

Speed of IMF Response

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Abstract

More severe crises were more likely to enter a program arrangement with the Fund, and the time from a crisis to a program was smaller the more serious the crisis. Political links to the United States were associated with higher program likelihood but a faster response speed occurred mainly for “major” crises. While the IMF response has not, in general, become faster over time, the sensitivity to crisis severity did increase after the Latin American crises of the 1980s. Similarly, democracies that had tended to stall program initiation turned neutral, as if responding to financial markets’ demands for quicker action.

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I. INTRODUCTION

Much scholarly attention has focused on the factors that lead the Fund to lend to countries facing balance of payments stress. The questions posed have been: *why* does the IMF (or the Fund) lend and *why* do countries borrow?¹ Policymakers have also been concerned with the *amount* of lending, especially for countries facing “exceptional” balance of payments difficulties.² In contrast, surprisingly little attention has been directed to analyzing the *speed* at which the Fund has responded to crises. While a few case studies have documented the pressure to react quickly (Boughton 1997 and Bordo and James 2000), there has been no systematic attempt to examine how rapidly the IMF has responded to crises and what factors have contributed to the response speed.

And, yet, with financial markets moving ever faster, the metric of speed is a valuable one, not only to assess how the Fund has faced the challenge but also as a lens on broader questions of international political economy. That is the purpose of this paper.

Boughton (1997) regards the Latin American debt crisis of the early 1980s as pivotal in highlighting the need for speed to prevent crises from growing and spreading. Bordo and James (2000) observe that the need for speed was reinforced in the 1990s with increased capital inflows as the threat of rapid capital outflows and financial crises also increased. These considerations led to discussions within the IMF of *ex ante* conditionality and prequalified borrowers with ready access to Fund resources (IMF 2006). The Flexible Credit

¹ Bird (1996) reviews the early research; recent contributions include Thacker (1999), Vreeland (2002), and Barro and Lee (2005).

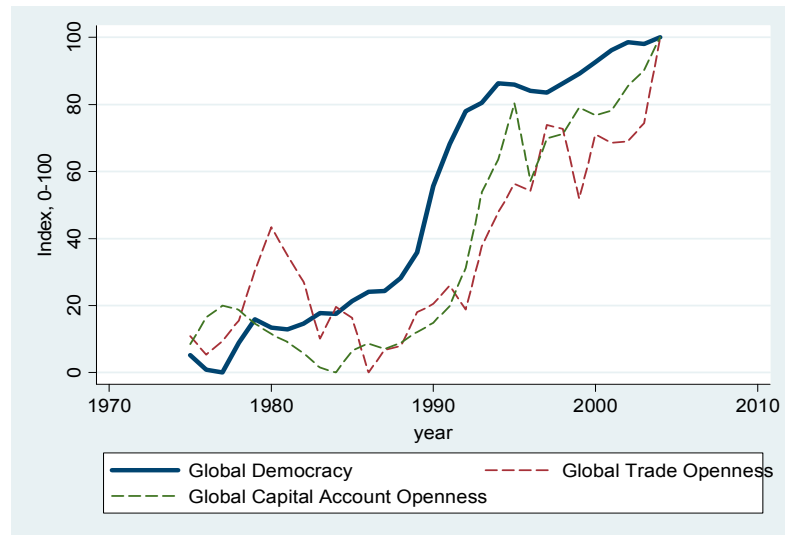
² The Supplemental Reserve Facility was created to meet “large short-term financing” needs. See IMF (1997).

Line, introduced in March 2009, emerged from these deliberations and the perceived needs following the onset of the subprime crisis.³

In examining the factors that may accelerate lending decisions, this paper has been motivated by a number of questions. Does the Fund respond faster when a crisis is more severe? Is the Fund's governance structure, and, in particular, the role of major shareholders relevant to the speed of response? An even more intriguing question is whether democracies respond to the pressures for speed. The mid-1970s, about when our study commences, is also the start of the so-called "third wave" of global democratization, following a brief reversal in the previous decade (Huntington 1991). Quinn (2000) has noted the striking comovement of democracy and financial liberalization, as illustrated in Figure 1, which plots the average measure of democracy and capital account openness (both variables normalized to lie between 0 and 100) across countries over time. Also trade openness started an upward climb in about the mid-1980s, at which point trade and financial openness became closely correlated. This study of the IMF's response speed allows a perspective on the interplay of economic and political openness following financial crises.

³ <http://www.imf.org/external/np/exr/facts/conditio.htm>.

Figure 1: Global Economic Openness and Democracy



Notes: For each variable, the global average (across countries) in a particular year is represented on scale from 0 to 100. The measure of democracy is based on the Polity IV scale from -10 to +10. Trade openness is the ratio of trade-to-GDP. Capital account openness is based on the Chinn-Ito Index. Further details of each variable are in the data appendix.

We focus on the IMF's stand-by arrangement (SBA), the principal instrument for responding to the short-term balance of payments difficulties that arise during a crisis. SBA's allow countries to draw up to a pre-specified amount, typically over a period of 12-18 months. In contrast, other financing mechanisms are intended to deal with longer-term problems.⁴ We study the factors that have influenced the time gap between the onset of a crisis and the initiation of an SBA, at which time Fund resources—and, often, other complementary financing—become available to alleviate pressures on a country's external financial position. We identify a crisis using the exchange rate pressure index proposed by

⁴ Programs such as the Extended Fund Facility (EFF) and the Poverty Reduction and Growth Facility have longer maturities than the SBA and, as such, have a more developmental focus. A few SBA's have longer maturities but the distinction between an EFF and an SBA has sharpened over time. Also, an SBA may be combined with the Supplemental Reserve Facility to allow larger levels of borrowing.

Kaminsky and Reinhart (1999). But we use a low threshold on the deviation of this index from its country mean in order to generate a sufficient number of crises observations for the main analysis. Results are also presented with a higher threshold, confirming our principal results.

Between 1977 and 2004, of the about 300 SBAs concluded, about 200 were associated with crises that occurred in the previous two years. Thus, while two-thirds of the SBAs were linked to crises, others presumably reflected noncrisis situations, including rolling over existing SBAs where a country continued to remain vulnerable. For the programs associated with a crisis, the median spell from crisis to program was 17 months (Table 1, Panel A), the relatively long period reflecting the low threshold in the definition of a crisis. Notice also that about a third of the programs that did follow a crisis did not have to be rushed because an SBA was in place when the crisis occurred.⁵ More severe crises did demand quicker intervention, but even our more stringently-defined crisis is associated with a median spell of 12 months (Panel B of Table 1). The data also point to a decline in the spell, or response time, which fell from a median of 19 months during 1977-1986 to 15 months in the years after 1986. The decline is somewhat more pronounced with the more stringent crisis definition.

