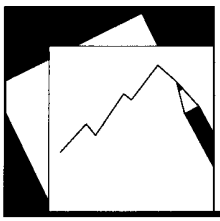

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From Crisis to IMF-Supported Program: Does democracy impede the speed required by financial markets?

Ashoka Mody and Diego Saravia

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From Crisis to IMF-Supported Program: Does democracy impede the speed required by financial markets?

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Abstract

Has the spread of democracy and political participation impeded the need for speed required by financial markets and the elevated threat of contagion across borders? We examine the time span between the onset of a financial crisis and the agreement on an IMF-supported adjustment program. This span appears to have decreased over time. More precisely, we find that the time from a crisis to the approval of a program has been smaller the more serious the crisis. Importantly, this responsiveness to a widening range of financial vulnerabilities has increased with growing financial integration. Democracies, particularly those with checks and balances, have been sensitive to time pressures.

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Keywords: IMF, Financial Crises, Democracy

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Contents

I. INTRODUCTION

Much scholarly attention has focused on the factors that lead the International Monetary Fund to lend to countries that face balance of payments stress. The questions posed have been: *why* does the IMF (or the Fund) lend and *why* do countries borrow?[2] Policymakers have also been concerned with the *amount* of lending, especially for countries facing "exceptional" balance of payments difficulties.[3] 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, in fact, the IMF has responded by lending to countries in the midst of external 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.

The speed of lending is of particular interest in the context of financial crises. The Fund's role is predicated on the basis that markets may "overreact to and aggravate bad news" Boughton (1997, p. 3). That overreaction may inflict unnecessary damage to the country facing the crisis, but, worse, may infect other countries. Hence, orderly management of crises, under condition that the country adopts sensible policies, is a public good provided by the Fund. It is not sufficient that the Fund lends when a country faces a crisis. It is necessary that the lending occur in a timely manner.

The pressure on response speed has only increased with time. Noting the emergence of the Fund's role as a crisis manager during the Suez crisis of 1956, Boughton (1997) regards the Latin American debt crisis of the early 1980s as pivotal in highlighting the need for speed to counteract the risk of crises spreading beyond the original source of distress. Bordo and James (2000) point to the growing depth of international financial markets as reinforcing the need for speed, a challenge felt acutely during the string of emerging market crises in the second half of the 1990s. These discussions continue today within the Fund, where the task is viewed as responding expeditiously and predictably to maintain international financial stability while ensuring appropriate safeguards for the judicious use of Fund resources. This, in turn, has led to the possibility of *ex ante* conditionality and prequalifying borrowers, who would then have ready access to Fund resources. The challenge to balance speed and safeguards remains to be resolved (IMF 2006).

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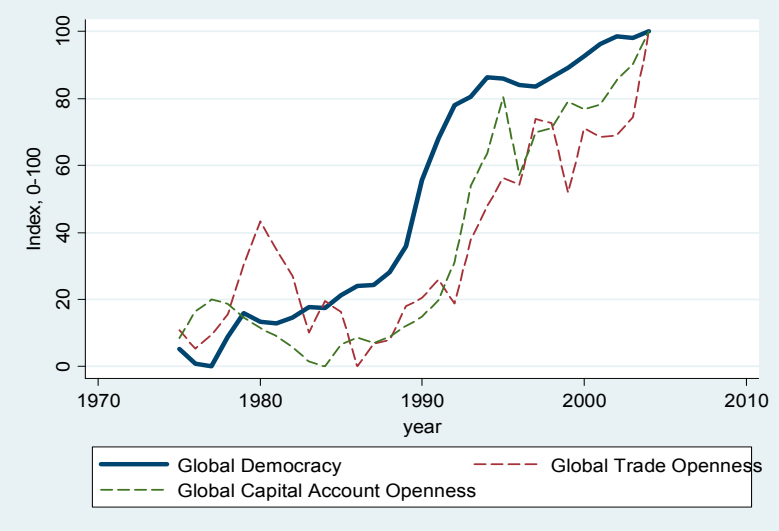
[2] Bird (1996) reviews the early research; recent contributions include Thacker (1999), Vreeland (2002), and Barro and Lee (2005).

[3] The Supplemental Reserve Facility was created to meet "large short-term financing" needs. See IMF (1997).

In examining the factors that may accelerate lending decisions, our research design has been motivated by a number of questions. Does the Fund respond faster when a crisis is more severe? Have the response speed and the factors that are incorporated in vulnerability assessments changed over time? Also of interest is the Fund's governance structure, and, in particular, how major shareholders have accommodated this demand for speed. An even more intriguing question is whether the pressures for speed have curtailed democratic deliberation.

Democracy is of particular interest because its recent evolution has, in large measure, paralleled increased economic openness. 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. This we show for the period 1975-2004 in Figure 1, which plots the average measure of democracy and capital account openness across countries in each year, normalized to lie between 0 and 100. Also trade openness started an upward climb in about the mid-1980s, at which point trade and financial openness became closely correlated. While Quinn (2000) offers an engaging account of the dynamics of this comovement, our interest lies in whether economic and political openness were in conflict. Specifically, if economic openness demanded a higher speed of policy response, did political openness impose limits? Does democratic deliberation slowdown decision making? Or do common interests underlying economic and political participation ensure a timely response?

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.

With these considerations in mind, this paper maps the variation in the IMF's speed of lending and assesses the determinants of this speed. The focus is on the IMF's stand-by arrangement (SBA), the Fund's principal instrument for dealing with short-term balance of payments difficulties. Once agreed upon, SBA's allow countries to draw up to a pre-specified amount, typically over a period of 12-18 months.[4] Our contribution lies, first, in documenting the frequency of SBAs that could be considered a response to crises as distinct from programs in noncrisis situations. Of course, this distinction involves judgments both in identifying a crisis (which we do using a methodology proposed by Kaminsky and Reinhart 1999) and in tying a program to the crisis. To be transparent, the dictates of statistical analysis require that we define a relatively low level of distress for an event to count as a crisis. Next, we describe how the speed of crisis lending has evolved over time.

But primarily, we conduct a statistical analysis of the factors that contributed to determining the response speed. More precisely, we study the factors that have influenced the time gap between the onset of a crisis and the initiation of a Fund-supported program, at which time Fund resources—and, often, other complementary financing—become available to alleviate pressures on a country's external financial position. In principle, this time gap has two components, which we do not distinguish: the time the country takes to approach the Fund and the period thereafter during which a program is agreed upon. The implication also is that the ultimate decision on the program depends on the country's demand for and the Fund's supply of speed. Such a distinction has been made has been made in the context of program determination with the aid of bivariate probits (e.g., Vreeland 2002). While these refinements should eventually be pursued even in the context of speed, we adopt a more reduced-form approach with explanatory variables including both demand and supply factors. The three sets of influences we examine are: (a) the severity of the crisis; (b) the borrower's relationship to the governance structure of the IMF; and (c) the implications of democratic institutions.

Between 1977 and 2002, 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), the relatively large number reflecting the low threshold in the definition of a crisis. The data, however, points to a decline in the spell, or response time, which fell from a median of 19 months during 1977-1985 to 15 months in the years after 1985. This divide around the year 1985 corresponds roughly to Boughton's (1997) characterization of the Latin American crisis as

[4] Other 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 and the distinction between an EFF and an SBA may have blurred over time. Also, an SBA may be combined with the Supplemental Reserve Facility to allow larger levels of borrowing.

being a turning point in the consideration and priority that the Fund accorded to response speed, and supports his expectation that the Fund would have sought to move more quickly. Moreover, 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] Notice, however, there is some indication in the data that an existing program was put to greater use as a buffer in the second period (as seen by the larger gap between the spell with and without an existing program), allowing more time for designing a new program.

