP and domestic credit to the private sector for the latter), other domestic macro variables and indicators which the government affects only to a limited extent or only in the long run (e.g. real GDP, the current account, foreign direct investment), foreign policy variables (e.g. the US interest rate) and finally the exchange rate regime (see Reinhart and Rogoff, 2004). Table 2 reports the pool of variables used in the analysis.^{vi}

INSERT TABLE 2 HERE

Our estimation procedure uses a weighted index of changes in the nominal exchange rate, the short-term interest rate and the level of international reserves to capture pressure in the foreign exchange market. Solely focusing on the movements of the exchange rate would not be appropriate, as speculative pressure may have been fended off by central bank intervention (through the sale of international reserves and/or increases of the domestic interest rate to absorb excess supply and support the domestic currency). Hence, a weighted scheme also involving reserves and interest rates is needed to identify instances of speculative attacks.

The index we construct has its roots in Girton and Roper (1977) who devised a measure of the volume of FX intervention needed to achieve a given exchange rate target in the context of a money demand model of the balance of payments. The empirical estimation of their monetary model employed for the first time a pressure index consisting of nominal exchange rate and international reserves movements. Since then, similar indexes (usually augmented with interest rates), loosely based on Girton and Roper (1977) but not bound by the restrictions of a tight structural framework, have been used in the currency crises literature to capture speculative attacks (e.g. see Eichengreen *et al.*, 1996). Admittedly, the approach is rather *ad-hoc* but it provides a realistic picture of FX conditions and is empirically relevant.^{vii} Our measure of foreign exchange market pressure, which is calculated for each country in the sample separately, is given by:

$$FXMP = \alpha(d \log XR) + \beta(d \log IRD) - \gamma(d \log RES),$$

where XR stands for the nominal exchange rate against the US dollar, IRD for the domestic short-term interest rate and RES for international reserves in dollars.^{viii} Depreciations of the domestic currency, hikes of short-term interest rates and losses of reserves lead to an increase in the value of the index, indicating heightened FX pressure. The weights α , β and γ are determined by the corresponding ratios of one over the standard deviation of each variable divided by the sum of all three ratios, e.g. for the weight of the nominal exchange rate α we calculate:

$$\alpha = \frac{1 / SD_{d \log XR}}{1 / SD_{d \log XR} + 1 / SD_{d \log IRD} + 1 / SD_{d \log RES}},$$

where SD is the standard deviation. This weighting scheme ensures that more volatile series are assigned a lower weight and do not dominate the index. The last row of Table 1 provides descriptive statistics for FXMP across the LAC and EAP regions.

Our methodology is the least squares dummy variables (LSDV) estimation method for panel data. We allow the intercept to vary across countries and consider fixed rather than random effects. The chosen formulation of the model follows both from statistical tests and intuition. Heterogeneity tests indicate that pooling the data would not be appropriate and hence we have to consider some kind of intercept or slope variation. Since we want to introduce cross-country heterogeneity into a highly aggregated dataset, we opt for cross-sectional variation of the intercept (varying slopes complicate the analysis without adding to the intuition). We also choose fixed effects since our dataset is not a random draw from the population of countries but is chosen specifically because of the countries' geographical location. Hausman tests confirm the validity of this choice.

Figure 1 plots data combinations of FXMP and the budget balance. The regression line for the EAP countries (top panel) shows that the association between the two variables is positive but of negligible magnitude. In contrast, the regression line for the LAC countries is clearer, picking up a negative relationship: as the budget balance moves in the direction of a surplus pressures in the FX market subside. A simple panel least squares regression with fixed effects of FXMP on the budget balance gives a negative coefficient for both regions. The coefficient for Asia, however, is insignificant at any meaningful level $[-0.24 (0.42)]$, whereas the coefficient for Latin America is highly significant $[-1.34 (0.36)]$.

INSERT FIGURE 1 HERE

Given the high level of aggregation, it is next shown that the models that best fit the data differ across Asia and Latin America. Our approach is to select the combination of fundamentals that best explains FXMP in each region. We ensure that the final model only contains right hand-side variables that have significant explanatory power and is not over-sensitive to the addition or deletion of other variables. This elaborate process delivers specifications that work reasonably well. It is striking that the best specifications for Asia and Latin America share only one common variable. Unfortunately for policymakers in both regions, this variable is the US fed funds rate.