We use count data models (following Hausman et al., 2004 and Winkelmann and Boes, 2006) to examine the determinants of the spell from a crisis to a program. In addition, both for its intrinsic interest and to persuade the reader that our results on response speed do

⁵ The implication is that the presence of an IMF-supported program has not guaranteed that a crisis would not occur!

not suffer from selection bias, we present results for whether or not a program was put in place.

We find that the factors leading to an eventual IMF financial commitment also typically accelerated the speed of program negotiation. In particular, the time from a crisis to a program has been smaller the more severe the crisis. More severe crises were also more likely to enter an arrangement with the Fund. Thus, it is not the case that serious crises simply never culminated in a program because policy choices proved too challenging, mitigating the concern with regard to selection bias in the results. Political links to the United States were associated with higher program likelihood and faster response but only for “major” crises. Further, while the IMF response did not, in general, become faster over time, the sensitivity to crisis severity did increase after the Latin American crises of the 1980s. Similarly, the relationship with democracies changed over time. Democracies had tended to slowdown decisions until the mid-1980s—when the new democratic wave was still in its early stages. However, that effect disappeared thereafter just trade and financial openness began a decisive and sustained upward trend, supporting Quinn’s (2000) conclusion that financial and commercial interests within a democracy are influential in guiding domestic policy. More intriguing, constrained executive authority counteracted democracies’ deliberate pace in the first period, due possibly to greater discipline imposed by constraints.⁶

⁶ Thus, this paper deals with the speed of Fund intervention but does not pursue a more complex inquiry, namely, whether speedier intervention helped sustain or accelerate long-term growth. That analysis requires appropriate accounting for mean reversion while also controlling for long-term growth determinants. Because of the tendency for mean reversion, there was more scope for post-program gain where there was greater distress. Also, the countries that received faster intervention, while achieving greater immediate gains, typically, grew at a slower rate in absolute terms in the three years following program initiation, presumably because they faced more endemic problems.

The next section (Section II) describes the construction of the crisis dates and response time. This is followed (in Section III) by our principal results, examining the relationship between response speed and the degree of external vulnerability. Next (in Section IV), the special features of “major” crises help reinforce the key role of country vulnerability while also clarifying the influence of the crisis country’s relationship with the United States. Section V finds that greater deference accorded to crisis severity after the mid-1980s while also suggesting that the democratic process accommodated the need for speed. A last section concludes.

II. THE CRISIS AND RESPONSE SPEED: MEASUREMENT ISSUES

We begin by identifying the month in which a crisis occurred. From then to the negotiation of the IMF program is the span or the “spell,” which is the dependent variable of interest. In defining a crisis, we were guided by the Kaminsky and Reinhart (1999) gauge of the pressures faced by a country’s currency.⁷ The principle behind the measure is that pressure on the currency leads either directly to its depreciation or, where a country chooses to defend the currency, in a loss of reserves. Thus, the larger the depreciation and the loss of reserves, the greater is the pressure. Kaminsky and Reinhart propose a composite indicator based on monthly changes in the exchange rate and reserves.

$$I = \frac{\Delta e}{e} - \frac{\sigma_e}{\sigma_R} \cdot \frac{\Delta R}{R}$$

⁷ The focus on currency crises is determined by the practical difficulty of dating, for example, banking and debt crises.

“ e ” is the end-of-the-month exchange rate, “ R ” is the end-of-the-month reserves’ level, and the Δ operator refers to monthly change.⁸ To match the units for reserves to that of the exchange rate, the rate of change of reserves is normalized by the ratio of the standard deviation of exchange rate (σ_e) to the standard deviation of rate of change of reserves (σ_r). Kaminsky and Reinhart (1999) show in their Figure 4 that a crisis evolves over time to reveal its severity. Thus, a slow drain of reserves is followed by a sharp depreciation of the exchange rate. The “crisis” month is typically the first in which a (generally overvalued) exchange rate makes a sizeable move following the loss of reserves. In Kaminsky and Reinhart, a country is defined as entering a crisis in the month when their indicator is three standard deviations off its mean for that country. Our indicator is softer: it turns on when the index is one standard deviation above its mean. This allows us to identify a larger number of events as “crises,” providing us with more data points to analyze the duration from a crisis to a Fund program. We compensate for this by allowing, in the regressions, for continuous variation in the severity of the crisis, as measured by the first principal component of the extent of the depreciation and exchange rate loss, along with a dummy variable for the incidence of a sudden stop.⁹

We use the IMF’s “Date of Arrangement” for each stand-by arrangement as the date on which the program came into effect. The span between the month of arrangement and the month of the first crisis in the two-year window gives us our dependent variable, the spell. Underlying this definition are two assumptions. First, since we have no direct way to link a

⁸ Some also include the change in interest rate in this pressure index. However, the lack of comparable interest rate data across a broad range of countries typically limits this addition.

⁹ We also present results using a tighter crisis definition: a 1.5 standard deviation threshold: the number of observations drops considerably but the results remain qualitatively similar.

crisis to a particular IMF-supported program, we assume that if one was negotiated within two years of the crisis, it was related to that particular crisis.¹⁰ Clearly, the two-year time window within which we scanned was set arbitrarily. As with the definition of the crisis, it was a compromise to generate a sufficient number of observations for analysis. Second, the convention of using the earliest crisis in a two-year window assumes that the first crisis is the originating event in possibly a series of crises. However, to retain the information on the incidence of subsequent crises, the regression analysis includes dummy variables to reflect if a subsequent crisis occurred in the first three months and the first six months following the original crisis.

In this way, it was possible to relate around 200 SBA programs to our crisis indicator during the time span January 1977 to December 2004. In practice, because the right-hand-side explanatory variables were sometimes missing, we work with a sample of about 183 observations. In addition, a “censored” observation is one that was not followed by a program in the following 24 months. Here, since we do not have the anchor of program timing, we pick the first crisis in non-overlapping 24-month windows. That gives us 224 censored observations of which 183 are usable as zeroes in the probit estimations used to distinguish the characteristics of crises that led to a program.¹¹

In general, the data suggest that crises followed by programs were more severe than those that were not (Table 2). This is seen in the “crisis severity” index. Also, non-program

¹⁰ If there were multiple crises within the two-year period prior to the particular program, the first crisis was used to define the spell.