Using count data models, our regression results can be summarized into four main findings, which together imply that the Fund's operational approach, its governance structure, and the domestic democratic processes have all cooperated to accommodate the need for greater response speed. First, greater country vulnerability does matter: the more severe a crisis, the faster a program is likely to be put in place. Second, the response to vulnerability appears to have increased over time. Moreover, the range of vulnerability indicators that bear on the decision-making process appears to have expanded from a concern with rapid exchange rate depreciation to include debt-servicing capability and, especially, the risk of a sudden stop in capital flows. Third, a particularly robust finding is the increase over time in the value of affiliation to the United States for the rapid conclusion of a program. Finally, while the role and relevance of democracy in determining the pace of program negotiation is nuanced and complex, the dictates of financial globalization and the consequent need for speed do not appear to have undermined domestic democratic processes. While political participation appears to have slowed decisions until the mid-1980s—when the new democratic wave was still in its early stages—that effect apparently disappeared thereafter just trade and financial openness began a decisive and sustained upward trend. But the evidence also is that where institutional constraints limited the scope for arbitrary action, democracies were able to accommodate the needs of political participation and remain sensitive to time pressures.

The next section describes the construction of the spell and the econometric approach and challenges. This is followed successively by an examination of the role of external vulnerability; the possibility that the response to vulnerability has changed over time; the influence of the borrower's relationship to the IMF's governance structure; and the consequences of democratic participation and stronger checks and balances. A final section concludes.

II. THE EMPIRICAL APPROACH

The starting point of the analysis is the defining the time of a crisis. From that time to the approval of the IMF program is the span or the "spell," which is the dependent variable of

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

interest. This section describes the construction of the spell and then discusses the econometric methodology for analyzing the determinants of the spell.

A. The spell: crisis and response

In defining a crisis, we were guided by the Kaminsky and Reinhart (1999) gauge of the pressures faced by a country's currency.[6] These pressures can be captured by significant variations in the exchange rate and foreign currency reserves. 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.

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

"*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.[7] 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). In Kaminsky and Reinhart, a country is defined as entering a crisis in the month when this 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 extent of the depreciation and exchange rate loss. 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 initially 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. Exchange rate depreciation then continues (while reserves generally bottom out). Hence, the degree to which the exchange rate depreciation persists and is subsequently followed by even more serious difficulties, such as a sudden stop in capital flows determines how the severe the crisis is. In our empirical analysis, we examine the significance of this variation in crisis severity.

An observation enters our sample when an IMF stand-by arrangement (SBA) was preceded by a crisis in the prior two years. We use the IMF's "Date of Arrangement" as the date on

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

[7] 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.

which the program came into effect. The span between the month of arrangement and the month of the crisis gives us our dependent variable, the spell. Since we have no direct way to link a crisis to a particular SBA, we assume that if a program was negotiated within two years of the crisis, it was related to that particular crisis.[8] 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. In this way, it was possible to relate around 200 SBA programs to our crisis indicator during the time span January 1977 to December 2002.[9] In practice, because the right-hand-side explanatory variables were sometimes missing, we work with a sample of about 175 observations.

As noted in the introduction, for the entire sample, the median time between crisis and program initiation was 17 months. There was considerable variation in the spell, with the 25th percentile value of 9 months and the 75th percentile value of 21 months. Some programs were rapidly negotiated, the 1995 Mexico SBA in 1 month the 2002 Brazil and Uruguay SBA's in less than 2 months.

The presumption is that speed is necessary to prevent an economic slide in the country hit by a crisis while also limiting contagion to other countries. For a first look at the country's circumstances, we examine the growth contraction in the year of the crisis and the recovery in the three years thereafter. In line with Boughton's periodization and our subsequent analysis, we divide the sample period into two parts, 1977-1985 and 1986-2002. Table 2 shows that growth shocks were greater in the first period, as seen in the larger negative growth rates of per capita GDP in the year of the program. This was so whether a program was in place or not. Following the shock, there is evidence of mean reversion in growth rates. For instance, in the three years following the start of the program, the bounce back in growth was greater in the first period with it lower initial growth rates, than in the second period. Similarly, if an existing program was in place, the growth shock was milder and the gain in growth was smaller.

The evidence in Table 2 is suggestive that the Fund responded faster where growth was slowing more rapidly. In both periods, the spell from crisis to program was shorter, the greater the initial distress. And, moreover, faster intervention was associated with a greater gain in growth from pre-program levels. While thus there is support for the presumption that the role of the Fund was to prevent a slide in growth rates, the evidence is not conclusive. Because of the tendency to mean reversion, there was more scope for post-program gain where there was greater distress. Also, the countries that received faster intervention, while

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

[9] After 2002, the data constraint arises from the lack of availability of the UN voting data for compiling the variable to represent political affinity to the United States.

achieving greater gains, typically, grew at a slower rate in absolute terms in the three years following program initiation, presumably because they faced more endemic problems. Thus, whether Fund intervention helped sustain or accelerate long-term growth is a more complex enquiry, which we do not pursue here.

B. Econometric approach

We are dealing here with "count" data: our dependent variable takes on integer values above zero. 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. For a random variable, "y" that follows the Poisson distribution, the probability that it takes the value "j" is given by[10]:

$$P(y=j)=\frac{e^{-\lambda}\lambda^{j}}{j!} \qquad \lambda>0,\ j=0,1,2,...$$

The parameter, λ, thus defines the distribution. In particular, the expected value and the variance of y are equal to λ, i.e., $E(y)=\lambda$ and $\text{var}(y)=\lambda$. For economic applications, λ is treated as a function of the variables of interest, represented by the vector **x**. As such, the outcome for a particular observation "i", "y_i"—which, in our case, is the "spell" between the crisis and program initiation—follows a Poisson distribution with the parameter λ_i, conditional on the vector of attributes "$\mathbf{x}_i$," the observed influences,

$$y_i\,|\,\mathbf{x}_i \sim Poisson(\lambda_i), \text{ where } \lambda_i=\exp(\mathbf{x}_i\beta)$$

The econometric task is to estimate vector **β**, which contains the response parameters of interest. Note, that larger values of the elements of **β** imply a larger spell and hence a slower speed of response. Thus, for any observation "i," conditional on observing the vector of attributes "$\mathbf{x}_i$," the probability of observing an outcome "y_i" is given by:

$$P(Y_i=y_i\,|\,\mathrm{X}_i=\mathbf{x}_i)=\frac{\exp(-\exp(\mathbf{x}_i\beta))\exp(\mathbf{x}_i\beta)^{y_i}}{y_i!} \qquad y_i=0,1,2,...$$

This probability function forms the basis for defining the likelihood function over the set of observations, and the parameters are estimates are obtained by maximizing the function. The expected value and the variance now are:

$$E(y_i\,|\,\mathbf{x}_i)=\exp(\mathbf{x}_i\beta) \quad \text{var}(y_i\,|\,\mathbf{x}_i)=\exp(\mathbf{x}_i\beta)$$

[10] The presentation and notation here follows Winkelmann and Boes (2006). Early development of count data models was presented by Hausman, Hall, and Griliches (1984). A widely used text book treatment is Cameron and Trivedi (1998).