INSERT TABLE 3 HERE

Table 3 reports results from both *best* models. It also reports the outcome of the following exercise: we estimate the specification that works best for LAC countries using EAP data and the specification that works best for EAP countries using LAC data. Columns (2) and (4) in the table confirm that it would be unwise to assume that the same set of causal relationships explain FX pressures in both regions. This implies that empirical studies of currency crises using large sample datasets may be adopting a possibly unacceptable level of aggregation. Admittedly, the same criticism, but to a lesser extent, could apply to our results: the circumstances that generate movements in the FX market may be unique to a country or sets of countries with similar characteristics. It is our implicit assumption that Latin American and Asian economies have a sufficient degree of homogeneity within region (but not across region as we have seen).

The other important point that can be verified from Table 3 is that budget imbalances are indeed significant for Latin America but not for Asian countries. That is not to say that loose fiscal policies should be adopted by Asian countries, but rather that the explanation of FX disturbances in Asia lies elsewhere. By the same token, Latin American countries with a history of defaults and debt accumulation problems should try to achieve the fiscal discipline, levels of growth and social consensus that is necessary to build a secure fiscal outlook. The finding of a negative correlation between the budget balance and FX market pressures in the LAC region is further enhanced by estimating the best equation for the region using data between 1990 and 2000 (the estimation sample is reduced to 156 observations). As the 1990s were a period in which LAC countries managed to improve their fiscal outlook, one would expect that the gradual shift to smaller deficits would reduce pressures. The estimation results (not reported) confirm this as the estimated coefficient for *budget* is significantly negative. Figure 2 shows how LAC FX market pressures subsided in the 90s when the balance budget was improving.

INSERT FIGURE 2 HERE

The table presents evidence that, apart from budget imbalances and the US interest rate, the exchange rate regime may be affecting FXMP in LAC. The picture in EAP countries is different: domestic credit to the private sector, the maturity structure of external debt and the US interest rate appear to be the contributing macro variables. It is interesting that the exchange rate regime is mainly relevant to the LAC region where adopting some sort of peg reduces FX pressures significantly. Further regressions (not reported) show that choosing an intermediate exchange rate arrangement delivers the same positive result, even though the magnitude is smaller. The choice of exchange rate regime is found to

be insignificant in the best model for the EAP region. Occasionally, variable *fixed* enters alternative specifications significantly and correctly signed (e.g. as in the last column of Table 3) but, in general, it is not robust to different specifications (e.g. if we add it to the best EAP model, it does not have any explanatory power).

It is not our claim that the models presented here resolve the issues relating to the effects of fundamentals on foreign exchange market movements in the two regions. The relatively low explanatory power of the preferred specifications suggests that there are more unanswered questions to be addressed. Our results do, however, suggest that a one-size-fits-all approach is inappropriate, given the different underlying causal factors. We discuss this issue in the next section.

4. DIRECT AND INDIRECT POLICY IMPLICATIONS: A DISCUSSION

The policy implications that follow on from the empirical analysis in this paper are at one and the same time both straightforward and complex. The straightforward implications are that in endeavouring to moderate foreign exchange market instability in Latin America it is important to establish the secure management of fiscal policy. In this respect those who have emphasised the central importance of reducing fiscal deficits and establishing fiscal sustainability in the region have been right to do so. However, another policy implication is that it is misplaced to assume that fiscal correction is always and everywhere central to establishing a stable foreign exchange market. In Asia, fiscal deficits have not been significantly related to FX instability. This is not, of course, to argue that fiscal policy can be safely ignored in such cases. Just because fiscal deficits have not been a source of a problem in the past does not mean that they could not become a source of a problem in the future. But it does mean that in looking for an explanation of foreign exchange pressures in Asia, it is incorrect to emphasise fiscal

deficits. This, in turn, means that fiscal contraction should not have formed the basis of crisis correction and avoidance.

The complex part of the policy implications is in designing remedies to the problems that have been identified. Each region may need its own policy agenda. How can fiscal deficits be reduced in Latin America? There is no short answer. Fiscal deficits are the outcome of complex political economy factors. An attempt to impose 'simple' solutions, such as establishing fiscal rules of one form or another, may not succeed. Without addressing the root causes of fiscal deficits such rules would be breached and this would further undermine the confidence of markets and probably lead to further exchange market instability. In as much as there is a simple policy conclusion, it is that until a greater understanding of the causes of fiscal deficits in Latin America is achieved, and measures put in place to moderate them, foreign exchange market pressures are likely to continue to bedevil the region.^{ix} This conclusion would probably be confirmed by regional disaggregation. It is surely not coincidental that, from amongst the Latin American economies, Chile has shown the greatest ability to avoid foreign exchange market instability and at the same time has exhibited superior fiscal management.^x

This, having been said, fiscal policy in Latin America in the mid 2000s has shown signs of improvement. As the IMF observed, 'it is encouraging that, in contrast to recoveries in the 1990s, many governments have taken advantage of the favourable economic conditions to strengthen their fiscal positions...and improve their debt structures,' (IMF, *World Economic Outlook*, April, 2005). A distinction may still have to be drawn between the oil exporting countries (Ecuador, Mexico and Venezuela) where the increase in oil prices resulted in revenue gains, and other countries in the region

(apart from Argentina) where revenue gains were more modest. Moreover, public debt remains high in the region as a whole.