¹¹ In the probit regressions, some observations are dropped because, for some countries, all observations are censored or non-censored.

crises were less likely to be followed by subsequent crises and were less likely to have preexisting programs.

III. ECONOMIC VULNERABILITY: PROGRAM DECISION AND SPEED OF RESPONSE

In Table 3, the first set of results is from a probit estimation, which analyses the program decision, i.e., the factors that lead to the conclusion of a program following a crisis. The probit we estimate, while superficially similar to that estimated in many prior studies, is restricted to episodes where a crisis, albeit a mild one, occurred. In contrast, conventional analysis includes in the non-program observations all possible country-year combinations without a program. The second part of Table 3 presents Poisson regressions, which assess the determinants of the response speed, conditional on a program. The dependent variable, the number of months from crisis to program, takes on integer values above zero.¹² Throughout we include country and time dummies.¹³ Use of country dummies allows control for unchanging country-specific features that may condition the negotiation with the IMF.

We find that the factors that led from a crisis to a program also often increased the speed of the program, or else the particular determinant was an insignificant influence in either the program or the speed decision. The one clear exception to this conclusion is the outcome if a crisis occurs in the second quarter after the original crisis. In that case, a

¹² Poisson estimation can be interpreted as a duration model with a constant hazard rate. For count data, the Poisson model is the benchmark, with the alternatives generally built as extensions to deal with the restriction implicit in the Poisson's variance structure. Negative binomial models have virtually indistinguishable results.

¹³ The inclusion of fixed effects in probit estimates is controversial. Heckman (1981) concluded that such inclusion is appropriate, although later findings have raised concerns. The signs and significance of the coefficients in our probit estimations are consistent with the existing literature and provide a meaningful and useful contrast with the speed of response coefficients to tell a unifying story. For the use of fixed effects in count data models, see Allison et al., 2002.

program becomes more likely; but, all else equal, the time to program is longer. The implication is that where, following a crisis, a program is not negotiated early on and a crisis recurs after one quarter, a program decision becomes more likely (presumably because the problem is seen to be more serious) but negotiations take longer (possibly because time has surfaced different points of view).

For the rest, if a prior program is already in place, the reduced likelihood of a new program (the probit coefficient has a negative sign) is associated with a longer response time (the Poisson has a positive sign, indicating a more drawn out spell from crisis to program). Thus, all else equal, the existing program appears to provide an umbrella for Fund assistance and hence reduces the urgency of a new program.¹⁴

A similar conclusion applies to the response to crisis severity. We report on two different approaches to assessing the severity of a crisis. First, greater exchange rate depreciation and the incidence of a sudden stop make a program more likely while also increasing the speed of response. Second, we combine vulnerability indicators (exchange rate depreciation, reserve loss, and incidence of sudden stop) and use their first principal component to represent overall crisis severity.¹⁵ Once again, greater crisis severity is associated higher program likelihood and faster speed to program. Thus, although a more serious crisis requires time to design an appropriate and more complex policy response,

¹⁴ The Fund can modify the existing program to accommodate the new post-crisis situation, through a new “letter of intent” and fresh disbursement

¹⁵ We considered a crisis more severe the greater was the exchange rate depreciation (in the six months after the date of the crisis) and the larger was the loss of reserves (in the six months before the date of the crisis). We also considered somewhat different time spans, but with qualitatively similar results.

preserving domestic and international financial stability requires acting expeditiously. The implication of our finding is that financial stability considerations take precedence.

Past studies have concluded that a tight U.S. monetary policy, reflected in a higher U.S. Federal Funds rate, is associated with restricted emerging market access to international capital (Calvo, Leiderman, and Reinhart, 1996). However, we find that a lower Federal Funds rate raises the likelihood of a program and also the speed of response. It could be that lower rates are associated with weaker U.S. and global economic prospects and it is these prospects that are central to the economic outlook for emerging economies, driving the program decision and its speed.

Non-crisis-related influences that shape the sense of urgency includes the threat posed by a fixed exchange rate regime. We find that the exchange rate regime does not significantly influence the probability of a program. Thus, the dummy variable for a fixed-rate regime in the probit has a statistically insignificant coefficient. But conditional on there being a program, a fixed-rate regime leads to a faster program decision presumably for financial stability considerations.

Finally, consider the “political” determinants of program decision and speed. A feature of IMF governance, emphasized by Barro and Lee (2005), is the share of a country’s quota in the aggregate “subscriptions” (funding) from all member countries.¹⁶ A country’s quota share can be thought of a measure of its political influence on the Fund’s Executive Board. Like Barro and Lee (2005), we find that a larger quota share raises the likelihood of a

¹⁶ “Quota subscriptions generate most of the IMF’s financial resources. Each member country of the IMF is assigned a quota, based broadly on its relative size in the world economy. A member’s quota determines its maximum financial commitment to the IMF, its voting power, and has a bearing on its access to IMF financing.” <http://www.imf.org/external/np/exr/facts/quotas.htm>.

Fund program. Other research, however, is less supportive of this conclusion (see, for example, Eichengreen, Gupta, and Mody 2008). Countries with larger quota shares may have somewhat greater clout but they may also be more reluctant to draw on the Fund for reputational reasons. It is, therefore, possible that the quota share is measuring other attributes such as stronger institutional capacity to implement a program. Consistent with ambivalence, we find that a larger quota share is not associated with greater program speed.

Many studies have concluded that political and economic affinity with the United States in particular strengthens a country's ability to obtain IMF support. Thacker (1999) showed that countries that have tended to vote with the United States in the United Nations were also more likely to receive IMF program support. Barro and Lee (2005) found that UN voting concordance and larger trade shares with the United States were associated with stronger probabilities of obtaining IMF lending as well as with a larger size of lending.¹⁷ This outcome, Broz and Hawes (2006) suggest, reflects private financial interests. They find that financial lobbies influence U.S. Congressional votes in favor of IMF quota increases; moreover, the likelihood of lending and the amount of IMF lending is higher the greater is the exposure of U.S. money center banks in the borrowing countries (see also Oatley and Yackee, 2004). Despite this widespread view, we do not find evidence for a U.S. influence on response speed in our full sample. However, a more nuanced conclusion in favor of this view emerges in the next section, where we differentiate more serious crises.

We also experimented with a number of domestic institutional and political variables. Here we report on the influence of democracy, with democracy measured in terms of whether the Executive and Legislature are filled through contested elections as in Cheibub et al.

¹⁷ Unlike in other studies, Barro and Lee (2005) also found similar effects vis-à-vis European shareholders.