Notice that as the expected value increases, so does the variance, implying heteroscedasticity. However, a concern is that the variance may, in fact, rise even faster. If present, this "unobserved heterogeneity," would underestimate the variance and, hence, the standard errors of the estimates. Thus, if the true Poisson parameter is $\tilde{\lambda}_i$ and ε_i represents the unobserved heterogeneity, then, $\tilde{\lambda}_i$ is related to the observed λ_i as follows:

$$\tilde{\lambda}_i = \exp(\mathbf{x}_i\beta + \varepsilon_i)$$

$$\tilde{\lambda}_i = \exp(\mathbf{x}_i\beta)\exp(\varepsilon_i) = \exp(\mathbf{x}_i\beta)u_i = \lambda_i u_i$$

$\exp(\varepsilon_i) = u_i$, and it is assumed without loss of generality that $E(u_i \,|\, \mathbf{x}_i) = 1$ and $\text{var}(u_i \,|\, \mathbf{x}_i) = \sigma_i^2$. It follows that the expected value of $\tilde{\lambda}_i$ is λ_i, which implies that the Poisson parameter estimates are not biased. However, the Poisson model underestimates the variance, which now is:

$$\text{var}(y_i \,|\, \mathbf{x}_i) = \lambda_i + \sigma_i^2\lambda_i^2$$

The problem is referred to as one of "over dispersion." A commonly used solution is the Negative Binomial model, which is based on the further assumption that u_i has a gamma distribution with parameter θ. Further, if:

$$\theta_i^{-1} = \sigma_i^2 \Big/ \lambda_i, \;\; \text{var}(y_i \,|\, \mathbf{x}_i) = (1 + \sigma_i^2)\exp(\mathbf{x}_i\beta).$$

A more complex likelihood function ensues, which can be found in standard references such as Cameron and Trivedi (1998) or Winkelmann and Boes (2006). But while it is expedient to employ a Negative Binomial model to allow for additional heterogeneity, there are costs to doing so. The model specifies a very specific error structure of the unobserved (and, hence, omitted) variables, with a very specific distribution. In practice, it remains important to search for these unobserved variables directly. Thus, in their seminal contribution, Hausman et al. (1984) point out that addition of plausible explanatory variables is an important first step, which should have the effect of reducing the unobserved component of the heterogeneity. In their application, they note, for example, that allowing for time variation in the effectiveness of R&D in generating patents reduces such heterogeneity and hence provides for a better empirical specification. As they also note, the same purpose is served by fixed effects—in our case, country and time fixed effects. The country fixed effects imply that unchanging but unobserved country-specific factors influence the spell; and the time fixed effects allow for unobserved effects in different years, e.g., threat of financial contagion across countries.

But there remain limits to adding explanatory variables. One solution lies then in correcting for standard errors. As Winkelmann and Boes (2006, p. 289) point out, "there are many possible reasons, apart from unobserved heterogeneity, why the conditional variance in the Poisson model would depart from the conditional mean." The departure has consequences similar to those arising from heteroscedasticity in linear regression models: "the parameter estimates remain consistent, but the usual variance matrix is inconsistent and the estimator is inefficient." They recommend using the Poisson model with robust standard errors. They caution, moreover, that a mechanical resort to alternative estimators is risky since the alternatives may fail even in generating consistent estimates if the underlying assumptions are violated. Such would be the case for a Negative Binomial model if the unobserved heterogeneity was not gamma distributed.

The procedure we follow, therefore, is to gradually build up the Poisson model by adding explanatory variables and, in particular, allowing for time variation in response. Throughout we include country and time dummies and report robust standard errors clustered on the country. Use of country dummies is possible since virtually all countries in the sample have multiple programs, allowing control for unchanging country-specific features that may condition the negotiation with the IMF. We provide comparisons with the Negative Binomial model and show that the fully-specified Poisson and Negative Binomial models have virtually-indistinguishable results.[11]

III. Economic Vulnerability and Speed of Response

While preserving international stability requires acting expeditiously, program design may imply proceeding more cautiously. In responding to financial crises, does the IMF accord priority to speed of response necessary for stemming a country's external vulnerability or is the focus, instead, on the time needed to design complex reforms to reverse the conditions that led to the crisis? If a country facing a crisis is a victim of events beyond its control, speed is unequivocally of the essence. But typically the crisis reflects the accumulation of imbalances from policy errors. Reversing policy is needed to set the country on a more sustainable path and, in doing so, to safeguard the Fund's resources being loaned to the country. Balancing the need for speed with protecting its resources has been a continuing challenge for the Fund. The operational question is whether the policy conditionality accompanying a Fund-supported program can be agreed on rapidly. While some programs (including with deep, possibly intrusive, conditionality) have been put together quickly, the presumption is that this will generally not be the case.

[11] The Negative Binomial model also includes country and time dummies, as recommended by Allison and Waterman (2002). These authors point out that the "fixed-effects" Negative Binomial model proposed by Hausman et al. (1984) is not a true fixed-effects model and suggest including fixed effects directly, advice we have followed. Also, the Poisson model can be interpreted as a duration model with a constant hazard rate. For robustness check, we ran duration models with different assumptions about the hazard rates and results are qualitatively similar. These estimations are not reported in the paper but they are available upon request.

Throughout, the regressions control for the presence of a pre-existing IMF program at the time of the crisis. As expected, and as reported in Table 3, if a program is already in place, all else equal, the existing program presumably provides an umbrella for Fund assistance and hence reduces the urgency for a new program.[12] With that control in place, this section explores how the severity of the crisis influences the speed of response. To that end, we employ several measures to assess the country's vulnerability, with a focus on the country's balance of payments position. First, in line with Kaminsky and Reinhart (1999), and as noted above, we consider a crisis more severe the larger is the loss of reserves (in the six months before the date of the crisis) and the greater is the exchange rate depreciation (in the six months after the date of the crisis).[13] The results are as expected. A larger depreciation and a larger loss of reserves are, in fact, associated with a faster response speed (a smaller spell). The level of statistical significance does vary across specifications. Exchange rate depreciation is always significant at the conventional 5 percent level in this full sample. Reserve loss is significant at either the 10 or at the 5 percent significance levels.

Second, we assess the influence of global conditions at the time of the crisis. Here the results are less conclusive. While several possibilities exist, one that is often considered important is the role of "global" interest rates. Typically, this is proxied by a U.S. rate, given the dominance of U.S. capital markets. We use the Federal Funds rate, reflecting the concern that a tight U.S. monetary policy is associated with restricted emerging market access to international capital (Calvo, Leiderman, and Reinhart, 1996). A higher Federal Funds rate is actually associated with a slower program conclusion (Columns 1 and 4), although the coefficient is not significant (see Eichengreen and Mody, 1998 for a discussion of the offsetting effects of U.S. monetary policy). The petroleum price variable has a positive coefficient though again it is not significant. Higher petroleum prices also have offsetting effects: they damage some current accounts (requiring external assistance) but they also increase surpluses in oil-rich countries and recycling of these surpluses ease conditions in capital markets and hence reduce the pressure to respond speedily (see also Gupta, Eichengreen, and Mody 2008). The possibility that these two effects of petroleum price have changed in relative strength over time is pursued below.[14]

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[12] The Fund can modify the existing program to accommodate the new post-crisis situation, through a new "letter of intent" and fresh disbursement

[13] We considered somewhat different time spans, but with qualitatively similar results.