In order to reduce future pressures on their exchange rates it is important that Latin American countries maintain progress towards fiscal consolidation in ways that are sustainable rather than by relying on windfall revenue gains from oil prices or on spending cuts and distortionary taxes that may reduce economic growth and may end up being reversed. Further moves to broaden the tax base and create space for pro-growth and social expenditure are relevant in this context.

In Asia our results suggest that relieving pressures on the exchange rate hinge on the management of short term debt rather than on reducing fiscal deficits. The currency crisis literature has emphasised the significance of short term external debt relative to international reserves in explaining the incidence of crises. Tight fiscal policy in Asia may allow sovereign debt to be reduced. It may also have contributed, alongside exchange policy, to the accumulation of reserves and thereby have reduced the region's vulnerability to crisis at least in the near term.

5. CONCLUDING REMARKS

This paper has sought to examine the nature of the empirical relationship between fiscal imbalances and foreign exchange market pressures. Given the various routes via which fiscal imbalances exert macroeconomic effects, we opt not to formulate a specific model of fiscal impact that we then set out to test. However, our empirical estimation is informed by relevant theory. This theory suggests that fiscal deficits will be more significant in explaining foreign exchange market pressures in some sets of

circumstances than in others. We surmise that fiscal deficits will have played a more significant role in accounting for foreign exchange instability in Latin America than in Asia since the economic circumstances conducive to such a connection are found in greater abundance in this region. Our formal results support this hypothesis. Fiscal deficits have exerted a significant effect on foreign exchange pressures in Latin America but not in Asia. This finding is reassuringly consistent with stylised facts about the two regions. The principal contribution of the paper is therefore in providing empirical support for this view.

The research reported in this paper still leaves plenty of questions unanswered. Is it reasonable to treat Latin America and Asia as uniform entities or is there intra regional variation? The descriptive statistics reported here suggest that there is. We therefore need to be aware of the danger of over-generalisation. Furthermore, to discover that fiscal deficits are significant in explaining market pressures in some cases but not in others raises the policy question of how to reduce them in those cases where they have had a significant adverse effect. There is also the question of how best to reduce exchange rate pressures in regions where fiscal deficits have not played a significant role.

ENDNOTES

ⁱ In presenting what he argued were ten policy reforms widely held to be needed in Latin American countries Williamson, who coined the phrase ‘Washington Consensus’ in 1989, listed fiscal discipline first amongst them; the idea that budget deficits should be small enough to be financed without recourse to the inflation tax. The view in Washington, as he perceived it, was that excessive budget deficits in Latin America had led to inflation, and that tighter fiscal discipline was essential. Fifth on Williamson's list was that the exchange rate should be ‘at a level sufficiently competitive to induce rapid growth in non-traditional exports’. Although he has later argued that this actually misrepresented the view in Washington at the end of the 1980s, it is probably fair to suggest that exchange rate misalignment was seen as undesirable (Williamson, 2004). Subsequently, and for a time, the consensus on the exchange rate was to become the bi-polar view that emerging and developing economies should adopt either fully flexible or immutably fixed exchange rates. For a review and discussion of evolving views on the choice of exchange rate regimes see, for example, Bird (2002).

ⁱⁱ We do not directly cite the literature on currency crises in this paper since Eichengreen (1999) provides a succinct summary of the three generations of currency crisis model.

ⁱⁱⁱ Latin America and LAC as well as Asia and EAP are used interchangeably in the text.

^{iv} In the early 1990s the saving rate in Latin America was just under 20 per cent whereas it was almost 35 per cent in East Asia. Much of the discussion relating to the economic problems encountered in Latin America has focused on the region's low savings rate (see for example, Bird and Helwege, 1994, and Edwards, 1996). Poor economic performance may be a reflection of low saving irrespective of whether it is private or public saving. In the case of Asia, analyses of the 1997/98 crisis did not

attribute it to low saving either in the form of low private or public saving, but rather to unproductive investment and weaknesses in the domestic financial system. The inappropriate sequencing of financial liberalisation, the policy of de facto pegging to the US dollar and the liquidity problems associated with sudden capital outflows or the unwillingness of creditors to roll over maturing debt have also been seen as important factors. One of us has examined these issues, in detail, elsewhere (Bird and Milne, 1999, and Bird and Rajan, 2002).