(2009) and represented by a binary variable. For the whole sample, there is no evidence that such domestic variables influence either the program decision or the response speed.

Where a program is put in place, the larger the amount committed as a ratio of the country's quota, the greater is the speed at which the program is negotiated. While larger amounts loaned relative to quota reflect a more challenging economic situation (and hence imply more time in concluding a program), larger amounts also reflect the Fund's assessment of the seriousness of the financial stability concerns. Interestingly, the amount relative to the country's GDP has only a statistically-weak relationship with program speed. Thus, the Fund's metric of the problem's seriousness is more evident in its internal governance process rather than in amount loaned relative to the country's economic needs.

In sum, the results point to a general concern for financial stability when determining the speed of response. Where complexity would otherwise be a source of delay, financial stability seems to take precedence in quickly concluding a commitment to a program.

Before concluding this section, consider two methodological issues. The successful negotiation of a program is a joint decision of country authorities and the IMF. Thus, the final outcome reflects their different perspectives and interests. Studies have tried through bivariate probits to disentangle these differing interests in arriving at a program decision. We have not pursued that important distinction since a similar estimation with count data models would present complex challenges. Substantively, we are of the view that our explanatory variables cannot easily be attributed to the interests of a particular party and that, in general, the variables discussed in the paper typically reflect joint, mutually reinforcing incentives. This is clearly so for crisis severity, which leads both parties to seek a program with urgency,

one predominantly in the national interest and the other also to maintain international financial stability.

A second issue arises with regard to the possibility of selection bias in our response speed regressions. Focusing only on crises that were followed by an IMF-supported program can be potentially misleading. If the crises that did not culminate in a program had a systematically differential response, then findings conditional on a program would be invalid. This problem can potentially be dealt with using complex censored models, but we have followed a simpler and more transparent process: the determinants of both the program decision and the response speed are reported. This has a double virtue. First, we tie our findings to the long-standing literature on program decisions, reassuring the reader that our results are not the consequence of the sample chosen. Second, the finding of a close similarity in the program decision and response speeds also mitigates the selection bias problem. Thus, for example, if it were the case that severe crises were *less* prone to conclude an IMF program, then the finding on response speed would be clearly biased: the most severe crises would not be reflected in the set of programs and it would be meaningless to assert that crisis severity speeded up programs. But since greater crisis severity *is* associated with higher program likelihood, the paper's conclusion is buttressed in as much as within the set of those severe crises, greater severity is accorded further respect through higher program speed.

IV. MAJOR CRISES

Is there a crisis threshold above which program determinants and speed change in a qualitative manner? As noted above, we use a relatively weak definition of crisis (with the exchange rate pressure index one standard deviation above its mean) to increase the sample

of crises for our statistical analysis. But, as we have seen, crisis severity matters. In this section, we ask if within this broader pool of crisis, more severe crises stand out in some respects. We define “major” crises as those with the exchange rate pressure index 1.5 standard deviations above the country mean. In Table 4, we include a dummy variable for a major crisis thus defined and interact that dummy variable with program and speed determinants.¹⁸

Notice first that major crises do attract greater attention. All else equal, they have a higher likelihood of ending up in IMF-supported programs. In column (1) of Table 4, which does not include any interactions, the dummy variable for major programs is significant. When, as in column (2), we interact all the determinants with the major crisis dummy, we lose statistical significance through multicollinearity. Through a general-to-specific process, a more parsimonious specification in column (3) focuses only on the “political” variables and, here, the “major” crisis dummy is once again significantly associated with higher program likelihood.

For the speed of response, conditional on the existence of a program, we observe a negative sign, and it is statistically significant with the parsimonious interactions. Together, once again, the evidence is that more serious crises caught the attention of the international community and moved the crisis countries more quickly into IMF programs.

Of particular interest is the result that voting affinity with the United States in the United Nations is a significant factor in the context of major crises. The effective coefficient for affinity to the United States is the sum of the non-interacted and interacted terms. Thus,

¹⁸ We also considered crises where the exchange rate pressure index was two standard deviations above the country mean. While the results were qualitatively similar, their precision was smaller given the small size of such crises.

greater affinity raises the probability of a program being concluded (significant at the 8 percent level) and it raises the speed of response (significant at the 6 percent level). In other words, a “low-grade” crisis does not rise to the level where a country’s political capital becomes worth deploying—and likewise it may not be in the U.S. interest to force a decision. However, for more severe crises, the political interests come into sharper focus.

A larger quota share is associated with slower response for major crises, although the effective coefficient does not come close to statistical significance. A higher quota share may be picking up other influences, including a higher per capita income and hence a reduced sense of urgency. As before, democracy does not seem to be influential in guiding decisions for minor or major crises.

V. CHANGES OVER TIME

A final question we put to the data is whether the speed of IMF response has increased over time. For this we consider two periods: before and after the Latin American debt crisis of the 1980s, thus covering 1977-1986 and 1987-2004. Such a division is endorsed by Boughton (1997, p. 3) who concludes that prior to the Latin American crisis, the Fund viewed its role as essentially the same in crisis and non-crisis lending activities. The protracted crisis in Latin America highlighted the need for a systemic perspective and hence raised the priority accorded to speed in responding to crises. In particular, one country’s debt-servicing challenge placed other countries at risk since lenders’ balance sheets were weakened and/or lenders perceived risks as correlated across countries. The Fund increasingly viewed itself as a “crisis manager,” and speed became an important element of the policy response.

Our results are presented in Table 5. Following the approach for the analysis of major crises, we introduce a dummy for the time period 1987-2004.¹⁹ This dummy variable is then interacted with the determinants of program decision and speed. We find that, controlling for all the other determinants, there is no obvious change in either the propensity to conclude a program or respond more quickly. Thus, the dummy variable for the second period is in all cases statistically insignificant. While the descriptive statistics (Table 1) showed some decrease in the average speed of response, the regressions say that this was more a reflection of the types of crisis rather than a broader shift in priorities.