[14] It is also likely that petroleum price will influence countries differently, depending, for example, on whether they are oil importers or exporters. However, inclusion of country dummies implies that controlling for country characteristics an increase over time in the prevailing petroleum price at successive crises reduced the urgency of a needed response from the IMF.

Next, in Table 4, we consider a variety of measures in the year the program was initiated. Where the spell is short, they also reflect conditions close to the crisis; for longer spells, they capture the evolution following the crisis and the conditions closer to the decision on the IMF program. The finding is that the debt service-to-exports ratio and the occurrence of a systemic banking crisis apparently do not, on average, speed up an IMF program. In contrast, a sudden stop in capital flows is a call to action and produces a quick response. This is consistent with the Fund's mandate to stem the after-shocks from developments in international capital markets. A more rapid growth rate, not surprisingly, slows down program speed, as the descriptive statistics in Table 2 had suggested. Inclusion of growth rate reduces somewhat the strength of the sudden stop variable—again, not surprising since sudden stops are correlated with slower growth. Note also that the variables representing exchange rate depreciation and loss of reserves maintain their signs, but the level of significance of the latter declines, suggesting further correlation between the vulnerability variables.

The test diagnostics for the Poisson regressions in Table 2 suggest that "over dispersion" (variance of the Poisson parameter greater than its mean) cannot be rejected. As discussed above, robust standard errors help correct for the possibility that the standard errors are underestimated and the fact that the Negative Binomial regression gives similar results indicates that there is merit to the specification employed. In the spirit, however, of Hausman et al. (1984), a question of interest is whether the unobserved heterogeneity reflects changes over time in the responsiveness to the triggers that lead to initiation of IMF programs. In other words, has there been a change in how quickly a Fund program is established for a given exchange rate depreciation? Has the demand for speed increased with more encompassing financial globalization? The answer appears to be a clear "yes."

IV. CHANGES OVER TIME

The debt crises of the 1980s highlighted the need for speed in responding to crises, reflecting the increasing vulnerability to rapid capital outflows. By Boughton's (1997, p.3) assessment, prior to the international debt crisis of 1982, "... the Fund had helped countries through numerous crises, but its role in those cases was essentially similar to its noncrisis lending activities." However, "... when the 1982 crisis erupted, the Fund's response quickly broadened into a more systemic function." In particular, one country's challenge to service its debt placed other countries at risk since lenders' balance sheets were weakened and/or lenders perceived risks as correlated across countries. These lessons, he concludes, were learnt gradually but came to be incorporated in the Fund's operational approach by the second half of the 1980s, as the Fund increasingly viewed itself as a "crisis manager."

Bordo and James (2000, p. 32-33) also draw attention to the pressures to act quickly. They point to the growing reliance of emerging market governments and businesses on borrowing from dispersed lenders through international capital markets. Already, according to Boughton, Mexico's default on bank debt in 1982 had raised spillover and systemic concerns

and alerted the Fund on the need for speed. The next big test was Mexico's "tesobono" crisis of 1994-1995. The significant shift towards capital markets implied that:

> "...much more rapid action was required, and also a greater commitment of funds, because the number of actors was so much greater. It was impossible to use the strategy of 1982, and corral the foreign investors (who were now not banks, but instead were represented in innumerable mutual and pension funds). There was a fear of a global contagion, and a belief that the only way to limit such contagion lay in the extension of some protection to investors."

The trend has been relentless. With financial markets larger and more integrated, small shifts in sentiment can severely hurt not only the country directly affected but can, through various channels of contagion, draw other countries, including so-called "innocent bystanders," into the financial turbulence. To limit this damage, speed is an important element of the policy response.

We explore these considerations in two different ways. First, we combined the crisis metrics into a consolidated "vulnerability" indicator. One such indicator is the first principal component of the country-specific vulnerability measures, which include exchange rate depreciation, reserve loss, debt service ratio, and whether the country experienced a sudden stop or a systemic banking crisis.[15] The first principal component, which explained about 30 percent of the variation in vulnerability, captured a crisis that was associated with some loss in reserves, followed by a large depreciation, and then by a sudden stop. We allowed the response to vulnerability and petroleum price to vary over time, in the spirit of Hausman et al. (1984).

The results are reported in Table 5. In columns (1) and (2), the diagnostics for both the Poisson and the Negative Binomial regressions still indicate the presence of over dispersion but both approaches produce rather similar results. The interaction between the vulnerability index and time is negative and statistically significant. Thus, over time, the coefficient on the vulnerability index becomes increasingly negative: alternatively stated, as time has gone by, the same degree of vulnerability has elicited a more rapid response. The petroleum price variable, taken by itself, has a negative sign (with borderline statistical significance). In the early years of the sample, then, an increase in petroleum price hurt a country's current account and elicited a more rapid program response. But, over time, reflected in the positive and significant coefficient on the interaction between petroleum price and time, this effect waned and, in fact, a higher petroleum price was associated with a slower response. The evidence is not conclusive—not least because the sign on the petroleum price variable, while staying positive for the later part of the sample, is unstable in terms of statistical significance.

[15] Addition of growth in per capita income to this list maintained the sign and statistical significance of the findings reported below.

However, the evidence does point to a change from a negative effect to one that was either positive or neutral.

Finally, these same regressions also show that the time trend itself has a negative coefficient. The trend variable is a black box and not too much can be read into it. But it again implies a tendency for a speedier response, one that reinforces the tendency to respond more urgently to a particular level of vulnerability. Institutional learning—both within the IMF and its member states—probably contributed to the ability to meet the demand for speed.

Next, we check the results obtained with the time-trend interactions by dividing the sample into two parts: 1977-1985 and 1986-2002. The first period captures the second oil shock (in 1979) and its aftermath; it is also the period of rapid build up of international debt, followed by the debt crisis, centered on Latin America. Unable to repay debt used to finance large current account deficits, several countries had to restructure their external debt, were cut off temporarily from sources of external credit, and experienced negative growth (Edwards 1995 and Table 2 above). The crisis, as Boughton has emphasized, was a turning point in the Fund's recognition of the need for speed. In the second period, the consolidation following the Latin American debt crisis initially implied a withdrawal of foreign capital flows from emerging markets but then witnessed a renewed inflow of international capital that culminated in "irrationally exuberant" lending and the string of emerging market crises. Since the two time periods cannot be dated exactly, we present some alternatives below.

Three findings emerge (Table 6). First, the presence of an existing program at the time of a crisis had little effect in the first period but was used for significant breathing room before the initiation of a new program in the second period.[16] Thus apparently, in the early years of the sample, a crisis required the development of new policy priorities and hence recourse to a new program-support arrangement. In contrast, in the second period, while some programs were initiated very rapidly, greater recourse to ongoing programs to channel resources and foster adjustment policies allowed for deliberation even as capital inflows and outflows speeded up.

The two other findings from dividing the time periods mirror those of the time-varying effects of vulnerability and petroleum price observed in Table 5. We see here that the response to vulnerability is more aggressive (with the caveat that an existing program permitted some latitude). Also, the change in the influence of petroleum price is confirmed. Between 1977 and 1985, a higher petroleum price, likely through its effect on a country's current account deficit, invited a more rapid IMF response. After 1985, a higher petroleum

[16] This result was not evident above by simply interacting the existing program dummy with time, but holds up strongly and consistently whenever the sample is divided into two parts. Since in both periods about one-third of the crises were associated with existing programs, the result is not the consequence of a difference on that account.

price possibly offset the negative effect by recycling petrodollars back through the capital account, reducing the urgency of response. It is possible that recycled petrodollars were more a part of capital markets in the second period than in the first, when they were largely confined to slower-moving international banks. To some extent, then, there is the implication that while larger capital flows posed more of a threat in the second period, the size of the international capital markets also provided financial recourse to supplement IMF resources, which could as a consequence be held back, at least in some instances.