^v While backsliding could be a consequence of governments being unwilling to continue to carry the political cost of reducing government expenditure and extending the tax base or increasing the tax rate, it may also be the case that apparent fiscal relapse could be associated with a round of privatisation coming to an end. In these circumstances, maintaining the revenue stream depends on more deep seated tax reform, even though government expenditure may have been more permanently reduced. Moreover, of course, if policies of economic liberalisation fail to generate sustained increases in economic growth, tax revenue may be adversely affected.

^{vi} Note that since our regressions include the budget balance and the current account we do not directly include the private sector saving balance.

^{vii} Despite the popularity of similar indices with researchers, their use is not without its critics (see, for example, Eika *et al.*, 1996).

^{viii} Ideally, the index would feature the nominal effective exchange rate (NEER) rather than the nominal exchange rate against the US dollar, as the inclusion of the latter rules out the dollar's levitation as a cause of crisis. Data limitations on the NEER though prevent us from using it in the construction of the index.

^{ix} There are, of course, the almost self evident points that excessive government expenditure needs to be avoided and its composition needs to be assessed in terms of the contribution made to economic growth. What are the priority areas in terms of government expenditure? At the same time, the level and structure of taxes need to be examined to minimise distortionary effects and negative growth effects. The difficulty is not in defining such basic principles but in understanding why they have not been applied; particularly if they are self-evident. Is it that policymakers are uneducated in basic economics! Or, more likely, is it that political factors make it very difficult to implement appropriate reforms.

^x Superior management may include the design of pension schemes. The Chilean approach involves shifting away from a pay-as-you-go scheme towards a funded scheme, with the transition period being financed by taxation as opposed to borrowing. Such a change may have a positive impact on overall saving.

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APPENDIX

List of countries

Latin American and Caribbean Countries

1. Argentina 2. Belize 3. Bolivia 4. Brazil 5. Chile 6. Colombia 7. Costa Rica 8. Dominica 9. Dominican Republic 10. Ecuador 11. El Salvador 12. Grenada 13. Guatemala 14. Guyana 15. Haiti 16. Honduras 17. Jamaica 18. Mexico 19. Nicaragua 20. Panama 21. Paraguay 22. Peru 23. St. Kitts and Nevis 24. St. Lucia 25. St. Vincent and the Grenadines 26. Trinidad and Tobago 27. Uruguay 28. Venezuela, RB.

East Asian and the Pacific countries

1. Cambodia 2. China 3. Fiji 4. Indonesia 5. Korea 6. Lao PDR 7. Malaysia 8. Mongolia 9. Myanmar 10. Papua New Guinea 11. Philippines 12. Samoa 13. Solomon Islands 14. Thailand 15. Tonga 16. Vanuatu 17. Vietnam.

Note: These countries correspond to the classification of the 2002 Global Development Finance CD-ROM for LAC and EAP countries. Not all countries were included in the estimations due to lack of data for certain variables.

Figure 1: FXMP and the budget balance in EAP (top plot) and LAC (bottom plot) countries

Figure 2: Lower FX pressure in the 90s (LAC countries)

Table 1: Fiscal and Monetary Indicators, 1970-2000

	Mean		Median		Min.		Max.		St. Dev.		Obs.	
	EAP	LAC	EAP	LAC	EAP	LAC	EAP	LAC	EAP	LAC	EAP	LAC
<i>budget</i>	(2.6)	(2.6)	(2.1)	(1.6)	(17.9)	(61.1)	4.7	5.4	3.2	5.8	273	438
<i>debt/GNI</i>	50.5	68.8	40.5	42.2	1.0	2.9	327.0	1209	42.0	115.3	377	828
<i>dserv/GNI</i>	4.2	5.4	3.1	4.1	0.0	0.0	1.9	51.5	3.7	4.9	377	828
<i>interest</i>	1.8	2.9	1.3	1.9	0.0	0.0	7.9	43.7	1.6	3.2	377	828
<i>dm2gdp</i>	1.4	0.7	1.2	0.6	(13.5)	(41.5)	30.0	18.4	3.9	3.8	371	792
<i>inflation</i>	11.1	111.2	7.2	11.6	(6.0)	(11.4)	268.2	11749	17.8	736.5	399	792
<i>fxmp</i>	-0.3	3.2	-0.7	0.9	-51.8	-99.9	64.4	227.1	12.1	22.6	332	502