The interaction terms give us greater insight into the conditional shifts in response speed. First, the more severe the crisis, the faster was the response in the second period; the likelihood of a program also increased though not in a statistically-significant manner. Together, crisis severity was more of an alarm signal after the Latin American crisis. Second, the risks associated with a fixed exchange rate regime became more of a concern to the international community. Notice that crises with fixed exchange rate regimes did not necessarily increase the likelihood of a program, presumably because the imbalances associated with such regimes can sometimes be large and intractable. However, conditional on a program being negotiated, the speed in the second period was significantly greater. These factors—a more severe crisis and greater attention to the risks associated with speculative runs against fixed rate regimes—both point to the heightened potency of

¹⁹ We tried breaking the sample also in 1986 and 1988, reaching similar results.

international capital markets in precipitating systemic crises and hence the need to react quickly in these situations.²⁰

In this context then, a further finding is suggestive. In the first period, a more democratic regime was associated with slower program negotiation, though not so in a statistically-significant manner. Democracies come in many varieties. And the variations, which imply differing degrees of voice and accountability, have significant implications for economic decisions.²¹ In Table 6, we added Henisz's (2002) measure of veto points as a potentially interesting dimension of democracies. Henisz's PolConIII indicator, which we use here, measures the extent to which the legislature can constrain the executive.²² While more veto players can enhance the credibility of ultimate decision, and hence achieve superior economic outcomes (see, for example, Henisz, 2002), a greater range of policy voices can also delay the decision. This possibility that veto players slow decision making has, to our knowledge, not been tested.

The results are interesting. Democracies slowed down decision making in the first period. This is so with either the index of democracy we have been using so far or the

²⁰ The response to the Federal Funds rate also changed. In the first period, a higher rate was associated with a slower response—and our conjecture, as stated earlier, was that higher rates may have reflected better global growth prospects. But a higher rate also raises the debt servicing burden, which would require greater and, possibly, quicker intervention. The evidence is consistent with the observation that the debt servicing effect gained in relation to the global growth effect, and the two neutralized each other. The sum of the coefficients for the first and second periods, is negative though not statistically significant at conventional levels.

²¹ While we have chosen to focus on democratic institutions as conditioning country incentives and capability for responding to crises, a variety of other political factors could, in principle, be influential. We leave that exploration for further research.

²² PolConV adds the judiciary's veto potential and also weights the number of veto points by partisan composition (i.e., when a potential veto point is occupied by an actor with the same party affiliation as the executive it does not count). The results are qualitatively similar with PolConV.

alternative Polity IV measure.²³ However, in that first period, more veto players are associated with faster decision making, with the coefficient significant at the 10 percent level. It could be that new democracies emerging in the 1970s and 1980s were relatively immature and hence decision making was subject to delays. In that setting, a system with more veto players was associated with sounder institutional development and the associated credibility also implied that the executive had greater latitude to respond to emergencies. One possibility is that democracies with stronger constraints are better able to withstand lobbying pressures from interest groups. Also, as implied by Vreeland (2002), with more veto players, the executive has greater incentive to seek external support. In a crisis that incentive is exercised. Thus democracies have (at least two) divergent tendencies: political participation can slow things down but institutions that curtail arbitrary decisions also create vents for quick decisions.

In the second period, democracy turns neutral, as does the role of executive constraints. The effective coefficient on the democracy variable—the sum of the interacted and non-interacted terms—is negative (indicating that democracies were associated with greater speed) but it is not statistically significant. Quinn (2000) argues that the interests supporting political participation and economic openness are aligned. Our results offer some supportive evidence in as much as the democracies' speed handicap was eliminated in the

²³ The alternative measure of political participation in democratic processes is from Polity IV. This measure ranges for -10 representing the most autocratic regime to +10 for the most the most democratic. As others have done (see Quinn 2000 and also the Polity IV webpage), we divide regimes into three categories. Observations with values of -5 to +5 are the base group (with the democracy indicator taking the value zero): those with higher values are democratic (and the indicator variable takes the value 1) and those with lower values are autocracies (with the indicator variable defined as -1).

second period. With that the vent provided by executive constraints also became less valuable.

VI. CONCLUSIONS

This paper is a first effort at estimating the IMF's speed of response to a crisis and examining the determinants of that speed. We also present results for whether a program was established or not following a crisis. Key factors that make a program more likely also increase the speed of response. In particular, the likelihood of a program has been higher when the threat of an economic slide has been greater and such a threat has also spurred faster program decisions.

In line with case studies and statistical analyses, the United States appears to be influential in program decisions. The results suggest that political affinity with the U.S. is associated with rapid program decisions although only when the crises intensity has crossed a threshold. The evidence in this paper is consistent with a U.S. role guided by the interests of its financial sector in an ever more integrated global market place.

The Latin American debt crisis, instigated by the Mexican default in 1982, created greater awareness of international spillovers and systemic risks. As international capital markets became more prominent, new facets of vulnerability were revealed. The threat of a sudden stop, in particular, drew quick Fund attention. Recognizing the salience of these factors was, apparently, necessary to contain the spread of the crisis with a view to maintaining international financial stability.

Finally, with the onset of a new global wave of democratization in the mid-1970s, the political process appears initially to have hindered rapid response. This effect was mitigated

partly by greater constraints on executive action, as if such constraints disciplined decision-making and hence enhanced their credibility. But from the mid-1980s, democracies evolved at least to the extent that they no longer slowed response speed. A positive interpretation of this finding is that domestic democracy adapted to the needs of these new generation international financial crises. If true, the outcome is good for democracy and for the future of financial globalization. But the finding is also consistent with better functioning financial and commercial interests that are able to press for speed at times of crises.

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Table 1: The Spell—from Crisis to Standby Arrangement (SBA)

Panel A: Softer Crisis Definition

Duration (median, in months) from Crisis to Standby Arrangement
[in parentheses, average number of SBAs per year]

	No existing program	With Existing program at time of crisis	All SBAs
1977-1986	17 [5]	19 [3]	19 [9]
1987-2004	12 [4]	19 [2]	15 [5]
All SBAs	15 [4]	19 [2]	17 [7]

Notes:

1. A crisis is defined as a one-standard deviation [increase] in the exchange rate pressure index.
2. As discussed in the text, these SBAs refer only to those that were associated with a crisis.

Panel B: Stringent Crisis Definition

Duration (median, in months) from Crisis to Standby Arrangement
[in parentheses, average number of SBAs per year]

	No existing program	With Existing program at time of crisis	All SBAs
1977-1986	15 [4]	15 [3]	15 [7]
1987-2004	9 [3]	14 [1]	11 [4]
All SBAs	11 [3]	15 [2]	12 [5]

Notes:

1. A crisis is defined as a 1.5-standard deviation [increase] in the exchange rate pressure index.
2. As discussed in the text, these SBAs refer only to those that were associated with a crisis.

Table 2: Explanatory Variables' Mean and Standard Deviation.