The test statistics are encouraging. The hypothesis of over dispersion is rejected for the first period and the second period, if that is thought to have started from 1988. The second period, either from 1984 or 1986 still tends to indicate the presence of unobserved heterogeneity, implying further search for omitted variables.

V. The Borrower's Relationship with the Fund

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.[17] Barro and Lee find that a larger quota share raises the likelihood of a 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. Moreover, as the British example following the Suez crisis shows, a significant quota may yet prove insufficient. Boughton (2001) notes that the British, facing a run on the sterling in the aftermath of the 1956 Suez crisis, looked to the "apolitical" support of the IMF to draw on the large amounts to which they were "virtually entitled" as one of the two major founding countries and the second-largest member. But success in doing so hinged on garnering U.S. backing through compliance with the U.S.-supported United Nations' resolution to resolve the political crisis.

A growing number of statistical studies have concluded that political and economic affinity with the major IMF shareholders places a country in a stronger position to obtain IMF support. Thacker (1999) first 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. Unlike in other studies, Barro and Lee (2005) also found similar effects vis-à-vis European shareholders. Broz and Hawes (2006) find that private financial lobbies influence U.S. Congressional votes in favor of IMF quota increases. Along with

[17] "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 and its voting power, and has a bearing on its access to IMF financing." http://www.imf.org/external/np/exr/facts/quotas.htm.

Oatley and Yackee (2004), they also report that, all else equal, 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.[18]

Our results are reported in Table 7.[19] We revert here to identifying the specific vulnerability variables to examine their roles separately rather than in a composite indicator. We present results for the two periods, with the full set of variables used so far and then pared down to allow for multicollinearity. Column (2) is a more parsimonious version of column (1) for the first period (i.e., before 1986). In that period, it appears that the two sources of vulnerability were a country's currency depreciation and a rise in the petroleum price. This lends some plausibility to a view that most crises during this period had their origins primarily in current account imbalances.[20] Although both IMF governance variables have the expected negative sign, implying that a larger quota and closer affiliation to the US helped speed up program negotiation, neither of the two is significant. In column (3), we add the country's per capita GDP (in PPP terms). This addition is another effort to control for institutional and other omitted variables. The results reported remain unchanged but we do find in the first period that countries with higher per capita incomes were prone to more speedily conclude negotiations. Presumably, stronger institutions helped.

For the second period, starting in 1986, the results are different in important respects (columns 4 and 5). The exchange rate depreciation produced a much faster Fund response than in the first period. Moreover, a broader range of vulnerability indices appear to have exercised influence. The occurrence of a sudden stop was particularly potent. Loss of reserves and higher debt-service to export ratio also elicited a faster response, although their statistical significance is reduced when the country's per capita income and growth rate are also included in the regression, suggesting multicollinearity. Also, as reported above, the existing program dummy is positive and significant, reaffirming the use in the second period of existing programs to provide support when a new crisis emerged. The petroleum price variable remains positive though is not significant at the 5 percent level.

The IMF quota share is, as in the first period, negative but insignificant. There is, however, a key difference with respect to the first period. Now closer affinity to the U.S. appears significantly associated with faster program negotiation. It is as if during this latter period the broader sources of vulnerability in the context of faster moving capital markets increased the

[18] They find much weaker evidence

[19] A broader set of Fund incentives and capabilities for response could be considered but metrics for these are not easy to define. Similarly, of Fund conditionality and its intrusiveness could impact response speed. Once again, persuasively measures of conditionality (beyond just the number of conditions) are required.

[20] Their manifestation as debt crises with collateral implications for international banks and, hence, for possible contagion, raised the broader issues of the need for speed.

value of speed and induced countries to use their political links to ensure timely decisions in the context of higher risks from delays. This result echoes Thacker's (1999) and Oatley and Yackee's (2004) findings. They report that the relevance of affinity with the U.S. in securing access to IMF lending increased sharply in the late 1980s. We find that same trend for the speed of response. Thacker (1999) notes but leaves unresolved the reason for this shift. The conclusion of the Cold War may have led some to expect that the U.S. interest in political alliances would diminish over time. While we do not pursue this question in any great depth, results in the next section suggest that economic interests became a more salient basis for political alliances, in line with Oatley and Yackee (2004) and Broz and Hawkes (2006).

With the addition of the governance variables in Table 7, even the results for the 1986-2002 period show no evidence of over dispersion. A longer "second period" starting in 1984 fails the over dispersion test and shows considerable differences in results from that starting in 1986. In particular, the value of political affiliation to the United States kicks in after 1986. Clearly, these are not formal tests given our short time periods and, as such, our assumption of the timing of the break in 1985 should be treated as indicative.

VI. HAS GLOBALIZATION CURTAILED DELIBERATIVE DEMOCRACY?

The influence of democracy on response to crises is not unambiguous. Democracies are inherently slow because they are based on the obligation to encourage consensus. It could be that more deeply-rooted, deliberative democracies—with more voices included in achieving a policy consensus—slow down the negotiations in agreeing on IMF programs. However, fast-moving financial markets may trump deliberation. Quinn (2000) even argues that the interests supporting political participation and economic openness are aligned because they view each as reinforcing the other. As such, the curtailment of deliberation may be a conscious choice backed by institutions that permit rapid decisions. As such, the question is whether democracies are able to undertake quick action when circumstances so require.[21]

Of course, empirical implementation is not straightforward. Democracies come in many varieties. And the variations, which imply differing degrees of voice and accountability, have significant implications for economic decisions. The conventional measure of political participation in democratic processes is the Polity IV measure. This measure ranges for -10 representing the most autocratic regime to +10 for the most democratic. As others have done (see Quinn 2000 and also the Polity IV webpage[22]), we divide regimes into three categories. Observations with values of -5 to +5 are the base group (with the democracy dummy taking the value zero): those with higher values are democratic (and the dummy variable takes the

[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] http://www.systemicpeace.org/polity/polity4.htm

value 1) and those with lower values are autocracies (with the dummy variable defined as -1).[23] In addition, for our purpose, Henisz's (2002) measure of veto points is particularly attractive. To contain the possibility of arbitrary decision making, democratic institutions may introduce checks and balances. The PolConIII indicator, which we use here, measures the extent to which the legislature can constrain the executive.[24] More veto players can voice interest in a range of policy alternatives and the ensuing debate can delay decisions. This possibility that veto players slow decision making has, to our knowledge, not been tested. The focus, instead, has been on documenting an association between more veto players and better investment and growth outcomes (see, for example, Henisz, 2002). The unstated assumption has been that while more veto points may result in slower decisions, the institutional integrity resulting from the greater checks and balances fosters more carefully-considered and hence superior decisions. Also, from the point of view of research design, the Henisz variables show greater variability over time within a country than do most institutional variables.