Notes: Numbers in parentheses are negative. EAP stands for East Asia & the Pacific and LAC stands for Latin America & the Caribbean. *Budget* is the budget balance to gross domestic product (GDP), *debt/GNI* is external debt to gross national income (GNI), *dserv/GNI* is debt service costs to GNI, *interest* is interest costs to GNI, *dm2gdp* is the change in the M2 to GDP ratio over the previous year, *inflation* is the percent change in the consumer price index over the previous year and *fxmp* is a foreign exchange market pressure index described in Section 3 in the text. All data have been checked for 0 value observations and all countries report at least 5 consecutive observations of each variable. The list of EAP and LAC countries can be found in the Appendix.

Table 2: List of Variables

Fiscal

<i>avgmat</i>	Average external debt maturity in years
<i>budget</i>	Budget balance (% GDP)
<i>concess</i>	Concessional debt (% Total debt)
<i>debtflgni</i>	Total net flows of debt (% GNI)
<i>debtpriv</i>	Private non-guaranteed debt (% Total debt)
<i>debtratio</i>	Total debt (% GNI)
<i>debtstflgni</i>	Net flows of short-term debt (% GNI)
<i>stdebtratio</i>	Short-term debt (% Total debt)
<i>stint</i>	Short-term interest payments, in dollars
<i>ocom</i>	Commitments official creditors, in dollars
<i>pcom</i>	Commitments private creditors, in dollars
<i>ltdebt</i>	Total long term debt outstanding, in dollars

Monetary

<i>bnkres</i>	Bank liquid reserves to bank assets
<i>dcreb</i>	Domestic credit from banks (% GDP)
<i>dcrep</i>	Domestic credit to private sector (% GDP)
<i>domfin</i>	Domestic financing (% GDP)
<i>m2gdp</i>	M2 (% GDP)

Other Macro

<i>cagni</i>	Current account balance (% GNI)
<i>exports</i>	Exports of goods and services, in constant 1995\$
<i>fdigni</i>	Net foreign direct investment (% GNI)
<i>fincons</i>	Final consumption, in constant 1995 dollars
<i>gdp</i>	GDP, at constant 1995 dollars
<i>gdpcap</i>	GDP per capita, at constant 1995 dollars
<i>unempl</i>	Unemployment rate
External	
<i>usirate</i>	Federal funds rate
Exchange rate regime	
<i>fixed</i>	Dummy variable capturing fixed exchange rate regimes
<i>intermed</i>	Dummy variable capturing intermediate exchange rate regimes

Notes: The dummy variable *fixed* has been constructed using data from Reinhart and Rogoff (2004).

The value 1 has been assigned to the cases of no separate legal tender, pre announced peg or currency board arrangement, pre announced horizontal band that is narrower than or equal to $\pm 2\%$ and de facto peg. All other exchange rate arrangements are allocated a value 0. Variable *intermed* has the same source and is constructed with value 1 for de facto or pre announced crawling peg, de facto or pre announced crawling band that is narrower than or equal to $\pm 5\%$, moving band that is narrower than or equal to $\pm 2\%$, and managed floating. All other exchange rate arrangements are allocated a value 0.

Table 3: Estimation Results

	(1)	(2)	(3)	(4)
	Best Model EAP	Best Model EAP	Best Model LAC	Best Model LAC
	EAP data	LAC data	LAC data	EAP data
<i>constant</i>	-11.86(3.54)*	-14.96(4.04)*	-8.14(5.03)	-6.2(3.5)***
<i>budget</i>			-0.72(0.39)***	-0.03(0.31)
<i>fixed</i>			-16.11(6.42)**	-4.6(2.47)***
<i>usirate</i>	0.87(0.37)**	1.9(0.37)*	2.54(0.7)*	0.8(0.45)***
<i>stdebtratio</i>	0.13(0.07)**	-0.18(0.13)		
<i>dcreb</i>	0.06(0.04)***	0.14(0.04)*		
R-squared	0.19	0.15	0.24	0.16
F statistic	3.65*	2.8*	3.89*	3.15*
Observations	316	500	281	174

Notes: Estimation method is least squares dummy variables with fixed effects and correction for cross sectional heteroscedasticity. (*) denotes significance at the 1% level, (**) denotes significance at the 5% level and (***) denotes significance at the 10% level. Corrected standard errors are reported in parentheses.