Variables	IMF program	No IMF program
	following a crisis	following a crisis
	Mean	Mean
	[Standard Deviation]	[Standard Deviation]
New Crisis in First Quarter (dummy indicating a crisis in the first quarter after the original one)	0,32 [0,47]	0,29 [0,46]
New Crisis in Second Quarter (dummy indicating a crisis in the second quarter after the original one)	0,35 [0,48]	0,27 [0,44]
Existing Program Dummy (dummy indicating if there is a program at the time of the crisis)	0,37 [0,48]	0,29 [0,45]
Exchange rate depreciation (in the 6 months after a crisis)	0,20 [0,72]	0,14 [0,78]
Change in reserves (in the 6 months before the crisis)	-0,24 [1,18]	-0,17 [1,19]
Sudden Stop (dummy variable indicating a Sudden Stop)	0,07 [0,26]	0,03 [0,16]
Crisis Indicator (principal components: change in reserves, depreciation and sudden stop)	0,11 [1,18]	-0,09 [0,91]
Fixed Exchange Rate Regime (dummy variable indicating a fixed exchange rate regime)	0,30 [0,46]	0,25 [0,43]
Federal Funds Rate (in percentage points)	8,21 [3,92]	7,22 [3,33]
Petroleum Price (in logs)	4,32 [0,36]	4,27 [0,32]
IMF Quota Share (in logs)	-0,27 [1,16]	-0,16 [1,24]
UN Voting Affinity with the United States ([-1,1], with higher numbers indicating higher affinity levels)	-0,38 [0,36]	-0,47 [0,28]
Democracy (dummy variable indicating democratic regimes)	0,53 [0,50]	0,52 [0,50]
Executive Constraints ([0,1], with higher numbers indicating greater constraints)	0,30 [0,22]	0,30 [0,21]
Number of observations	183	224

Table 3: Determinants of a Program and the Time to Program

LABELS	(1) Probit	(2) Probit	(3) Poisson	(4) Poisson	(5) Poisson
New Crisis in First Quarter	-0.03 [-0.16]	-0.03 [-0.14]	-0.08 [-1.24]	-0.07 [-1.13]	-0.08 [-1.29]
New Crisis in Second Quarter	0.36 [1.68]*	0.36 [1.68]*	0.17 [2.85]***	0.17 [2.81]***	0.15 [2.59]***
Existing program dummy	-0.48 [-2.36]**	-0.48 [-2.36]**	0.31 [4.89]***	0.31 [4.78]***	0.33 [5.02]***
Exchange rate depreciation	0.23 [2.08]**		-0.09 [-2.16]**		
Sudden stop	0.91 [2.08]**		-0.53 [-3.92]***		
Crisis Severity		0.27 [3.10]***		-0.13 [-4.40]***	-0.15 [-4.91]***
Fixed Exchange Rate	-0.33 [-1.04]	-0.32 [-1.02]	-0.25 [-2.42]**	-0.28 [-2.72]***	-0.22 [-2.12]**
Federal funds rate	-0.12 [-1.97]**	-0.12 [-2.03]**	0.03 [1.76]*	0.04 [2.13]**	0.04 [2.17]**
Log of petroleum price	0.22 [0.38]	0.22 [0.38]	0.19 [1.04]	0.24 [1.33]	0.24 [1.25]
Log of IMF quota share	3.57 [2.79]***	3.62 [2.87]***	-0.17 [-0.31]	0.02 [0.04]	-0.86 [-1.26]
UN voting affinity with the United States	1.77 [1.42]	1.76 [1.42]	-0.41 [-1.24]	-0.38 [-1.17]	-0.12 [-0.35]
Democracy Dummy	0.24 [0.72]	0.24 [0.74]	0.07 [0.69]	0.01 [0.07]	0.04 [0.36]
Amount of Loan over Quota				-0.00 [-2.60]***	
Amount of Loan Over GDP					3.38 [1.34]
Observations	368	368	183	183	181
Log Likelihood	-177.9	-177.7	-562.5	-559.1	-554.5

z-statistics in brackets,

*** p<0.01, ** p<0.05, * p<0.1

Country and year dummies not reported.

Table 4: The Influence of Major Crises

LABELS	(1) Probit	(2) Probit	(3) Probit	(4) Poisson	(5) Poisson	(6) Poisson
New Crisis in First Quarter	-0.08 [-0.37]	-0.21 [-0.71]	-0.10 [-0.48]	-0.07 [-1.13]	-0.08 [-0.94]	-0.03 [-0.49]
New Crisis in Second Quarter	0.40 [1.82]*	0.35 [1.18]	0.34 [1.54]	0.17 [2.90]***	0.26 [3.23]***	0.18 [2.86]***
Existing program dummy	-0.50 [-2.42]**	-0.22 [-0.82]	-0.53 [-2.55]**	0.31 [4.82]***	0.31 [3.87]***	0.32 [4.92]***
Crisis Severity	0.21 [2.40]**	0.24 [1.20]	0.24 [2.57]**	-0.12 [-3.86]***	-0.18 [-3.05]***	-0.14 [-4.38]***
Fixed Exchange Rate	-0.24 [-0.76]	-0.32 [-0.81]	-0.25 [-0.76]	-0.30 [-2.93]***	-0.28 [-2.31]**	-0.30 [-2.69]***
Federal funds rate	-0.13 [-2.05]**	-0.10 [-1.46]	-0.13 [-2.09]**	0.04 [2.22]**	0.04 [2.36]**	0.04 [2.18]**
Log of petroleum price	0.21 [0.37]	-0.15 [-0.21]	0.24 [0.41]	0.21 [1.11]	0.06 [0.25]	0.04 [0.22]
Log of IMF quota share	3.71 [2.87]***	4.47 [3.15]***	4.17 [3.04]***	-0.04 [-0.07]	-0.23 [-0.40]	-0.16 [-0.27]
UN voting affinity with the United States	1.77 [1.41]	1.21 [0.86]	1.01 [0.75]	-0.36 [-1.10]	-0.17 [-0.47]	-0.32 [-0.90]
Democracy Dummy	0.20 [0.62]	0.55 [1.41]	0.34 [0.91]	0.01 [0.13]	-0.05 [-0.40]	-0.07 [-0.58]
Amount of Loan over Quota				-0.00 [-2.45]**	-0.00 [-2.25]**	-0.00 [-2.14]**
Major Crisis	0.57 [2.86]***	-2.81 [-0.92]	1.35 [3.00]***	-0.08 [-1.37]	0.03 [0.03]	-0.25 [-2.19]**
Major Crisis*New Crisis in First Quarter		0.31 [0.72]			0.06 [0.54]	
Major Crisis*New Crisis in Second Quarter		0.08 [0.16]			-0.16 [-1.19]	
Major Crisis*Existing Program Dummy		-0.96 [-2.29]**			0.02 [0.16]	
Major Crisis*Crisis Severity		0.00 [0.01]			0.06 [0.95]	
Major Crisis*Fixed Exchange Rate		-0.02 [-0.03]			-0.10 [-0.67]	
Major Crisis*Federal funds rate		-0.12 [-1.63]			-0.02 [-0.92]	
Major Crisis*Log Petroleum price		1.25 [1.56]			-0.01 [-0.05]	
Major Crisis*Log of IMF quota share		-0.07 [-0.40]	-0.02 [-0.11]		0.09 [1.41]	0.13 [2.31]**
Major Crisis*UN voting affinity		1.44 [1.92]*	1.23 [1.77]*		-0.41 [-2.21]**	-0.38 [-2.28]**
Major Crisis*Democracy		-0.40 [-0.99]	-0.39 [-1.03]		0.13 [0.95]	0.17 [1.34]
Observations	368	368	368	183	183	183
Log Likelihood	-173.4	-166.7	-171.4	-558.1	-549.0	-551.6