What do the results show? In Table 8, we pull together our key findings along with the additional results on the role of democracy. Note in column 1, for the whole sample, the democracy dummy variable is not significant. When we add the measure of executive constraints (PolConIII), where a higher value implies more veto points, the negative sign on the variable, implies that more veto points have actually been associated with more rapid response. Note, interestingly, that the introduction of executive constraints increases the point estimate and the t-statistic for the democracy dummy. The implication seems to be that democracies have (at least two) divergent tendencies: political participation may slow things down but institutions that curtail arbitrary decision making are also given the flexibility to make quick decisions.

These two facets of democracy are especially evident in the first period. Notice again that the democracy dummy by itself is insignificant. But when the executive controls variable is introduced then both become significant. More democracy is associated with slower decisions but executive constraints increase decision speeds. Presumably, democracies with weaker constraints are practice, subject to strong lobbying pressures from interest groups. Unchanneled, they slow things down. Constraints are helpful because they bring greater structure to the process. Also, as implied by Vreeland (2002), where more veto players exist, the executive has greater incentive to seek external support. In a crisis that incentive is exercised. The implication also is that democracies with larger veto points do allow escape clauses for such events. Finally, the Heinsz constraints variable may mainly be a measure of

[23] In practice, various authors choose different cut off points. Our key results do not appear sensitive to the exact definition.

[24] 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.

broader institutional quality. The accompanying policy credibility permits more rapid program negotiation. However, notice that the veto points variable it is significant even though GDP per capita is included in the regression.

In the second period, the democracy dummy is never significant. It could be that the "wave" of democracy that emerged in the mid-1970s was still in its early stages during our first period, 1977-1985, and that political participation had not matured in many of the new democracies. Participants learned over time. The results for the second period continue to show that the political constraints variable has a negative sign, but the magnitude of the coefficient and its significance decline. This is especially so if the second period is considered to start in 1986. But a further examination suggests that an interesting interaction between economic openness and politics may have been ongoing, which further sharpens the results.

If more openness to international markets in the second period called for more rapid response, was it also the case that more open countries responded quicker? One constraint on this analysis is the limited data on capital account openness, especially but not only in the first period. However, a measure of trade openness, the sum of exports and imports normalized by GDP, is available. The results we report here with trade openness are largely corroborated by the smaller samples using the Chinn-Ito measure of capital account openness. Moreover, relative to first period, the second period shows a sharp rise in correlation (from about zero to over 0.3) between trade and capital account openness (mirroring at the country level the aggregate trends in Figure 1).

With those preliminaries, the results in Table 9 show that openness by itself does not influence speed. In the second period, however, the loss of reserves leads to more prompt action, the more open the economy is.[25] Thus, the effective response to loss of reserves (from column 4 of Table 9) is 0.71 + 0.01*Trade/GDP. This is plotted in Figure 2(a) along with a 5 percent confidence interval band. For lower levels of trade-to-GDP, reserve loss is actually associated with slower response and for the lowest 10 percent of the observations of the trade-to-GDP ratio, the effective coefficient is marginally significant. However, as the trade-to-GDP ratio increases, particularly beyond 65 percent, reserve losses begin to be viewed with greater concern, leading to more rapid program conclusion. Notice in Figure 2(b) that the trade-to-GDP ratio itself is never significant.

[25] Other measures of crisis severity did not generate interesting results.

Figure 2(a): Effective Coefficient on Reserve Loss

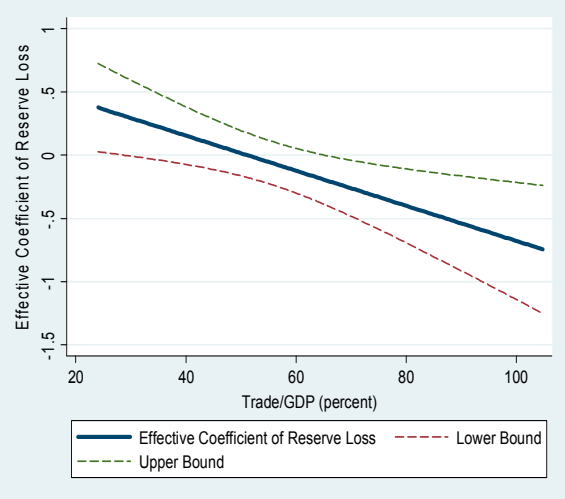
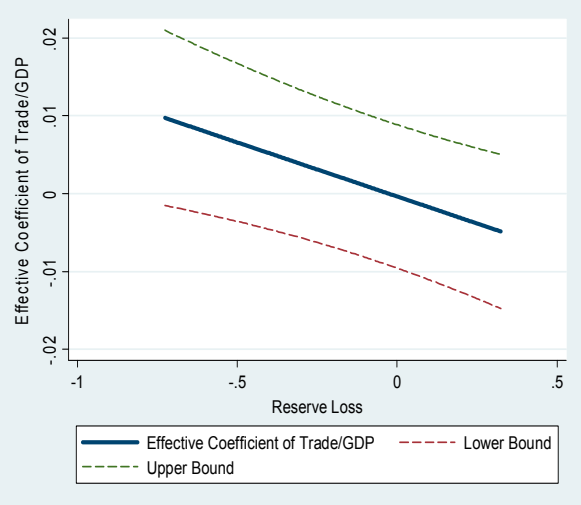


Figure 2(b): Effective Coefficient on Trade/GDP



Two by products of this exercise suggest interactions between economic openness and politics. First, the executive constraints variable is now significant even in the second period starting 1986 and with a point estimate that is much closer to that in the first period. The inference is that some open countries experiencing loss of reserves had low executive constraints. Once that influence is controlled for, the value of executive constraints is clearer even in the second period. Second, the U.S. affinity variable reduces in significance in the second period (though it still has a p-value of about 0.07 and a point estimate that is considerably larger than in the first period). This is the consequence of much greater correlation between trade openness and the U.S. affinity variable in the second period (relative to the first). Thus, there is some basis to the possibility that over time, in an increasingly integrated world economy, U.S. political alliances are being driven by mutual commercial interests.

VII. CONCLUSIONS

This paper has made a first effort at mapping the Fund's response speed and examining its determinants. One of our conclusions is that the Fund's approach to speed has shifted in important ways since the mid-1980s as the pace of financial globalization has increased. The relevance of financial integration is further supported by the finding that the more open the economy the faster it responded to reserve losses in the second period. But the data are limited and identifying these shifts is no easy matter. The results, although consistent with the Fund's increasing assumption of a crisis manager's role in integrating global economy, should be regarded as a benchmark for review and further analysis.

The common theme for the entire period of our study, from 1977 to 2002 is that the Fund has responded faster when the threat of an economic slide has been greater. From 1977-1985,

crises took the form of current account distress, accompanied by large growth shocks. More severe varieties of these crises motivated the Fund to move faster, but the pressure to do so was less than after about 1985. 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 as did debt service obligations and reserve losses (for more open economies) in determining the response speed. Recognizing the salience of these factors was, apparently, necessary to contain the spread of the crisis with a view to maintaining international financial stability. We did not pursue the difficult question of whether the Fund's intervention helped raise the country's growth rate: that was not the intent of the intervention, in any case. Rather, growth appears to have recovered, more so the greater the initial shock. While this may have mainly reflected mean reversion, the finding does speak to the ongoing operational discussion on design of rapid access Fund facilities. *Prima facie* quick and predictable delivery of support necessary can help roll back a crisis while safeguarding the Fund's financial position.[26]

In line with case studies and statistical analyses, the role of the United States has appeared as an important one. The results suggest that the U.S. has facilitated rapid decisions and that this role has increased over time. The evidence in this paper also suggests that this greater U.S. role has been associated with a shift from the Cold War period to greater interest in economic alliances in an ever more integrated global market place.

The more intriguing results relate to the functioning of democracy in the midst of a crisis. With the onset of a new wave of global democratization in the mid-1970s, political participation apparently hindered rapid response. However, even in that early period, it appears that institutional checks that imposed constraints on executives were actually associated with more rapid program negotiation. We infer that to imply that the lack of formal constraints may only mask rigidities, while formal constraints allow for organized and credible choices, an inference that is consistent with the findings of many others that more constraints lead to better economic outcomes. Our contribution here is that more constraints need not slow the policymaking process. In the second period, political participation appears to have matured at least to the extent that it no longer slowed response speed. The constructive role of executive constraints continued into the second period, though perhaps in a more muted form. Overall, it appears that democracies have adapted to the need for speed. Thus, domestic democracy rather, than being subordinated to global finance, has sought to grapple with the novelty of these new generation crises and has attempted to come to grip with the appropriate mechanisms of reform. If true, this is an outcome that is good for democracy and for the future of financial globalization.

[26] Rolling back a crisis does not imply stimulating growth, a dimension of effectiveness that would be worth pursuing but requires further careful analysis.

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

	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**
1977-1985	17 [6]	21 [3]	**19** [9]
1986-2002	13 [4]	18 [2]	**15** [6]
All SBAs	**16** [5]	**19** [2]	**17** [7]

Note: As discussed in the text, these SBAs refer only to those that were associated with a crisis.

Table 2: Change in per capita GDP growth rates following SBA

	1977-1985			*1986-2002*		
	(1)	(2)	(3)	(4)	(5)	*(6)*
	Growth rate in year program starts	Three-year average growth rate after start of IMF program	Change in growth rate, (2)-(1)	Growth rate in year program starts	Three-year average growth rate after start of IMF program	*Change in growth rate, (5)-(4)*
All SBAs	-0.6	1.2	1.8	0.1	1.3	*1.2*
With existing program	0.2	1.3	1.1	1.7	2.3	*0.6*
No existing program	-1.8	0.4	2.2	-0.2	1.4	*1.6*
Spell ≤8	-2.7	0.4	3.1	-1.6	1.0	*2.6*
Spell 9-16	-1.6	0.9	2.5	0.1	2.0	*1.9*
Spell ≥17	*0.1*	*1.4*	*1.3*	*0.4*	*1.2*	*0.8*

Table 3: Country and Global Conditions at the Time of Crisis

	(1)	(2)	(3)	(4)	(5)	(6)
	Dependent Variable: Spell					
	Poisson Regression			Negative Binomial Regression		
Existing	0.27	0.23	0.23	0.31	0.25	0.25
program dummy	[3.93]***	[3.33]***	[3.35]***	[3.42]***	[2.77]***	[2.78]***
Exchange rate	-0.12	-0.11	-0.11	-0.11	-0.11	-0.11
depreciation	[3.23]***	[3.42]***	[3.66]***	[2.72]***	[2.77]***	[2.77]***
Loss of	-0.04	-0.04	-0.03	-0.04	-0.04	-0.03
reserves	[2.20]**	[2.13]**	[1.81]*	[1.88]*	[1.92]*	[1.98]**
Federal funds	0.03	0.02		0.02	0.01	
rate	[1.16]	[0.81]		[0.86]	[0.46]	
Log of petroleum		0.33	0.39		0.47	0.50
price		[0.82]	[0.97]		[0.94]	[1.00]
Observations	178	178	178	178	178	178
log likelihood	-564.64	-562.83	-563.40	-549.10	-547.49	-547.59
Notes: 1. Coefficients for country and year dummies are not reported; 2. Robust z statistics in brackets; 3. * significant at 10%; ** significant at 5%; *** significant at 1%.						

Table 4: The Role of Economic Conditions Following the Crisis

	(1)	(2)	(3)	(4)	(5)	(6)
	Dependent Variable: Spell					
	Poisson Regression			Negative Binomial Regression		
Existing	0.23	0.22	0.21	0.24	0.24	0.23
program dummy	[3.25]***	[3.34]***	[3.11]***	[2.72]***	[2.73]***	[2.53]**
Exchange rate	-0.09	-0.09	-0.09	-0.09	-0.08	-0.09
Depreciation	[3.54]***	[3.23]***	[3.47]***	[2.42]**	[2.22]**	[2.28]**
Loss of	-0.03	-0.02	-0.03	-0.03	-0.03	-0.03
Reserves	[1.50]	[1.49]	[1.58]	[1.73]*	[1.68]*	[1.83]*
Log of petroleum	0.41	0.41	0.48	0.52	0.52	0.57
price	[0.98]	[0.97]	[1.14]	[1.05]	[1.04]	[1.21]
Debt service-	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
to-exports	[0.25]	[0.29]	[0.37]	[0.42]	[0.48]	[0.58]
Sudden stop	-0.46	-0.46	-0.39	-0.48	-0.49	-0.41
	[2.03]**	[2.05]**	[1.81]*	[2.67]***	[2.74]***	[2.30]**
Systemic		-0.08			-0.10	
banking crisis		[0.64]			[0.89]	
Per capita			0.01			0.01
GDP growth			[1.72]*			[1.95]*
Observations	178	178	176	178	178	176
log likelihood	-557.20	-556.80	-548.73	-543.64	-543.25	-536.33
Notes: 1. Coefficients for country and year dummies not reported; 2. Robust z statistics in brackets; 3. * significant at 10%; ** significant at 5%; *** significant at 1%						

Table 5: Changing Response to Vulnerability

	(1)	(2)
	Dependent Variable: Spell	
	Poisson Regression	Negative Binomial Regression
Existing program dummy	0.18	0.19
	[3.08]***	[2.30]**
Vulnerability	0.04	0.04
	[0.75]	[0.68]
Vulnerability*Time	-0.01	-0.01
	[2.24]**	[2.14]**
Log of petroleum price	-0.85	-0.89
	[1.84]*	[1.98]**
Log of petroleum price*Time	0.16	0.17
	[3.58]***	[4.17]***
Time trend	-0.71	-0.72
	[3.60]***	[4.22]***
Observations	178	178
log likelihood	-535.17	-529.83
Notes: 1. Coefficients for country and year dummies not reported; 2. Robust z statistics in brackets; 3. * significant at 10%; ** significant at 5%; *** significant at 1%		

Table 6: Before and After the Latin American Debt Crisis

	(1)	(2)	(3)	(4)
	Dependent Variable: Spell (Poisson Regression)			
	1977-1985	1984-2002	1986-2002	1988-2002
Existing program dummy	0.04	0.34	0.45	0.49
	[0.34]	[3.21]***	[3.40]***	[2.54]**
Vulnerability	-0.05	-0.07	-0.11	-0.12
	[2.12]**	[2.18]**	[2.75]***	[2.63]***
Log of petroleum price	-0.52	1.49	1.36	1.10
	[1.79]*	[3.59]***	[2.79]***	[1.78]*
Observations	79	122	99	84
log likelihood	-223.53	-345.85	-266.07	-221.15
Notes: 1. Coefficients for country and year dummies not reported; 2. Robust z statistics in brackets; 3. * significant at 10%; ** significant at 5%; *** significant at 1%				