z-statistics in brackets,

*** p<0.01, ** p<0.05, * p<0.1

Country and year dummies not reported.

Table 5: Changes over Time

LABELS	(1)	(2)	(3)	(4)	(5)	(6)
	Probit	Probit	Probit	Poisson	Poisson	Poisson
New Crisis in First Quarter	-0.03 [-0.14]	1.74 [1.98]**	0.30 [0.98]	-0.07 [-1.13]	-0.16 [-1.58]	-0.08 [-1.09]
New Crisis in Second Quarter	0.36 [1.68]*	-0.60 [-0.79]	0.79 [2.48]**	0.17 [2.81]***	0.30 [3.20]***	0.18 [2.46]**
Existing program dummy	-0.48 [-2.36]**	-3.19 [-2.89]***	-1.16 [-3.68]***	0.31 [4.78]***	0.26 [2.51]**	0.33 [4.28]***
Crisis Severity	0.27 [3.10]***	0.30 [1.38]	0.15 [0.83]	-0.13 [-4.40]***	-0.04 [-1.15]	-0.04 [-1.11]
Fixed Exchange Rate	-0.32 [-1.02]	0.38 [0.33]	0.84 [0.83]	-0.28 [-2.72]***	-0.22 [-1.44]	-0.17 [-1.10]
Federal funds rate	-0.12 [-2.03]**	-0.28 [-1.77]*	-0.07 [-0.66]	0.04 [2.13]**	0.05 [2.34]**	0.05 [2.38]**
Log of petroleum price	0.22 [0.38]	9.62 [1.42]	2.25 [0.73]	0.24 [1.33]	0.01 [0.02]	-0.14 [-0.48]
Log of IMF quota share	3.62 [2.87]***	-2.40 [-0.58]	-1.55 [-0.52]	0.02 [0.04]	-0.99 [-0.97]	-0.65 [-0.65]
UN voting affinity with the United States	1.76 [1.42]	8.20 [0.95]	6.20 [1.15]	-0.38 [-1.17]	-0.30 [-0.46]	-0.23 [-0.36]
Democracy Dummy	0.24 [0.74]	-0.60 [-0.39]	-1.41 [-1.29]	0.01 [0.07]	0.15 [0.84]	0.23 [1.33]
Amount of Loan over Quota				-0.00 [-2.60]***	-0.00 [-1.65]*	-0.00 [-1.29]
Dummy year>1986	-0.32 [-0.42]	24.10 [0.82]	-3.22 [-0.21]	0.23 [0.82]	1.96 [0.70]	0.43 [0.16]
Time Dummy *New Crisis in First Quarter		-1.77 [-1.86]*			0.27 [1.70]*	
Time Dummy*New Crisis in Second Quarter		1.83 [2.12]**			-0.26 [-1.66]*	
Time Dummy*Existing Program Dummy		2.24 [1.94]*			0.22 [1.29]	
Time Dummy*Crisis Severity		0.27 [0.92]	0.39 [1.48]		-0.18 [-2.57]**	-0.16 [-2.33]**
Time Dummy*Fixed Exchange Rate		-1.20 [-0.92]	-1.78 [-1.54]		-0.14 [-2.42]**	-0.12 [-2.16]**
Time Dummy*Federal funds rate		-0.04 [-0.18]	-0.27 [-1.33]		-0.17 [-0.36]	0.18 [0.41]
Time Dummy*Log Petroleum price		-8.97 [-1.31]	-1.66 [-0.52]		-0.47 [-0.55]	-0.26 [-0.30]
Time Dummy*Log of IMF quota share		14.09 [2.25]**	12.10 [2.28]**		-0.31 [-0.10]	-0.46 [-0.14]
Time Dummy*UN voting affinity		-5.54 [-0.63]	-3.71 [-0.65]		-0.60 [-1.88]*	-0.56 [-1.78]*
Time Dummy*Democracy		0.91 [0.53]	1.61 [1.20]		-0.72 [-2.59]***	-0.93 [-3.43]***
Time Dummy*Amount of Loan over Quota					0.00 [0.97]	0.00 [0.87]
Observations	368	311	311	183	183	183
Log Likelihood	-177.7	-108.3	-114.0	-559.1	-497.2	-501.3

z-statistics in brackets,

*** p<0.01, ** p<0.05, * p<0.1

Country and year dummies not reported.