Table 7: IMF Governance

	(1)	(2)	(3)	(4)	(5)	(6)
	Dependent Variable: Spell (Poisson Regression)					
	1977-1985			1986-2002		1988-2002
Existing	0.02	0.04	0.01	0.53	0.46	0.54
program dummy	[0.12]	[0.29]	[0.11]	[3.60]***	[3.58]***	[3.62]***
Exchange rate	-0.11	-0.11	-0.14	-0.57	-0.39	-0.46
depreciation	[3.35]***	[3.14]***	[3.74]***	[2.65]***	[1.92]*	[2.14]**
Loss of	-0.02			-0.10	-0.14	-0.21
reserves	[1.22]			[1.40]	[2.15]**	[1.92]*
Log of	-0.59	-0.60	-0.75	0.80	0.90	0.15
petroleum price	[2.14]**	[2.24]**	[2.89]***	[1.71]*	[1.89]*	[0.23]
Sudden stop	0.27			-0.66	-0.81	-0.64
	[0.91]			[3.39]***	[5.07]***	[3.91]***
Debt service-	0.01			-0.01	-0.01	-0.01
to- exports	[1.01]			[1.41]	[1.90]*	[2.12]**
Per capita	0.00			0.01		
GDP growth	[0.08]			[1.56]		
IMF quota	-0.98	-0.87	-1.38	-2.70	-2.42	2.33
share	[0.90]	[0.89]	[1.47]	[1.03]	[0.95]	[0.67]
UN voting	-0.23	-0.32	-0.60	-2.05	-1.72	-1.67
affinity with US	[0.46]	[0.82]	[1.39]	[3.84]***	[3.10]***	[3.11]***
Log per capita			-1.46	-1.32		
GDP			[2.31]**	[1.36]		
Observations	77	79	75	98	99	84
log likelihood	-215.12	-222.83	-209.82	-248.03	-253.13	-211.00
Notes: 1. Coefficients for country and year dummies not reported; 2. Robust z statistics in brackets; 3. * significant at 10%; ** significant at 5%; *** significant at 1%						

Table 8: Does Democracy Matter?

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Dependent Variable: Spell (Poisson Regression)						
	1977-2002		1977-1985			1986-2002	1988-2002
Existing	0.27	0.24	0.03	0.02	0.01	0.47	0.44
program dummy	[3.20]***	[2.85]***	[0.22]	[0.16]	[0.10]	[3.42]***	[3.01]***
Exchange rate	-0.10	-0.11	-0.14	-0.12	-0.10	-0.47	-0.60
depreciation	[2.83]***	[2.72]***	[3.76]***	[2.55]**	[3.39]***	[2.09]**	[1.97]**
Loss of	-0.02	-0.01	-0.01	-0.01	-0.004	-0.08	-0.05
reserves	[1.16]	[0.94]	[1.04]	[0.54]	[0.36]	[0.97]	[0.52]
Log of	0.36	0.24	-0.73	-0.60	-0.82	0.82	0.37
petroleum price	[0.90]	[0.64]	[2.04]**	[1.46]	[2.78]***	[1.51]	[0.59]
Debt service-	-0.003	-0.01	0.01			-0.01	-0.01
to-exports	[0.72]	[1.15]	[1.27]			[1.37]	[1.92]*
Sudden stop	-0.35	-0.28	0.41			-0.55	-0.38
	[1.66]*	[1.31]	[1.48]			[2.57]**	[1.93]*
Per capita	0.01	0.01	0.01			0.02	0.01
GDP growth	[1.14]	[0.99]	[0.43]			[1.91]*	[0.84]
UN voting	-0.24	-0.17	-0.30	-0.52	-0.88	-1.89	-1.88
affinity with US	[0.71]	[0.48]	[0.61]	[1.11]	[2.23]**	[3.44]***	[3.52]***
Log per	-0.68	-0.82	-1.73	-1.40	-1.52	-1.22	-1.02
Capita GDP	[1.62]	[1.92]*	[2.64]***	[2.22]**	[2.51]**	[1.20]	[0.94]
Democracy	0.08	0.13	0.03	0.04	0.24	-0.06	0.05
dummy	[0.78]	[1.34]	[0.26]	[0.35]	[2.72]***	[0.38]	[0.23]
Executive		-0.84			-1.68	-0.52	-0.96
constraints		[2.29]**			[4.30]***	[1.24]	[2.25]**
Observations	173	173	75	75	75	98	84
log likelihood	-535.95	-530.78	-208.29	-210.57	-204.28	-247.77	-207.85

Notes: 1. Coefficients for Country and year dummies not reported; 2. Robust z statistics in brackets; 3.* significant at 10%; ** significant at 5%; *** significant at 1%.

Table 9: Economic Openness and Politics

	(1)	(2)	(3)	(4)
	Dependent Variable: Spell (Poisson Regression)			
	1977-2002		1977-1985	1986-2002
	(1)	(2)	(3)	(4)
Existing program	0.24	0.23	0.05	0.44
dummy	[2.94]***	[2.84]***	[0.44]	[2.74]***
Exchange rate	-0.11	-0.11	-0.10	-0.19
depreciation	[2.77]***	[2.73]***	[3.00]***	[0.79]
Loss of	-0.01	0.1	0.01	0.71
reserves	[0.91]	[1.43]	[0.08]	[2.15]**
Log of	0.23	0.26	-0.9	0.72
petroleum price	[0.63]	[0.72]	[2.75]***	[1.34]
Debt service-	-0.01	-0.01		-0.01
to-exports	[1.22]	[1.32]		[2.54]**
Sudden stop	-0.26	-0.27		-0.51
	[1.24]	[1.26]		[2.96]***
Per capita GDP growth	0.01	0.01		0.02
	[1.05]	[0.90]		[1.57]
UN voting	-0.17	-0.14	-0.66	-1.18
affinity with US	[0.49]	[0.40]	[1.11]	[1.81]*
Log per	-0.81	-0.81	-1.36	-0.99
Capita GDP	[1.91]*	[1.87]*	[1.77]*	[1.14]
Democracy Dummy	0.13	0.13	0.23	-0.25
	[1.37]	[1.30]	[2.38]**	[1.30]
Executive Constraints	-0.86	-0.86	-1.74	-1.24
	[2.26]**	[2.25]**	[3.97]***	[2.49]**
Trade-to-GDP ratio	-0.001	-0.001	-0.004	-0.0003
	[0.24]	[0.34]	[0.57]	[0.07]
Loss of reserves interacted		-0.003	0.0002	-0.01
with the trade-to-GDP ratio		[1.55]	[0.10]	[2.45]**
Observations	173	173	75	98
log likelihood	-530.72	-528.36	-203.88	-244.36
Notes: 1. Coefficients for Country and year dummies not reported; 2. Robust z statistics in brackets; 3.* significant at 10%; ** significant at 5%; *** significant at 1%				

Appendix I. Data Appendix

To 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.

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

Variable	Description and Sources of Variables
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)
Total Debt Service/Exports	In percentage points. Global Development Finance Database, serie (DT_TDS_DECT_EX_ZS).
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)

	Description and Sources of Variables (cont)
UN voting	Data ranges from -1 (least similar interests) to 1 (most similar interests). The Affinity of Nations Index database. Erik Gartzke, Columbia University.
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.
Systemic Banking Crisis	From Gerard Caprio, World Bank Finance Group. Available at: http://econ-www.mit.edu/files/1370.
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	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 *Annual Report on ExchangeArrangements and Exchange Restrictions (AREAER)*.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.

The 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.

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