Table 6: Alternative Definition of Democracy

LABELS	(1)	(2)	(3)	(4)
	Probit	Poisson	Probit	Poisson
New Crisis in First Quarter	0.36 [1.15]	-0.07 [-1.00]	0.33 [1.02]	-0.09 [-1.25]
New Crisis in Second Quarter	0.79 [2.44]**	0.16 [2.20]**	0.82 [2.53]**	0.17 [2.26]**
Existing program dummy	-1.17 [-3.74]***	0.31 [3.95]***	-1.21 [-3.78]***	0.28 [3.59]***
Crisis Severity	0.18 [0.99]	-0.04 [-1.02]	0.14 [0.70]	-0.03 [-0.87]
Fixed Exchange Rate	0.79 [0.79]	-0.17 [-1.07]	0.86 [0.82]	-0.21 [-1.34]
Federal funds rate	-0.09 [-0.82]	0.05 [2.09]**	-0.08 [-0.71]	0.04 [1.90]*
Log of petroleum price	1.48 [0.40]	-0.21 [-0.71]	2.21 [0.43]	-0.08 [-0.27]
Log of IMF quota share	-1.36 [-0.46]	-0.67 [-0.66]	-1.27 [-0.42]	-0.53 [-0.53]
UN voting affinity with the United States	7.02 [1.32]	-0.24 [-0.36]	7.04 [1.28]	-0.21 [-0.33]
Democracy Dummy	-0.75 [-0.58]	0.38 [1.95]*		
Democracy Indicator (Alternative)			-0.89 [-1.04]	0.28 [2.18]**
Executive Constraints	-4.22 [-1.13]	-0.80 [-1.68]*	-3.76 [-0.99]	-0.78 [-1.68]*
Amount of Loan over Quota		-0.00 [-1.29]		-0.00 [-1.05]
Dummy year>1986	-7.68 [-0.44]	-0.01 [-0.00]	-5.46 [-0.23]	-1.79 [-0.72]
Time Dummy*Crisis Severity	0.36 [1.36]	-0.14 [-2.07]**	0.43 [1.58]	-0.12 [-1.72]*
Time Dummy*Fixed Exchange Rate	-1.62 [-1.42]	-0.84 [-2.88]***	-1.77 [-1.48]	-0.71 [-2.47]**
Time Dummy*Federal funds rate	-0.24 [-1.18]	-0.11 [-1.87]*	-0.27 [-1.27]	-0.12 [-2.10]**
Time Dummy*Log Petroleum price	-0.97 [-0.26]	0.26 [0.57]	-1.55 [-0.30]	0.49 [1.12]
Time Dummy*Log of IMF quota share	12.15 [2.26]**	-0.30 [-0.09]	13.20 [2.39]**	0.62 [0.20]
Time Dummy*UN voting affinity	-4.69 [-0.82]	-0.32 [-0.38]	-5.16 [-0.88]	-0.32 [-0.37]
Time Dummy*Democracy	1.08 [0.70]	-0.72 [-2.16]**		
Time Dummy*Democracy (Alternative)			1.47 [1.51]	-0.12 [-0.64]
Time Dummy*Executive Constraints	2.86 [0.71]	0.45 [0.68]	1.91 [0.46]	0.30 [0.46]
Time Dummy*Amount of Loan over Quota		0.00 [0.92]		0.00 [0.71]
Observations	311	183	311	183
log likelihood label	-113.0	-499.6	-111.8	-499.3

z-statistics in brackets

*** p<0.01, ** p<0.05, * p<0.1

Country and year dummies not reported

Data Appendix

The dependent variable (Spell) is the number of months between the first “crisis” that occurred in a time window of two years preceding the month of approval of an IMF program. Thus the maximum value that this variable can take is 24. To define a crisis we construct an indicator proposed in Kaminsky and Reinhart (1999). This index is constructed as:

$$I = \frac{\Delta e}{e} - \frac{\sigma_e}{\sigma_R} \cdot \frac{\Delta R}{R}$$

Where “R” is the monthly level of reserves and “e” is the monthly exchange rate. σ_e and σ_R are, respectively, the standard deviations of the exchange rate changes and of the reserves changes. A crisis month is one in which the index is off its mean by at least a standard deviation.

Countries included in the study are the following: Algeria, Argentina, Bolivia, Brazil, Bulgaria, Cameroon, Central African Republic, Chile, Costa Rica, Dominican Republic, Ecuador, Egypt, El Salvador, Estonia, Gabon, Gambia, Ghana, Guatemala, Haiti, Honduras, Hungary, India, Indonesia, Jamaica, Jordan, Kenya, Latvia, Lithuania, Madagascar, Malawi, Mauritius, Mexico, Morocco, Myanmar, Niger, Nigeria, Pakistan, Peru, Philippines, Poland, Romania, Russia, Senegal, Sudan, Tanzania, Thailand, Togo, Turkey, Uruguay, Venezuela.

The variables used in the study and their sources are described in the following table:

Variable	Description and Source
Consumer Price Index	IFS, serie (64...zf)
Exchange Rate	National Currency Per US Dollar. Monthly Periodicity (end of period). IFS, serie (...AE..ZF).
Reserves	Total Reserves minus Gold. Millions of Dollars. Monthly Periodicity. IFS, serie (.IL.DZF).
Petroleum Price	World Petroleum Spot Price Index. Monthly Periodicity. IFS, serie (001176AADZF).
US Federal Funds Rates	Percentage Points. Monthly Periodicity. IFS, serie (11160B...ZF)
Fixed Exchange Rate	Dummy variable indicating the existence of a fixed exchange rate defined as in Shambaugh (2004).
IMF quota share	Participation of each country's quota in the total of quotas of countries included in the analysis. In percentage points. IFS, serie (.2F.SZF)
UN voting	Data ranges from -1 (least similar interests) to 1 (most similar interests). Constructed following "The Affinity of Nations Index database". Erik Gartzke, Columbia University. Raw data is provided by Erik Voeten and Adis Merdzanovic, "United Nations General Assembly Voting Data". http://www9.georgetown.edu/faculty/ev42/UNVoting.htm
Sudden Stops	As in Eichengreen, Gupta and Mody (2008).
GDP per capita	PPP terms. From Alan Heston, Robert Summers and Bettina Aten, Penn World Table Version 6.2, Center for International Comparisons of Production, Income and Prices at the University of Pennsylvania, September 2006.
Growth	Growth of GDP per Capita in PPP terms. Same source as GDP per capita.
PolconIII	Estimates the constraints imposed by veto points. Available at: http://www-management.wharton.upenn.edu/henisz/
PolconV	Similar to PolconIII but also includes two additional veto points: the judiciary and sub-federal entities. Available at: www-management.wharton.upenn.edu/henisz
Democracy	Dummy variable indicating democratic regime as in Cheibub et al. Available at: http://www9.georgetown.edu/faculty/jrv24/DD.html
Democracy (Alternative)	Presence of institutions and procedures through which citizens can express their preferences about alternative policies and leaders. Increasing scale from -10 to +10. Source: Polity IV Project, Center for Global Policy, School of Public Policy, George Mason University.
Capital Account Openness	The Chinn-Ito index of capital account openness based on the IMF's detailed tabulations of restrictions on cross-border transactions in its annual <i>Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER)</i> . www.ssc.wisc.edu/~mchinn/Readme_kaopen163.pdf .
Trade Openness	Measured as the ratio of trade(exports plus imports)-to-GDP. Source: World Bank, World Development Indicators.